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Canadian Railway AND Marine World

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Devoted to Steam and Electric Railway, Marine, Ship Building and Railway and Canal Contractors' interests. The only paper in Canada covering the whole transportation field. Circulates in every province in Canada and in Newfoundland.

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70 BOND STREET, TORONTO, CANADA

STEAM RAILWAY DEPARTMENT AND GENERAL MATTER.

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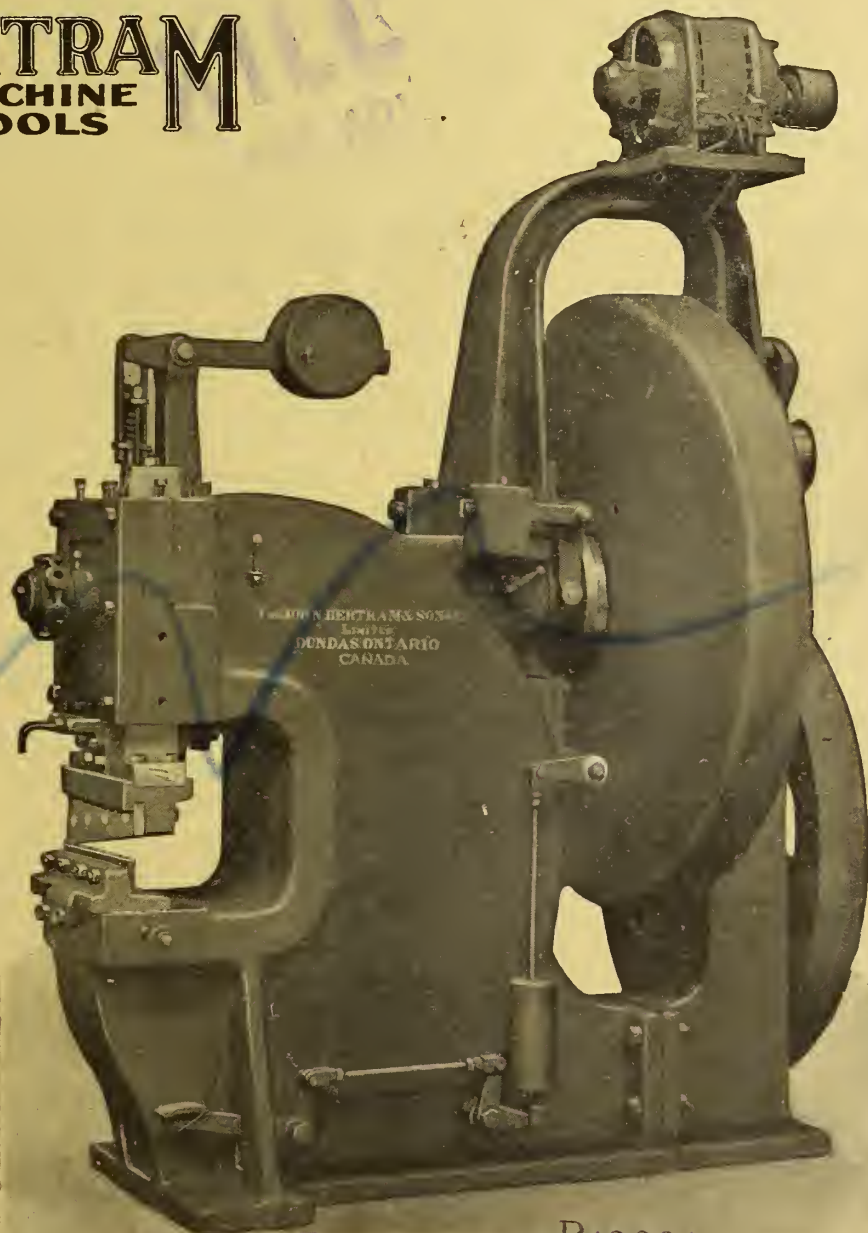
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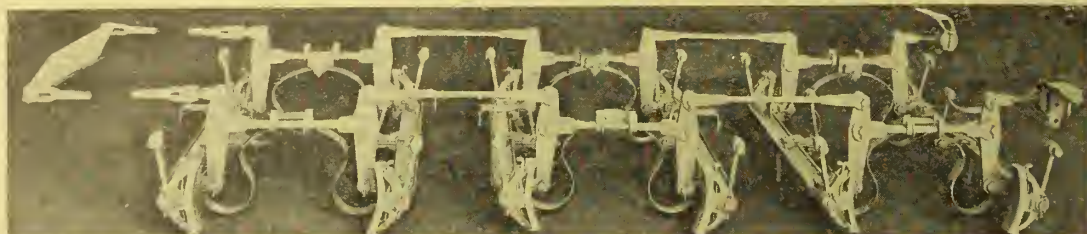
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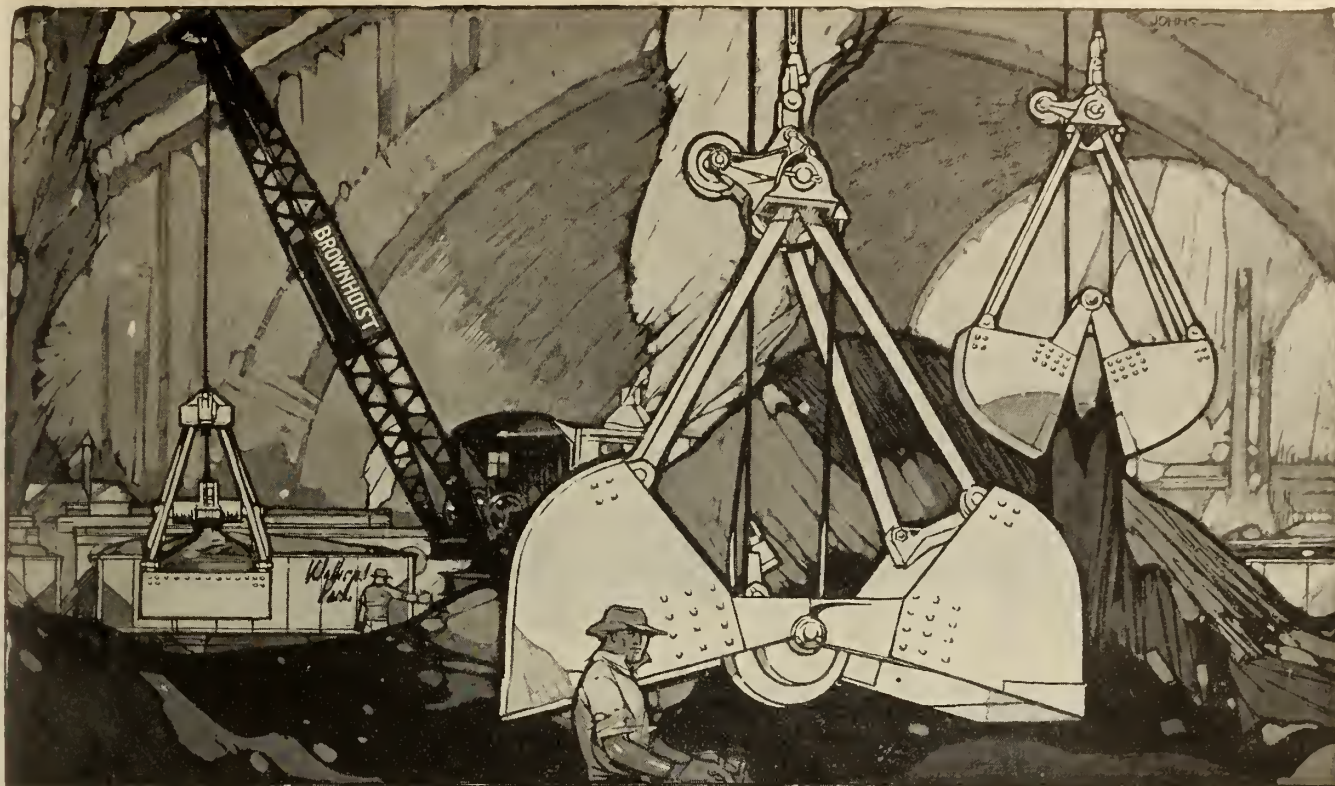
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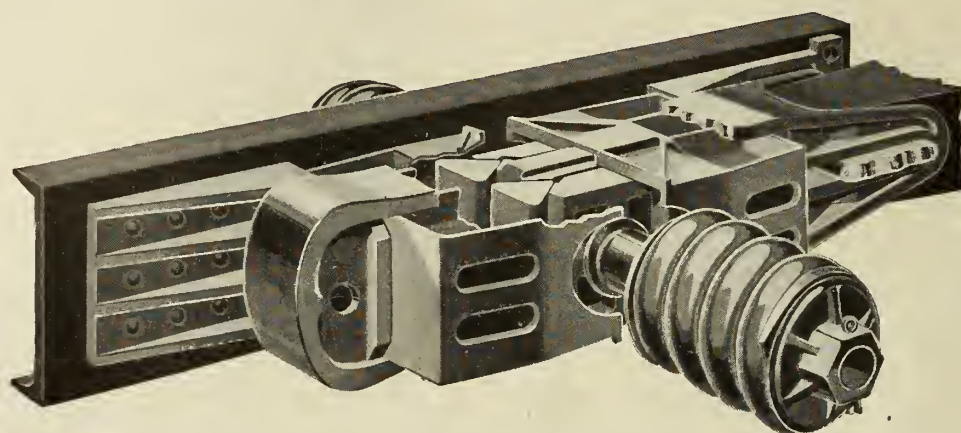
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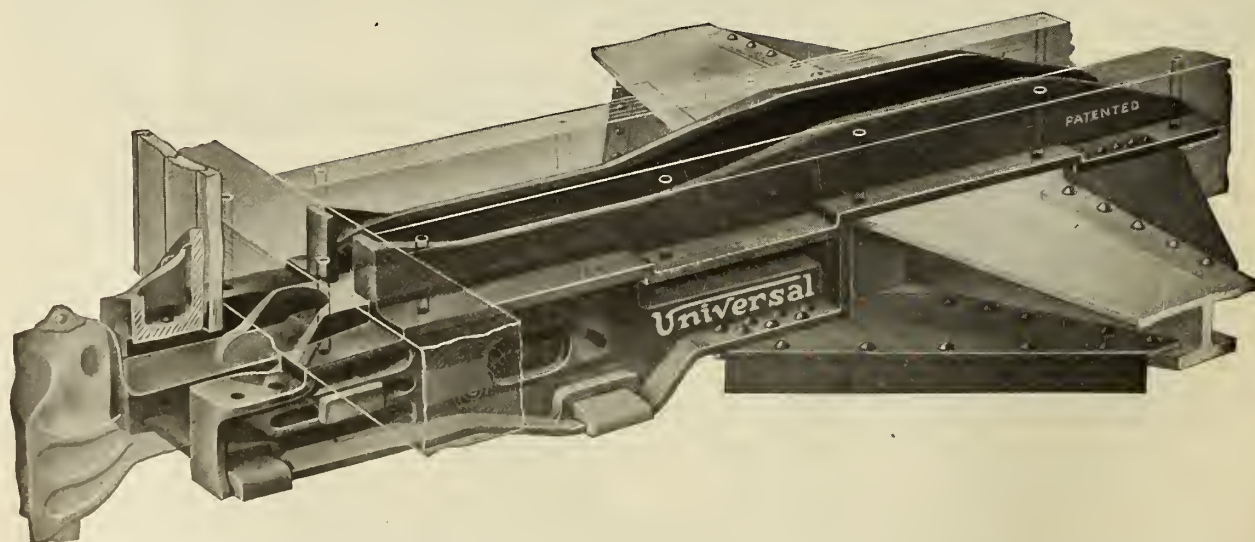
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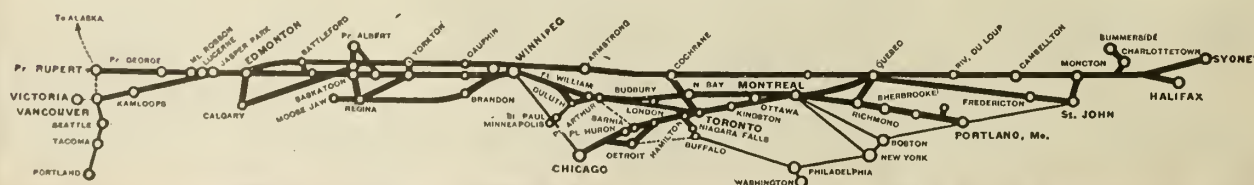
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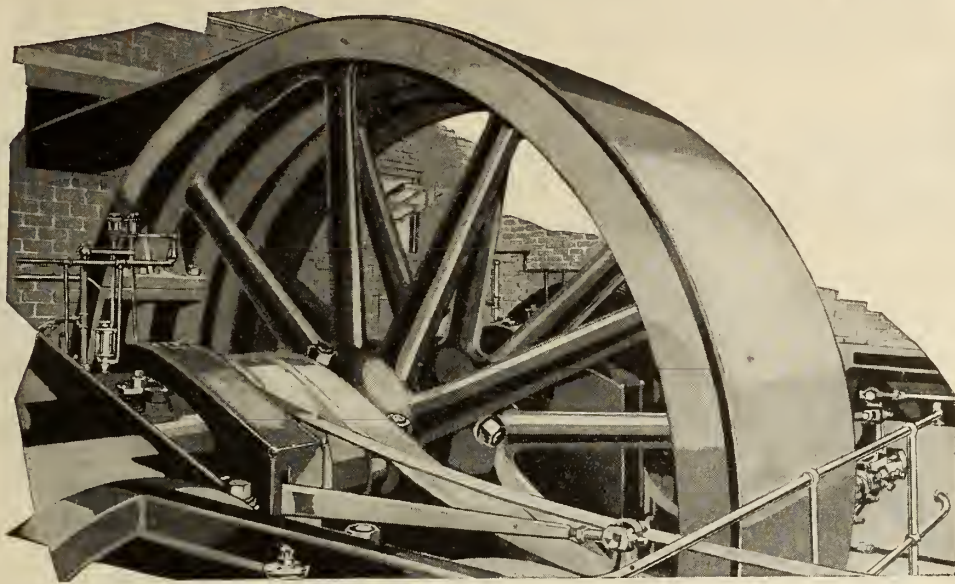
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Suction: "Para," "Star," "Trade."
Garden: "Canadian," "Dominion."

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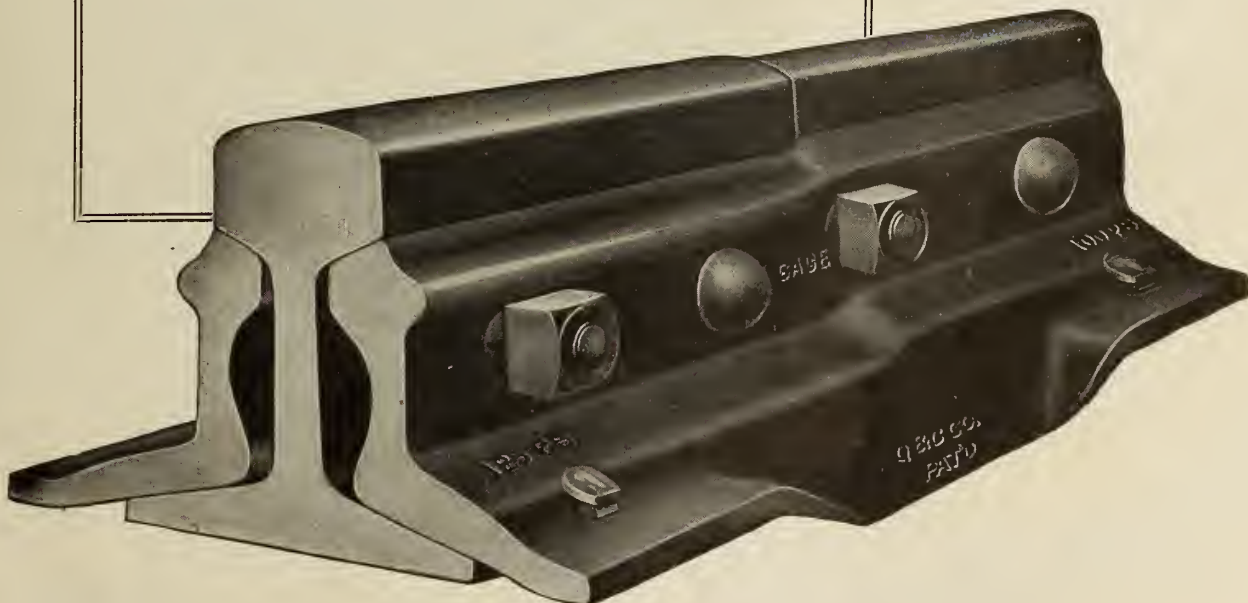
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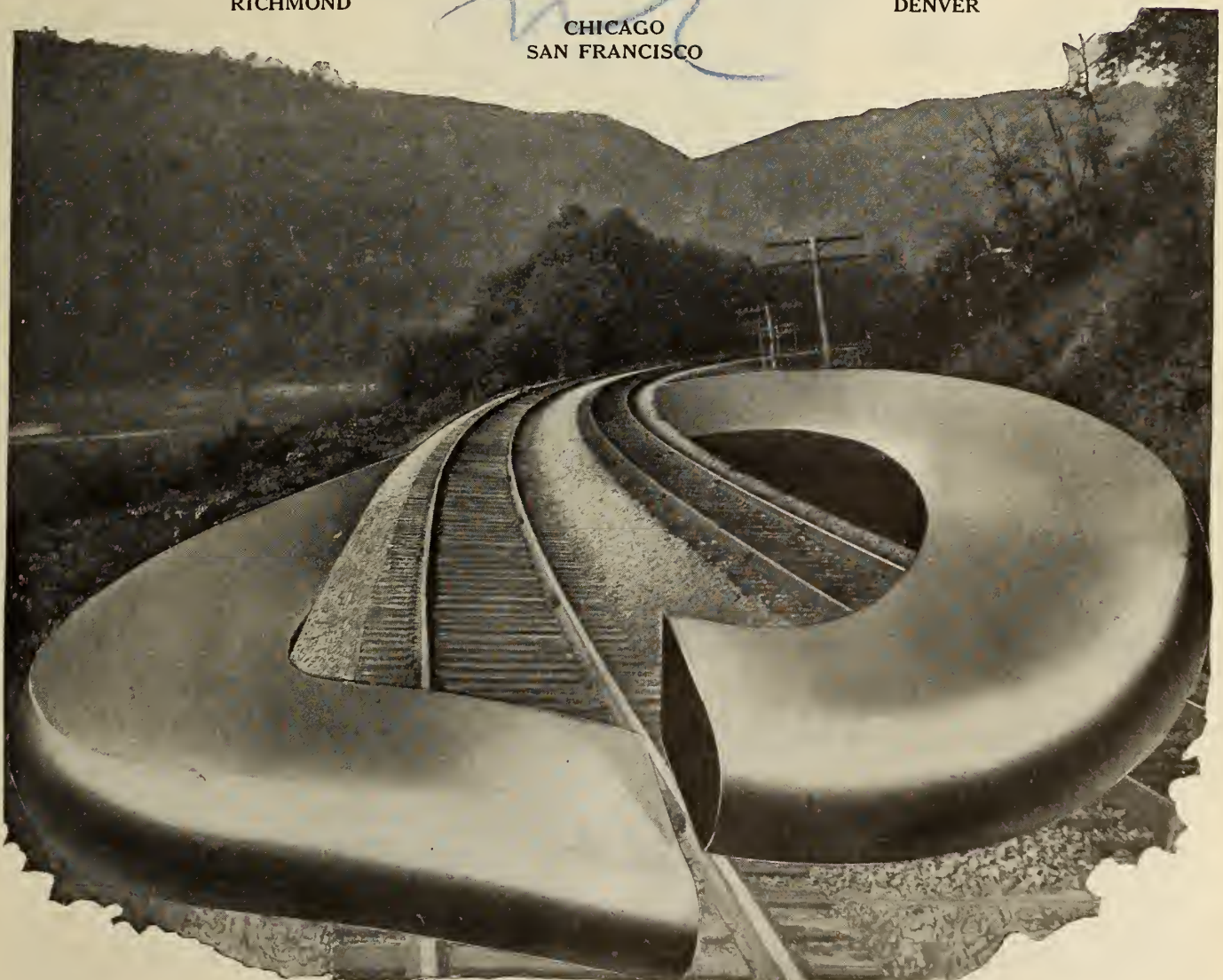
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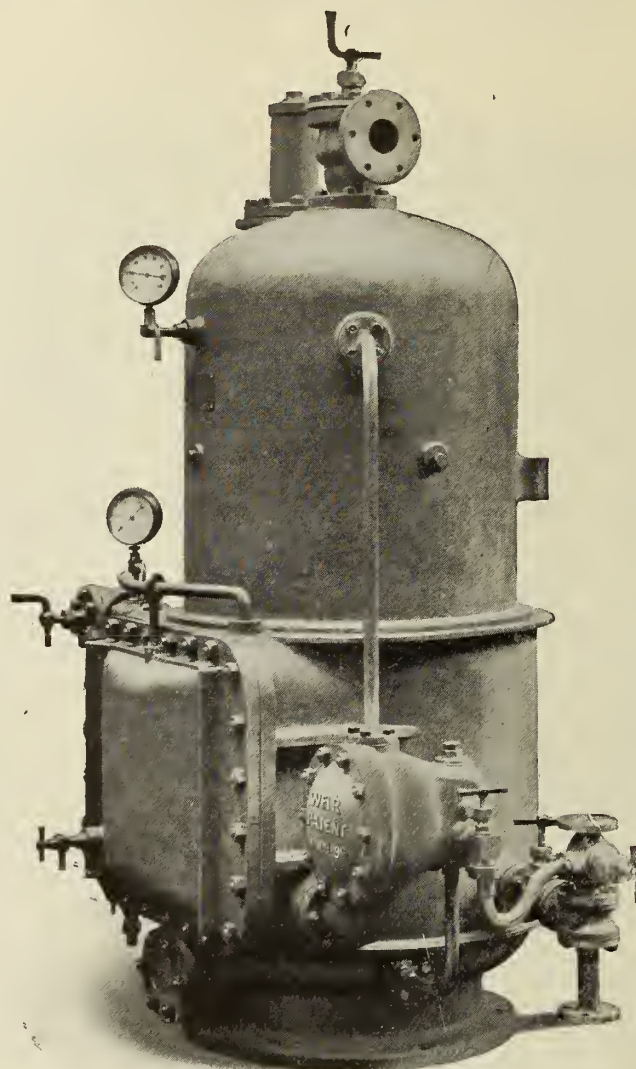
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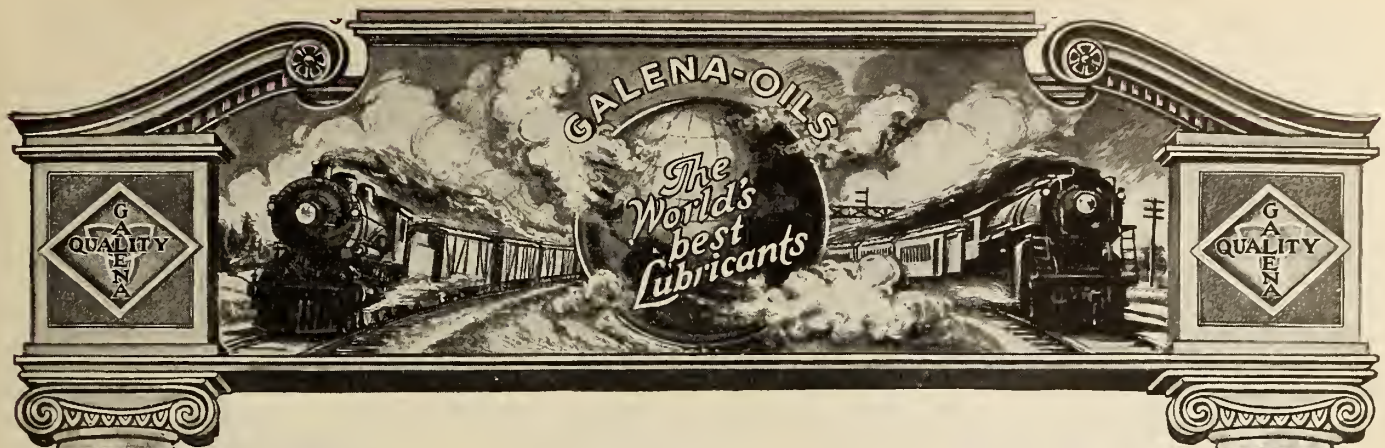
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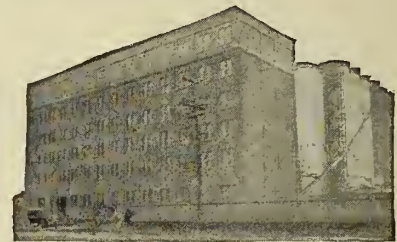
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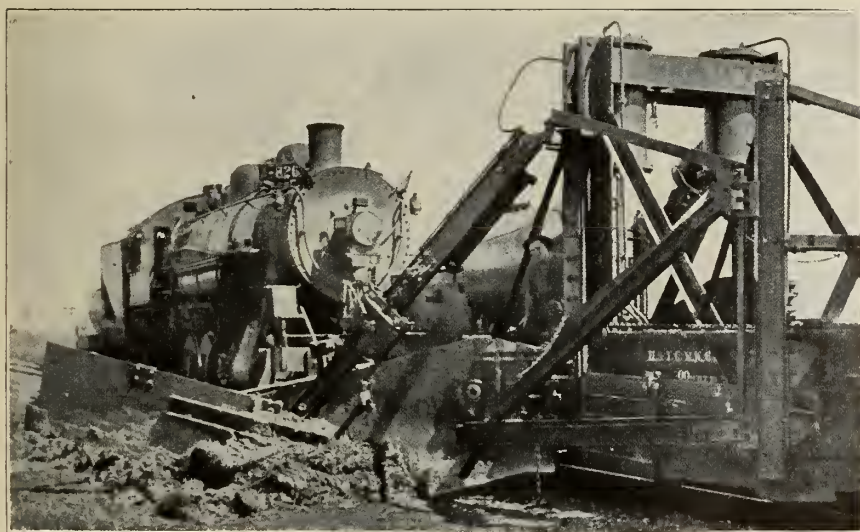


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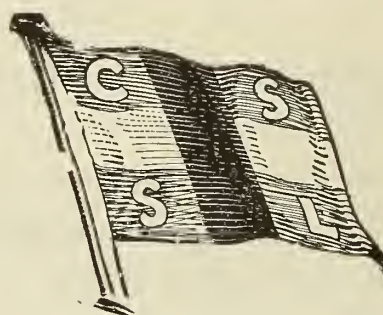
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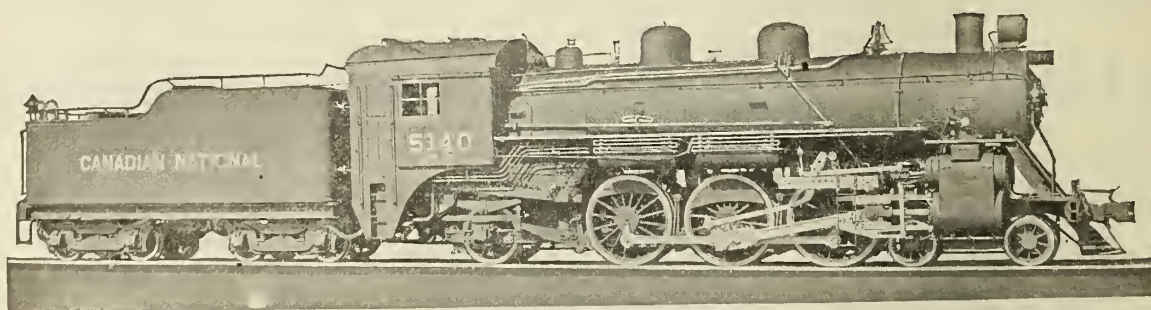
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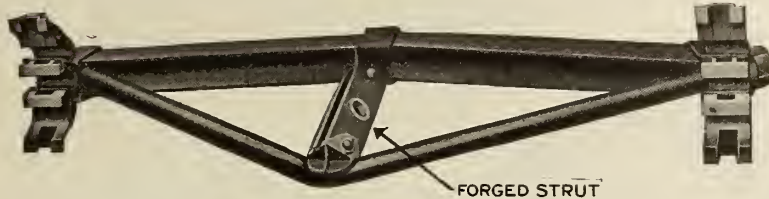
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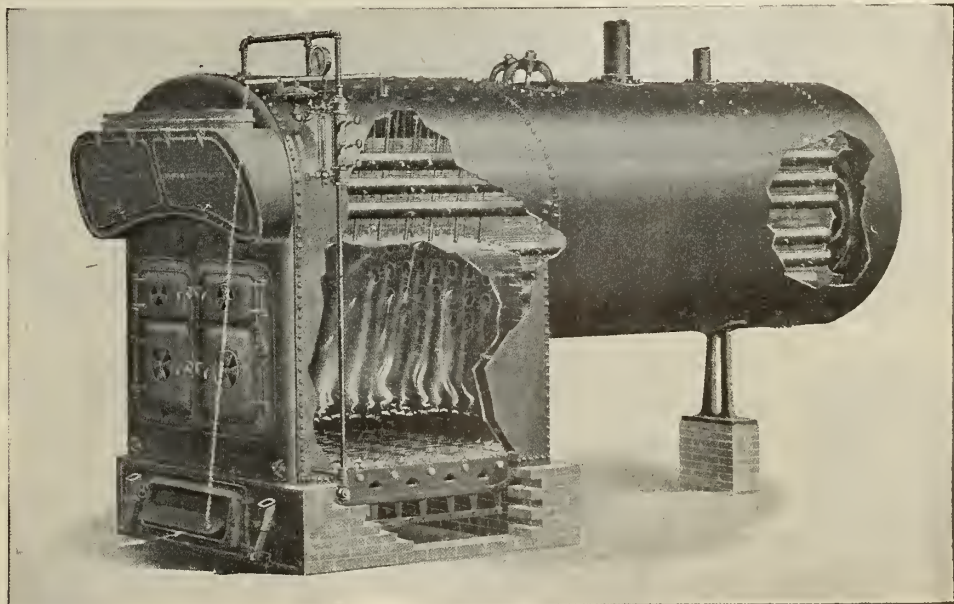
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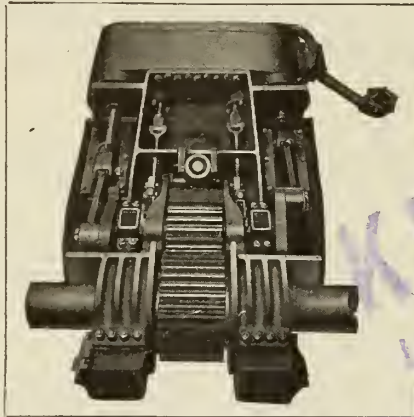
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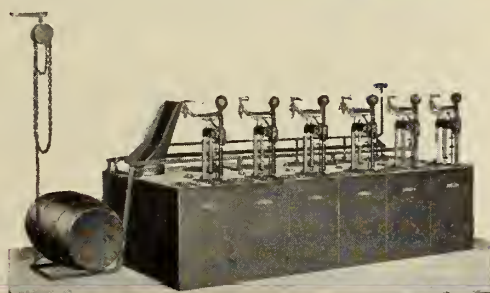
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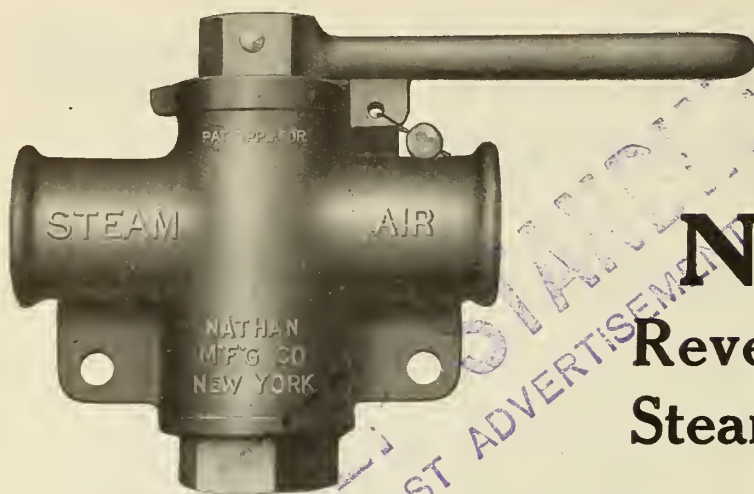
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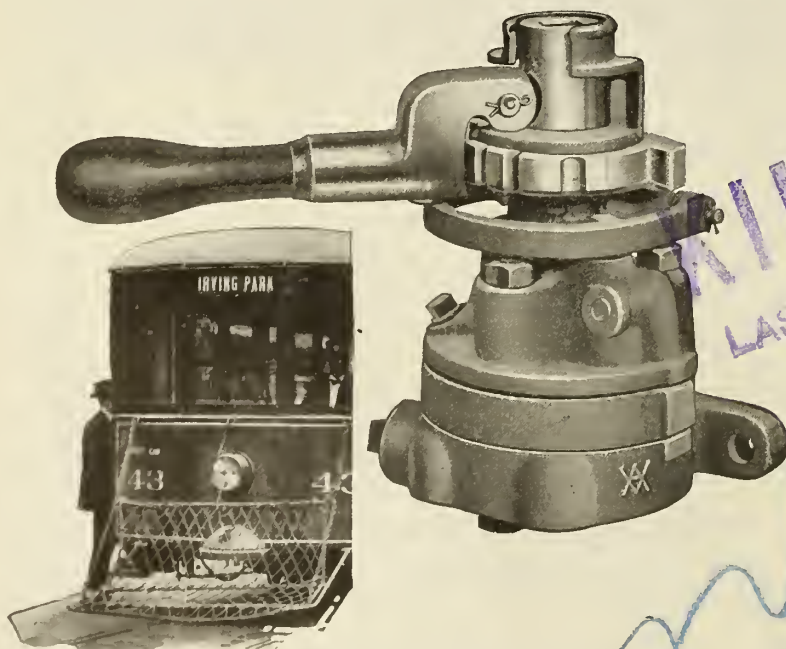
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mean more car miles, less power consumption, increased revenue, decreased operating expenses.

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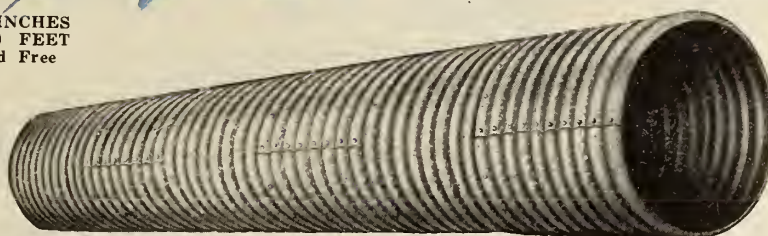
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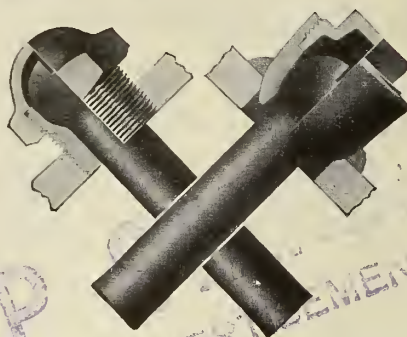
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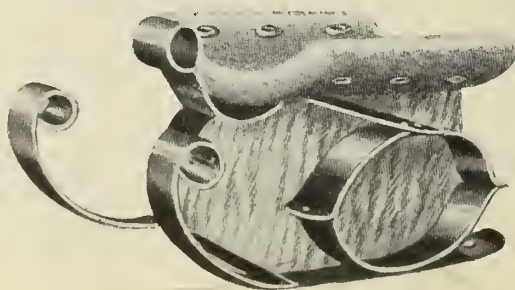
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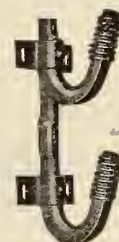
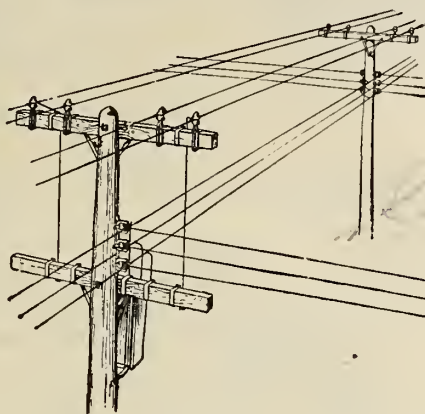
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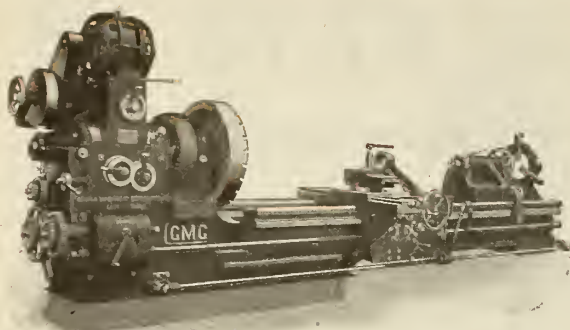
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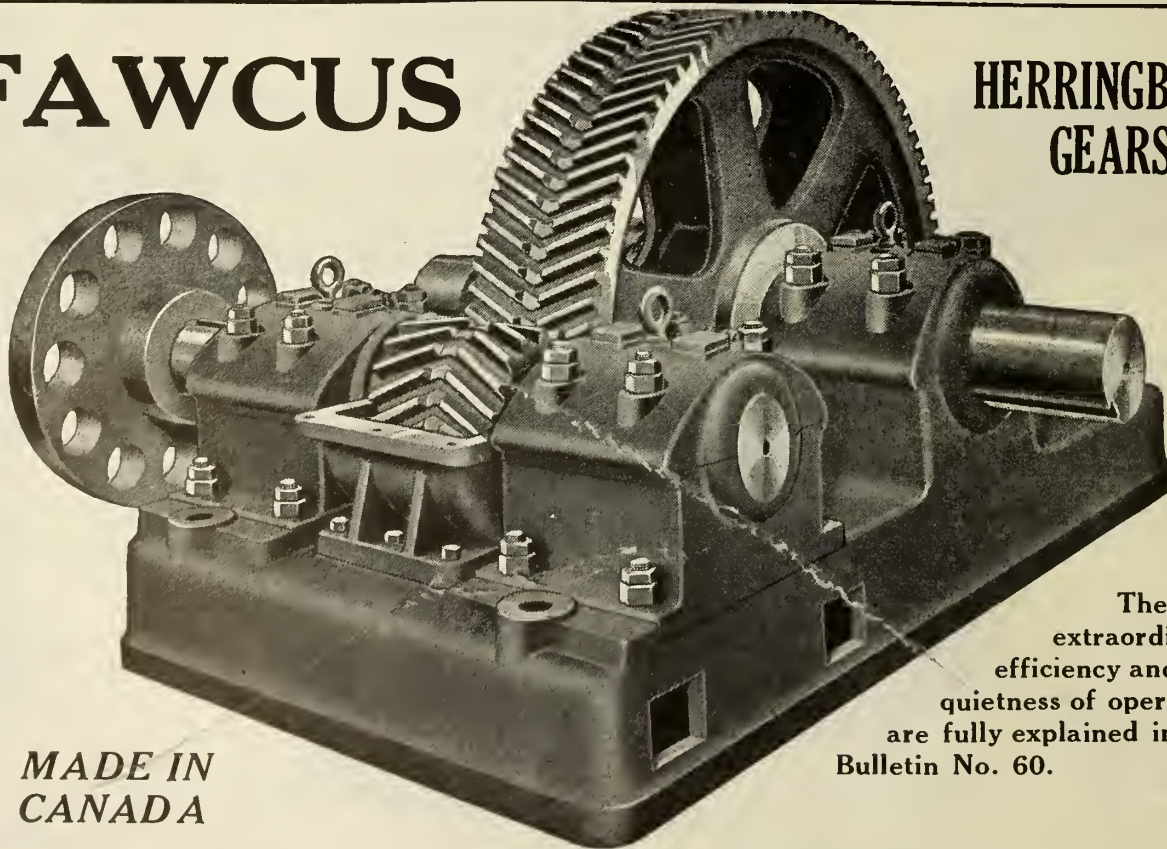
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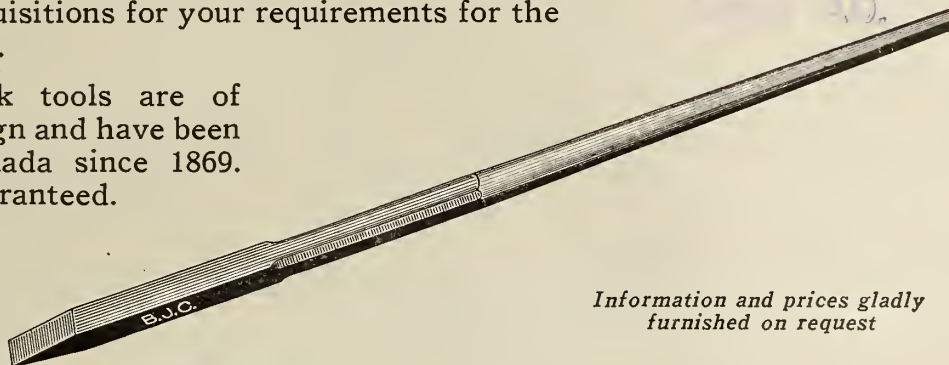
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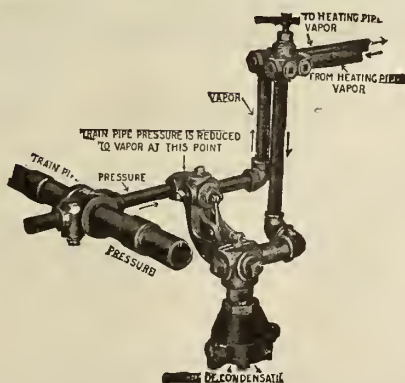
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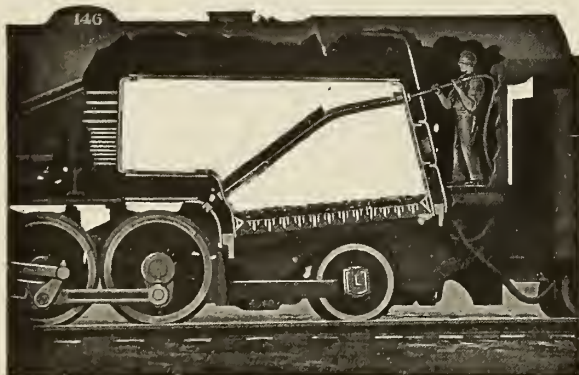
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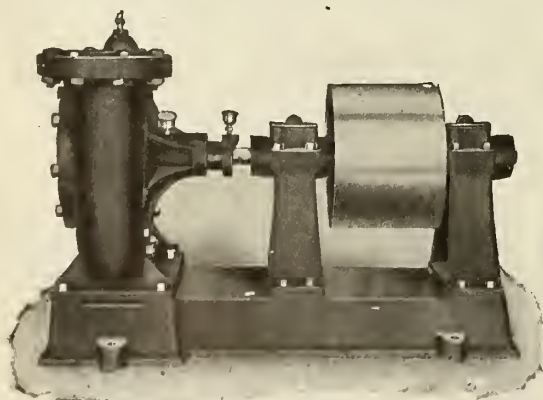
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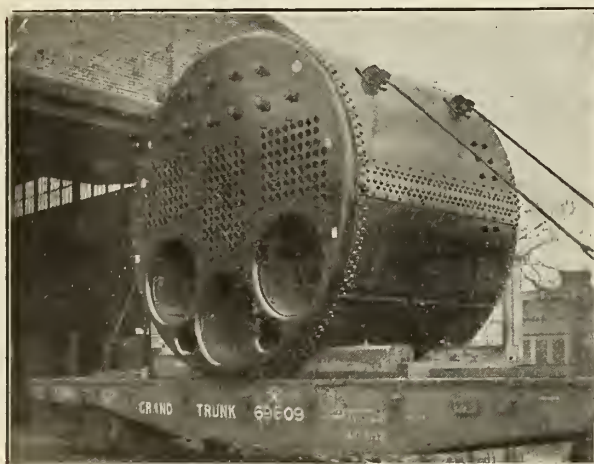
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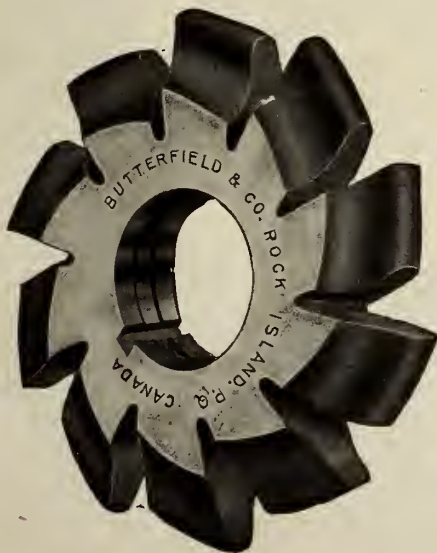
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Canadian Railway and Marine World

January, 1922

The United States Railways' Financial and Regulative Problems.

By Edwin Winfield, Assistant Editor, Canadian Railway and Marine World.

Despite a maximum of regulation, and of governmental intervention in the business of rail transportation, the railway problem in the United States is, and has been for years, one of the most important facing the Government and industry in that country. While the Transportation Act of 1920 represented a genuine effort to remove mistaken regulatory policies of the past, and to place the railway industry on a proper permanent basis, there is yet a great deal of friction in the field of regulation, and the financial problem is apparently as far from solution as ever. Up to the end of 1917, railway regulation was featured by the application of the Sherman anti-trust law, and the anti-pooling clauses of the Interstate Commerce Act, to the railway business, which meant that competition as between railways was enforced. Uniformity in competitive rates being in the nature of an essential, however, the competition was primarily one of service and solicitation. In addition to regulating rates, the Interstate Commerce Commission, and the various state commissions, undertook to regulate operation, and in that connection wrong policy was introduced, that of regulating authorities attempting to unduly usurp the functions of management. Other wrong policy included too great interference with the regulating commissions, by courts and state legislatures; lack of a dividing line as between the authority of the Interstate Commerce Commission and that of the state commissions; incorporation of large systems under the laws of one state; lack of a central authority in connection with the issuance of railway securities; the introduction of political considerations into regulation; the appointment of inexperienced and incapable men to regulating commissions; the enforcement of so great a degree of competition as to produce economic wastes in transportation, and the absence of adequate machinery for the settlement of labor disputes. The greatest mistake of all lay in the attitude of the public, and of regulating authorities, toward the railways, and in a failure to recognize that railway rates could be too low as well as too high. The tendency, which was a growing one up to the end of 1917, was to hold rates down to a minimum, and demand the maximum in service.

In 1912, the class 1 roads, i.e., those with annual operating revenue over \$1,000,000, had 249,192 miles of main track, and the investment in road and equipment was \$14,632,497,022. In the year ended June 30, 1912, gross operating revenues were \$2,805,006,544, of which 69.84% went for operating expenses. The net operating income was \$708,484,383, the rate of return on investment being 4.84%. The accompanying table 1 shows corresponding figures to the end of 1920.

It is not necessary to detail the decline in traffic and consequent decline in net earnings from 1913 to 1915; the increase in traffic and net earnings in 1916; the

increases in expenses beginning with 1917; the Interstate Commerce Commission's refusal to increase rates by 15% in that year; the increase in, or rather the congestion of, traffic beyond the railways' capacity, and the inauguration of

operating expenses were increased in far greater proportion, and net returns fell to 0.32%. But it must be remembered that while, despite increased traffic and increased rates, the railways had faced greater increases in expenses and an al-

Year ended	Miles of main track	Investment in road and equipment	Gross operating revenues	Operating ratio	Net operating income	% of return
June 30						
1912	249,193	\$14,632,497,022	\$2,805,006,544	69.84	\$708,484,383	4.84
1913	254,821	15,284,763,489	3,108,361,215	69.92	787,610,435	5.15
1914	259,140	15,842,127,273	3,031,326,963	72.69	661,018,147	4.17
1915	262,425	16,257,146,632	2,871,563,047	70.39	683,104,833	4.20
1916	264,920	16,688,440,056	3,381,597,866	65.38	984,872,959	5.90
Calendar year						
1916	265,803	16,884,440,038	3,596,865,766	65.54	1,040,084,517	6.16
1917	267,574	17,762,152,127	4,014,142,748	70.48	934,068,770	5.26
1918	269,175	18,213,629,613	4,880,953,480	81.58	638,568,603	3.51
1919	270,557	18,529,749,653	5,144,795,154	85.52	454,984,953	2.46
1920	270,334	19,100,000,000	6,171,493,301	93.47	61,928,626	0.32

Federal control when a financial and physical breakdown of the railways seriously threatened. It is sufficient to say that when, in Dec. 1917, the Interstate Commerce Commission informed Congress that it had two alternatives, either the repeal of the Sherman anti-trust law, and the anti-pooling clauses of the Interstate Commerce Act, so far as they affected the railways (which were hampering the railways in their efforts to co-operate), together with large financial assistance, or else Government operation, the latter alternative was chosen, and at the beginning of 1918 operation of the railways was placed in the U.S. Railroad Administration's hands. The Government contracted to pay the owners of the railways, for the period of Federal control, a rental based on the average return for the preceding three years, and to return the properties in as good physical condition as when taken over.

The earnings of the railways while under Government operation were such that the contract required the payment of considerably over a billion dollars from the U.S. Treasury to the railway owners, to make up the operating losses incurred by the Railroad Administration. As shown in table 1, the roads earned at the rate of but 3.51% in 1918, and 2.46% in 1919. Expressed in another way, in 1918 the railways earned for the Railroad Administration 76.8% of the income which was paid over to them, and in 1919 they earned but 57.8% of it. Federal control ended Feb. 29, 1920, when the roads were handed back to their owners, with a six months extension of the Government guarantee to such of them as cared to accept it, on condition that any net income earned in excess of that guaranteed should go to the Government. The majority of the railways took advantage of this and at the end of the period, Sept. 1, 1920, the Government owed the railways an additional \$620,000,000, to make good the provisions of the six months extension of the guarantee.

The year 1920 was the most remarkable one in the history of U.S. railroad-ing. More freight and passengers were moved than ever before; gross operating revenue was the highest on record; but

most total disappearance of net operating income, their financial returns were protected by Government guarantee until Sept. 1, 1920, the Government absorbing the loss occasioned by the difference between net income earned and rental paid. During the six months guarantee period the Transportation Act was passed; the Railroad Labor Board, brought into being by it, established in July a new and increased scale of wages, and in August the Interstate Commerce Commission established a new and increased scale of rates, planned to afford the railways an adequate financial return on the basis of the new level of expenses. On Sept. 1, 1920, the guarantee period having expired, the railways were once more in the position of having to look after themselves financially.

Month	Net Operating income	Equivalent rate of annual return
Sept. 1920	\$75,310,311	4.1%
Oct. 1920	86,455,487	4.6%
Nov. 1920	54,343,793	3.3%
Dec. 1920	10,225,583	0.7%
Jan. 1921	*958,339	
Feb. 1921	*7,378,307	
Mar. 1921	30,695,192	2.2%
Apr. 1921	29,248,874	2.1%
May 1921	37,080,654	2.3%
June 1921	51,641,014	3.0%
July 1921	69,298,521	4.5%
Aug. 1921	90,241,103	5.0%

*Deficit.

Table 2 shows the operating results, by months, for the year ended Aug. 31, 1921. In Sept., Oct., Nov. and Dec. 1920, the railways earned at a rate representative of an annual return of 4.1%, 4.6%, 3.3% and 0.7% respectively, on the basis of their value as prescribed by the Interstate Commerce Commission in accordance with the Transportation Act, and which corresponds closely to investment in road and equipment. Almost coincident with the removal of the Government guarantee, world wide economic conditions caused the beginning of a large traffic decrease, which continued throughout the winter, and in some degree, to the present time. In Jan. and Feb. 1921 the railways experienced operating deficits, and in March, April, May and June, as shown by table 2, they earned at the annual rate of 2.2%, 2.1%, 2.3% and

3.0% respectively. During these months, settlements with the Railroad Administration on account of the six months guarantee were held up by the refusal of the Treasury officials to honor certificates of indebtedness to the railways issued by the Railroad Administration until the accounts had been finally adjusted. Final adjustment as between the Government, as represented by the Railroad Administration, and the railways was impossible in so short a time. While the Winslow Act, passed in Feb. 1921, authorized the Treasury to make partial payments on account of the guarantee, the payments were made slowly. Many of the railways advanced claims against the Railroad Administration, alleging that their properties had been undermined during the period of Federal control, and handed back in poor condition. These claims were contested by the Railroad Administration, adding to the delay in determining balances.

During the period of Federal control, the Railroad Administration advanced \$1,144,000,000 for additions and betterments for the railways. Of this sum, \$381,000,000 spent for locomotives and cars was funded by the railways issuing equipment trust certificates, maturing serially. An additional \$71,000,000 was funded by individual roads, and in the course of the settlements between the Railroad Administration and various railways, \$137,000,000 of the railway debt to the Government was set off against an equal sum owed by the Government to the railways. On Oct. 1, the Government, as represented by the Railroad Administration, owed the railways \$835,000,000, the debt arising out of the period of Federal control, and the unfunded debt of the railways to the Government was \$555,000,000. In connection with the settlement of accounts arising out of Federal control, as between the railways and the Government, the Transportation Act of 1920 states that after the Government's debt to the railways is set off against what the railways owe the Government, the railways' remaining indebtedness may be funded. In view of the railways' financial condition, and of the fact that the railways contracted these debts through the making of capital expenditures, which would ordinarily have been made in connection with security issues, legislation has been introduced in Congress which would allow the railways to fund their remaining indebtedness to the Government to the extent of \$500,000,000, and which would authorize the Railroad Administration to sell the railway securities now held, and pay the Government's debts to the railways as quickly as settlements are arrived at. Although it is probable that not more than \$150,000,000 of the railways' debts to the Government would be funded under this legislation (the remainder of the debts being set off against the amounts owed the railways by the Government), the bill embodying the legislation has met great opposition in the Senate, although it passed in the House of Representatives some time ago. Senators hostile to the railway interests are attempting to use the bill as a vehicle for amendments to the Transportation Act, further delaying its passage in the Senate.

The average return earned by the railways during the first six months of 1921 was at the rate of 1.8% annually, and during this period they were in a precarious financial condition, and maintenance suffered greatly. In May 1921, 26.9% less was spent on maintenance of way

than in May 1920, and in June 27.3% less than in June 1920. Corresponding reductions are shown in the maintenance of equipment accounts. The proportion of bad order equipment since the first of the year has been abnormally high, and the situation to the end of June may be described by stating that what income the railways did earn was secured only by deferring expenditures for maintenance which should have been made.

Table 3.

Calendar year		Average annual	
		Total payroll	earnings per employee
1916		\$1,468,576,394	891.61
1917		1,739,482,142	1003.81
1918		2,613,813,351	1419.34
1919		2,843,128,432	1485.89
1920		3,698,216,351	1820.05
1st 3 mos. 1921	....	757,325,356	1790.93(a)
2nd 3 mos. 1921	....	699,684,795	1784.75(b)
At present	.....		1570.00(c)

(a) On basis of 1st quarter.
(b) On basis of 2nd quarter.

(c) After 12% reduction of July 1, 1921.

The increases in the U.S. railway payroll from 1916 are shown in table 3. The last increase was that given by the Railroad Labor Board's decision 2, in July 1920, retroactive to May 1, 1920. These rates were in effect during the first six months of 1921, and under them the average earning per employee in the second quarter of 1921 was at the rate of \$1784.75 annually. While this figure does not support the prevailing public impression that railway wages are excessively high, it nevertheless represents an increase of 108% over the average earning in 1916. The Labor Board's decision 147, effective July 1, 1921, may be expected to bring the average annual compensation per employee down to about \$1570. The recent threatened strike was influenced largely by the railway executives' intention of applying to the Labor Board for a further reduction in wages, sufficient to restore the 1919 standard. While it is evident that the rates of wages in effect prior to the reduction of July 1 were relatively higher than commodity costs, as compared to the relationship in 1916, railway employees maintain that the wages paid prior to Federal control were entirely inadequate, and not in keeping with the hazards, responsibilities and discomforts of the work, and therefore not applicable as a basis for comparison. The railway executives are going ahead with requests to the Labor Board for further wage reductions, and in view of the fact that the Board is now about ready to consider the disputes which will inevitably follow, it is evident that the wage question will again be an important issue in the near future.

Coincident with the application of the wage reduction in July, traffic conditions began to improve somewhat. In July the railways earned at the rate of 4.5% annually, in August at the rate of 5% annually, and in September the net operating income earned was \$87,000,000, representative of a return of 4.6% annually. While apparently the railways at the end of August had about turned the corner financially, as a matter of fact they are as a whole still faced with grave financial problems. Demands for freight rate reductions have been insistent in all parts of the U.S. since early spring, and there appears to be a popular tendency on the part of the public to blame all the economic ills peculiar to a period of financial deflation and economic reaction on the present scale of freight rates. A large portion of the public believes that rate reductions would automatically increase tonnage, and thus benefit the rail-

ways in the end. The railways, while making individual rate reductions which aggregate a large total reduction, regard the public belief as an economic fallacy and an invitation to them to commit financial suicide.

Table 4.

Period	Average receipts per ton mile	Per passenger mile
Year ended June 30, 1912	0.730c.	1.978c.
1913	0.719c.	2.002c.
1914	0.723c.	1.976c.
1915	0.722c.	1.979c.
1916	0.707c.	2.002c.
1917	0.707c.	2.042c.
1918	0.715c.	2.090c.
1919	0.849c.	2.414c.
1920	0.973c.	2.540c.
1st quarter of 1921	1.052c.	2.747c.
	1.269c.	3.127c.

Table 4 shows the fluctuations in freight and passenger rates since 1912. As a matter of interest it may be stated that freight rates were lower in 1917 than in 1891, in which year the average charge per ton mile was 0.9c. No comment is needed concerning the relative change in commodity prices as between the two years, and no explanation is required to show that the ratio of the annual national cost of rail transportation to value of annual national production of wealth had decreased materially. This can be set down as due in part to traffic increases, involving smaller unit costs in handling; in the main, however, it has been due to the efficiency with which railroading has been carried on. A study of the table shows that freight rates were 74% higher in the first quarter of 1921 than in 1912, and passenger rates 58% higher. It will also be seen that rates were not increased in 1919 and 1920 in accordance with the increase in commodity prices. One cannot help feeling that if Government interference in the field of economics had not resulted in this restriction of the price of transportation, while all other prices reflected the effects of inflation, and that if rates had moved up and down in company with all other costs, instead of having to be increased at a time when other costs had passed their maximum, there would not be the degree of complaint concerning them that there is today.

As between 1912 and the first part of 1921, it is probable that charges for transportation service were not out of line with costs and commodity prices generally. It must be admitted, however, that rates were comparatively high for certain classes of traffic, notably agricultural products. Farmers have experienced deflation in probably greater degree than any other class, and it is evident that their reduced purchasing power has been a great factor in the industrial depression, probably a greater factor than has been the almost total elimination of purchasing power on the part of U.S. railways. Regarding the matter from a public viewpoint, it is essential that transportation costs for the farmer be made as low as they can be; this has been recognized by Canadian railways in the rate reductions voluntarily made by them, and in the U.S. the Interstate Commerce Commission recommended substantial reductions in western rates on grain, grain products and hay. While these reductions had not been put into effect at the end of November, the railways have announced their intention to make a 10% reduction in the rates on all agricultural products, effective at once.

Regarding the matter again from the railway viewpoint, the Transportation Act states that the railways in each rate

territory shall be granted rates which shall yield them, after honest, efficient and economical management, a return of 5½%, or, at the discretion of the Interstate Commerce Commission, 6%, this standard of what constitutes a fair return being subject to future variation, however. To earn at the rate of 6% during the year immediately following the resumption of purely private operation (the year ended Aug. 31, 1921), the railways should have earned a net operating income more than twice as large as they did earn. The net operating income earned was \$530,665,927, which was \$571,342,073 less than they should have earned to secure 6% on their valuation as determined by the Interstate Commerce Commission. Instead of earning 6%, they earned 2.9%.

While, of course, 1921 has been a year of business depression, in which many business undertakings have done well to merely break even, it is nevertheless evident that under the first year of the Transportation Act's operation the credit of U.S. railways has not been protected as the act was designed to protect it. While it may be expected that some further downward adjustment in railway expenses may be made, to the end that further rate decreases may be given where most needed, it would appear from this distance that if the Transportation Act is to be lived up to at all, transportation rates must be on a higher basis and bear a higher ratio to commodity values generally than in pre-war times. Various interests are at work in the U.S. to have the rate making clauses of the Transportation Act (which also contain provision for repayment to the Government of one half of all earned over 6%), repealed, but it would not seem to make much difference whether they are repealed or not. If the U.S. people want adequate transportation facilities, the railways will have to be allowed to earn adequate revenues. Irrespective of whether legislation contains a standard of what the railways should earn, or not, if they are not allowed to earn sufficient to maintain their credit, and provide necessary new capital, a natural and economic law is being violated, and the community will suffer in the end. The rate making clauses of the Transportation Act of 1920 merely incorporate an important natural and economic law in legislation applying to railways. As just stated, it appears immaterial whether the measure of adequacy of earnings is specifically mentioned or not; but perhaps it would be well to have that measure stated plainly and recognized by all. Perhaps it would be well if the rate making clauses remained in the act, simply as a permanent reminder to the regulating authorities of the economic law which gave rise to the insertion of those clauses, and it would certainly be well if, in the effort to get cheap transportation, this law be not violated unduly.

In addition to providing for the settlement of accounts arising out of Federal control of the railways, and for a policy of rate regulation based on a just and reasonable return on the value of railway property used in the public service, the Transportation Act of 1920 made other considerable changes in railway regulating policy. To provide for the settlement of labor disputes, it created the Labor Board, consisting of three public, three management, and three labor members, to hear and decide disputes between railways and their employees which direct negotiation might fail to settle, and

also, taking into consideration various conditions prescribed in the act, to state just and reasonable rates of pay and working conditions. The act affects the regulative power of the state commissions by giving the Interstate Commerce Commission power to remove discriminations caused by intrastate rates which are out of line. Generally, the act greatly increases the Interstate Commerce Commission's powers and duties. The application of the Sherman anti-trust law and anti-pooling clauses of the Interstate Commerce Act to the railways has been largely removed, and it is provided that railways may consolidate their properties, if it can be shown to the Interstate Commerce Commission's satisfaction that such consolidation would be in the public interest. The act further provides that the Commission shall prepare a tentative plan for the consolidation of the U.S. railway systems into a limited number of large systems. The regulation of railway securities has also been given to the Commission.

Opinions differ as to the value of the regulative policy thus introduced. It is felt by many that a policy of regulation wherein revenues (rates) are controlled by one regulative body, while wages, representative of the greater part of operating expenses, are controlled by a totally independent tribunal, automatically creates an impossible situation. In its recent decision on western grain rates, the Interstate Commerce Commission practically said that wages as fixed by the Labor Board were of no importance to it in arriving at rate decisions. One member stated that the rates prescribed by the Interstate Commerce Commission, after expert study of the situation, should be accepted by the Labor Board as a condition to be given consideration in determining wage scales; in other words, he considered it the Labor Board's duty to adjust wages in accordance with rate adjustments as made by the Interstate Commerce Commission. A public member of the Labor Board has stated that that body cannot undertake to regulate wages on the basis of prevailing rates, and in a recent decision of the Board it is stated that the financial position of a railway is entitled to merely "secondary" consideration in arriving at a determination of just and reasonable scales of wages for its employees. We have said that the railways must be better paid for their transportation service if the Transportation Act is to be lived up to, but it is evident that if the Interstate Commerce Commission lowers rates, and the Labor Board does not reduce wages to compensate, the Transportation Act is not being enforced, and investors in railway securities are being discriminated against. Regarding the matter from the public viewpoint, if the Labor Board is wrong, and maintains wages that are economically unjustified, while the I.C.C. puts in rates that are economically justified, the public is losing in the long run by poorer railway service caused by the railways having to pay these wages while receiving inadequate revenues. If the Labor Board is right, and maintains wages that are economically justified, while the Interstate Commerce Commission puts in rates that are lower than they should be, the public gets the benefit of these low rates for the time being, but loses in the end through poor service and a breakdown of railway credit. If the Labor Board and Interstate Commerce Commission correspond in their views concerning wages and rates, which are both

economically justified, the railways and the public are protected, but if the Board and the Commission disagree, and either one or the other is not justified in its stand by prevailing economic conditions, the public is not protected, in the final analysis. As stated above, many are of the opinion that this dual system of regulation is valueless, and it is evident that the enunciation of a definite policy involving correct principles and co-operation in putting them into effect is a necessity.

Further, the feeling is prevalent in railway circles that regulation has usurped more of the functions of management than ever, and that a continuation of the present system will have a tendency to check initiative and development in railway operating methods. The state commissions have opposed, by every means at their command, the removal of their control over intrastate rates, a test case now being before the U.S. Supreme Court, and an amendment to the Transportation Act, which would practically remove the Interstate Commerce Commission's power to interfere with state rates, is being considered. The passage of such an amendment would be a great backward step. It was expected that the consolidation plan would go far in removing the "strong and weak road problem" (some roads earning good returns, with others in the same rate territory continually on the verge of bankruptcy, on the same rates), and although the Interstate Commerce Commission has already advanced a consolidation plan, consolidation is not compulsory under the act, and the attitude of the railways remains to be seen. It is difficult for any law to restrain the natural human tendency to attain to power, and for that reason the temptation to inject politics into regulation will still exist, as will also the temptation for unqualified men to attain to places on regulating commissions, and to attempt to assume the functions of railway managers when they attain them. The view may be taken that, despite the best that public regulation can do, the railway industry is so large and important that the railway problem is inseparably connected with all the financial, economic and social problems of the country, and therefore incapable of final settlement. However that may be, it is now recognized by thinking citizens that national progress and development are connected with, and largely dependent on, progress and development in the railway industry, and that the railways cannot be again regulated into poverty without a repetition of the near-breakdown of 1917, and the financial disaster of Federal control. When it is realized, in the U.S. or in any other country, that the mere fact of it being in the public power to regulate rail rates does not mean that transportation service can be bought for less than its economic value, over a period of time, the railway problem of that country will be much nearer a final solution than prior to the realization of that fact.

Transportation Lodge, A.F. and A.M., was inaugurated at Toronto, Dec. 13, when the following officers were installed:—John Boyd, W.M.; J. W. Hickson, I.P.M.; W. Tansley, S.W.; L. C. Groom, J.W.; G. A. Hoag, chaplain; L. L. Grabill, Treasurer; H. R. Butterill, Secretary; T. J. Gracey, J.D.; P. V. Lord, I.G.; H. C. Kendall, S.S.; A. R. Curran, J.S.; C. G. Smith, D. of C., and B. Spence, organist.

New Method of Handling Express Matter in Montreal.

The Dominion Express Co.'s Montreal office has had in operation for the past few months a unique and interesting system for the conveyance of express matter in transfer between stations in the city, and the distribution of delivery and collection pick-up in districts situated four and five miles from the railway stations. Some idea of the volume of

ter of seconds only. The driver never leaves his seat. In coupling he backs his tractor into position in front of the trailer, raises a lever, backs into the trailer, which rides up on to the rear of the tractor, the trailer front wheels are pushed up, brakes released and coupling locked automatically and it is ready for the road. In uncoupling, the driver raises

dent is minimized, by the fact that the tractor cannot become separated from the trailer without the trailer front legs being pulled down and the brakes set, in which case the trailer would run along only a few feet before it stopped.

The station staffs attend to the loading and unloading of the trailers, which handle 40 to 50 loads daily. The two tractors are continually in motion, hauling these six trailers (one at a time) from one station to another and traveling from 90 to 100 miles each daily. The whole system is operated on a regular schedule, which is as strictly adhered to as a train schedule. By this system the movement of transfer has been expedited, stations have been kept clear of transfer matter and economies effected over the relatively slower movement and smaller capacity of wagon transfer.

For delivery and pick up the trailers are used as substations. They are filled with delivery at the station and moved to certain designated points in outlying districts, where wagon equipment is kept and horses boarded. Distribution of delivery is made from these points, outward shipments picked up by these wagons, are loaded into the trailer, which is then removed to the station for billing and forwarding. The result is earlier and more satisfactory deliveries, better connections with outward shipments arriving earlier at stations and again the economy of quicker movement and larger loads than with wagons.

Hopper and Gondola Cars.—The American Railway Association, Mechanical Division, has issued the following circular:—In April, 1919, the Division of Operation, U.S.R.A., requested the regional directors to issue instructions to the railways with reference to U.S. standard hopper and composite gondola cars which were built without sheave wheels on the brake shaft end of the hand brake rod, which cause considerable reduction in hand brake power. It is desirable that this work should be brought to a conclu-



Loading Dominion Express Co.'s Trailer at Windsor St. Station, C.P.R., Montreal.

transfer passing through Montreal can be gathered from the fact that every shipment moving from east to west of Montreal and vice versa must be handled by the Montreal staff, and a large proportion of it in cross town transfer from one depot to another. A large number of manufacturing concerns, many of them most important express shippers, are situated four and five miles from the stations. The expeditious and economical handling of these two classes of traffic has been a problem for a number of years, which has been solved to a large extent by the tractor trailer system.

The two tractors are simply 2-ton trucks, with a fifth wheel or turning plate mounted on the chassis, in place of the ordinary truck body, and in the center of this fifth wheel is one portion of the automatic coupling device. The five trailers are large completely enclosed bodies, with a capacity of $3\frac{1}{2}$ tons, or 518 ft. cubic measurement, each mounted on two rear wheels, with solid rubber tires, and two small front wheels, with folding legs, to hold the trailer up and permit the movement to any desired position when free from the tractor. On the front of the chassis of the trailer are two small wheels for mounting the track of the fifth wheel on the tractor, and permit turning of the equipment within a small radius when coupled up; also the other portion of the coupling device, by which the tractor and trailer are coupled up.

The coupling and uncoupling is a mat-

another lever, which unlocks the coupling, and moves the tractor forward, this operation pulling the trailer front wheels down, setting the brakes automatically and the trailer is left standing for loading or unloading.



Dominion Express Co.'s Tractor, in position for coupling up with Trailer.

The safety features on the road are important. The trailer brakes itself automatically just to the extent that it overrides the tractor, avoiding the overloading of the 2-ton tractor brakes on a $3\frac{1}{2}$ -ton load behind it. Should anything happen to the coupling device while the tractor trailer is in motion, the danger of acci-

sion at the earliest possible date and the handling lines should arrange to make this change on any of the cars involved which may be located on their line without sheave wheel. Charge should be made against the car owner for the expense, for which the car owner in turn should render bill against the U.S.R.A.

12. cut over to Dominion Express Co.

Joffre Locomotive House, Yards, Etc.

Joffre is the junction point between the Diamond and Bridge Subdivisions, Levis Division, Quebec District, Canadian National Rys. The Bridge Subdivision extends from Quebec via the Quebec bridge to Joffre, 14.6 miles, and the Diamond Subdivision extends from St. Charles Jct. west to West Jct., being what was known as the Intercolonial freight line, cutting out Levis from a through east and west haul. Joffre is 16.04 miles west of St. Charles Jct., on the Diamond Subdivision. As shown by the inset on the accompanying map, the National Transcontinental Ry. main line leaves the joint I.C.R. and N.T.R. line at Diamond, and the recently built Quebec Central Ry. line from Scotts Jct. connects with the Canadian National lines at that point. The name Joffre Terminals is commonly applied to the system of yards and tracks west of Diamond and centering on Joffre, West Junction and Charny.

Consequent on the Canadian National Rys. management's decision to consolidate at Joffre the locomotive house work carried on previously at the National Transcontinental locomotive house at Bridge, the Grand Trunk house at Point Levis, and the Intercolonial house at Joffre, in order to effect economies in

heating the locomotive house is carried under ground, in a main concrete duct, with branch ducts of tile pipe to the locomotive pits.

All buildings have tar and gravel roofing.

A new ash pit, having a total capacity of 100 cu. yd. of cinders, has been located 650 ft. east of the center of the turntable. This consists of two separate pits, 50 ft. long, built of concrete, and strengthened by old steel rails, and lined with firebrick.

A new coaling plant, 350 tons capacity, has been located 400 ft. east of the ash pits. Two new standpipes were installed east of the new coaling plant.

Four new main locomotive tracks, two cinder sidings, one storage siding and one hopper track were built, involving the laying of 20 turnouts and more than 10,000 ft. of track. A subway, of concrete abutments and steel girders, was built over St. John St. An additional 10,000 ft. of track was laid to serve coal piling grounds. The east cluster of Joffre yard, which consisted of 15 body tracks, with a capacity of 775 cars, is being extended by building three new long tracks which will raise the total capacity of the yard to 985 cars.

The work was carried out by railway

Birthdays of Transportation Men in January.

Many happy returns of the day to:—

W. U. Appleton, Mechanical Superintendent, Eastern Lines, Canadian National Rys., Moncton, N.B., born there, Jan. 29, 1878.

R. Armstrong, Superintendent, Brandon Division, Manitoba District, C.P.R., Brandon, born at Kingston, Ont., Jan. 27, 1865.

L. E. Ayer, General Agent, Canadian National-Grand Trunk Rys., Kansas City, Mo., born at Henderson, Ia., Jan. 11, 1877.

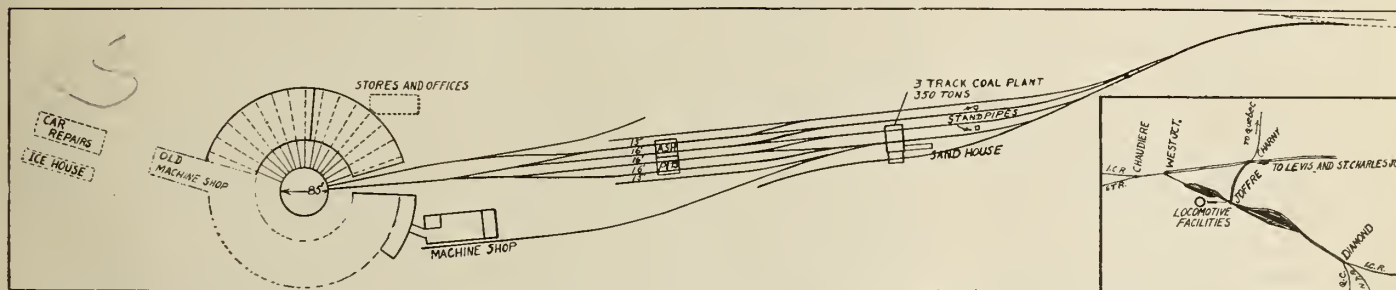
F. X. Belanger, ex-General Freight and Passenger Agent, Temiscouata Ry., Riviere du Loup, Que., now Traffic Manager, Fraser Companies, Ltd., Edmundston, N.B., born at Chlorydormes, Que., Jan. 20, 1876.

Sir George McLaren Brown, European General Manager, C.P.R., London, Eng., born at Hamilton, Ont., Jan. 29, 1866.

J. E. Dalrymple, Vice President, Traffic, G.T.R., and Central Vermont Ry., Montreal, born there Jan. 1, 1869.

G. J. Desbarats, C.M.G., Deputy Minister of Naval Service, Ottawa, Ont., born at Quebec, Que., Jan. 27, 1861.

J. E. Everell, Superintendent, Montmorency Division, Quebec Ry., Light & Power Co., Quebec, Que., born at Cap Rouge, Que., Jan. 1, 1863.



Locomotive terminal layout at Joffre, Que., showing location of terminal.

operation, it was necessary to provide additions to the terminal facilities at Joffre. The old locomotive house, which consisted of 24 stalls, was enlarged by the addition of 15 stalls, making the house a complete circle, with the exception of the openings for inbound and outbound tracks. Four stalls in the old house were extended to a total length of 120 ft. each, and drop pits, with pneumatic wheel jacks, were installed. The 76 ft. turntable was replaced by an 85 ft. table, to provide for the efficient handling of mikado and Santa Fe locomotives. The new locomotive house extension is of brick construction, on concrete foundations, and consists of 100 ft. stalls, each provided with a 65 ft. concrete locomotive pit. A new machine shop, 140 x 52 ft., also of brick construction, and with steel roof trusses, was built adjoining the back of the extended stalls. The fan room, blacksmith shop and lavatories are located adjoining the machine shop. The old machine shop was re-arranged to provide for the installation of additional boilers.

The locomotive house and machine shop are heated by hot air supplied by one 90 in. Planoidal Canadian Buffalo fan, which will work in conjunction with the Sturtevant fan in the old portion of the locomotive house. The hot air for heating the machine shop is carried to distributing points in galvanized iron pipes, located overhead. The hot air for

forces, under the supervision of L. Brousseau, District Engineer, Quebec District, and J. E. Gibault, Division Engineer, Levis Division, Quebec District, Canadian National Rys.

Railway Accidents Throughout Canada. The total number of accidents, during November, reported to the Board of Railway Commissioners was 142, resulting in 20 persons being killed and 144 being injured. Of the killed, 10 were employees and 10 were others. Of the injured, 13 were passengers, 115 were employees and 16 were others. Under others are included 4 persons killed and 10 injured in 11 highway crossing accidents. In 2 of these accidents the crossings were protected by gates, in 1 by a bell and 1 by wigwag signal, while in 7 cases there was no crossing protection. In all of the highway crossing accidents, automobiles were concerned.

Pere Marquette Rd., Suggested Electrification.—The Chatham, Ont., City Council decided, Dec. 12, not to join the Sarnia, Ont., City Council in petitioning the Hydro Electric Power Commission of Ontario to take over the Pere Marquette Rd. lines in Canada and electrify them. The Pere Marquette Rd. Co. some years ago acquired the Lake Erie & Detroit River Ry., extending from Walkerville to St. Thomas, 127 miles, and from Sarnia via Chatham to Eriean, 73 miles.

Gordon Grant, Chief Engineer, Dominion Highways Commission, Ottawa, Ont., born at Dufftown, Scotland, Jan. 2, 1861.

G. F. Hichborn, formerly Agent, Great Eastern Fast Freight Line, New York, born at Boston, Mass., Jan. 13, 1875.

C. Hood, Grain Agent, C.P.R., Winnipeg, born at Edinburgh, Scotland, Jan. 20, 1864.

D. W. Houston, Superintendent, Regina Municipal Ry., Regina, Sask., born at Bathurst, N.B., Jan. 3, 1879.

H. J. Humphrey, Superintendent, Trenton Division, Ontario District, C.P.R., Toronto, born at Berrys Mills, N.B., Jan. 26, 1879.

P. A. Keeler, Treasurer, Dominion Express Co., Toronto, born near Prescott, Ont., Jan. 18, 1867.

H. G. Kelley, President, G.T.R., Montreal, born at Philadelphia, Pa., Jan. 12, 1858.

W. A. Kingsland, General Manager, Eastern Lines, Canadian National Rys., Montreal, born at New York, N.Y., Jan. 5, 1869.

W. J. Lynch, General Manager, Quebec Ry., Light, Heat & Power Co., Quebec, Que., born there, Jan. 17, 1882.

G. E. McCoy, Master Car Builder, Eastern Lines, Canadian National Rys., Moncton, N.B., born there, Jan. 8, 1886.

C. R. Mackenzie, Assistant to General Manager, Canadian National Rys., Montreal, born at Toronto, Jan. 10, 1883.

John Macrae, Locomotive Foreman, C.

P.R., Sutherland, Sask., born at Springburn, Glasgow, Scotland, Jan. 30., 1879.

P. A. Macdonald, Manitoba Public Utilities Commissioner, Winnipeg, born at Gananoque, Ont., Jan. 6. 1857.

G. C. Martin, General Traffic Manager, Toronto, Hamilton & Buffalo Ry., Hamilton, Ont.; born at Creemore, Ont., Jan. 2, 1866.

William Phillips, European Manager, Canadian National-Grand Trunk Rys., Canadian Government Merchant Marine, and Canadian National Express Co., London, Eng., born at Toronto, Jan. 31, 1870.

W. Pratt, Manager, Dining and Parlor Cars, Hotels and News Department, Canadian National Rys., Toronto, born at Sibbertoft, Northamptonshire, Eng., Jan. 18, 1870.

John Pullen, President, Canadian National Express Co., Montreal, born at Shepton Mallet, Eng., Jan. 23, 1863.

R. Mayne Reade, Superintendent, City Division and Quebec County Railway, Quebec Railway, Light & Power Co., Quebec, born at Llanelly, Wales, Jan. 1, 1868.

L. J. Rouleau, Commercial Agent, Canadian National-Grand Trunk Rys., Sherbrooke, Que., born at Montreal, Jan. 6, 1879.

A. F. Stewart, Chief Engineer, Canadian Government Rys. and National Transcontinental Ry. east of Armstrong, Ont., Moncton, N.B., born at West Bay, N.S., Jan., 1864.

J. G. Sullivan, ex-Chief Engineer, Western Lines, now Consulting Engineer, C. P.R., Winnipeg, born at Bushnells Basin, N.Y., Jan. 11, 1863.

T. H. White, Chief Engineer, Canadian Northern Pacific Ry., Vancouver, B.C., born at St. Thomas, Ont., Jan. 27, 1848.

A. Wilcox, General Superintendent, Central District, Canadian National Rys., Winnipeg, born at Kincardine, Ont., Jan. 2, 1865.

T. A. Wilson, Superintendent, Sudbury Division, Algoma District, C.P.R., Sudbury, Ont., born at Stratford, Ont., Jan. 27, 1872.

F. A. Nancekivell Co. Ltd. has been incorporated under the Ontario Companies Act, with \$100,000 authorized capital, and office at Brantford, Ont., to carry on business as dealers in automobiles, motor cars, aeroplanes, steam and other ships, etc. The provisional directors are F. A. Nancekivell, E. A. Drake and H. Rush, Jr., Windsor, Ont. F. A. Nancekivell was, until April 1917, General Agent, Minneapolis, St. Paul & Sault Ste. Marie Ry., Toronto.

Transcanadian Finance Ltd. has been incorporated under the Dominion Companies Act with \$25,000 authorized capital and office at Montreal, to carry on a general mercantile business and to act as general ticket agent, for transportation by land and water. The incorporators are:—V. Subosits, Welland, Ont.; Z. Fay, S. Lavery, M. Demers and H. Prieur, Montreal.

British-Pacific Terminals Ltd. has been incorporated under the British Columbia Companies Act with \$250,000 authorized capital and office at Vancouver, to carry on business of storing, warehousing, forwarding, the docking of ships of all descriptions, to own and operate all kinds of ships, drydocks, etc., and carry on a general transportation business.

The C.P.R. Telegraphs service has been extended to Waterways, Alta., the Alberta & Great Waterways Rys. present terminus.

Canadian Pacific Railway October Earnings and Expenses.

The C.P.R.'s gross earnings for Oct. 1921, viz., \$22,089,624, showed a decrease from Oct. 1920 of \$2,711,008, and net earnings, \$6,711,486, showed a decrease of \$989,335. Gross earnings and net for Oct. 1921 were, however, the largest for any of the first 10 months of 1921, the gross being \$2,139,863 greater than that of September, the next best month, and net being \$2,391,437 greater. Notwithstanding the fact that the net was by far the largest earned in the first 10 months of 1921, and that gross earnings, taking into consideration the rate reductions in effect as compared with Oct. 1920, compared favorably with the Oct. 1920 gross earnings, many daily newspapers referred to the Oct. 1921 results as being "less encouraging than those of preceding months." An examination of the facts, however, shows that this view is without justification.

Oct. 1920, was an exceptionally good month for the C.P.R. Always a month of heavy traffic, it was marked in 1920 by the application, throughout the entire month, of the full increases in rates allowed by the Board of Railway Commissioners in Sept. 1920. The new rates, combined with the heavy traffic and the consequent low unit cost of handling, gave the C.P.R. an operating ratio in that month of but 68.95. In previous months, due to inadequate rates, the ratio had been running at about 85, and in the months following, due to falling off in traffic, the operating ratio again attained and averaged this figure. The improvement evident during recent months, however, as given in Canadian Railway and Marine World, has been steady, and the operating ratio of but 69.62 for Oct. 1921 shows that this improvement was more evident in that month than in any of the preceding ones. While the net was smaller than in Oct. 1920, and the operating ratio was two thirds of 1% greater, this fact should not be held "less encouraging," because Oct. 1920 was such an exceptionally good month, comparatively speaking—making up, in a sense, for the months of low rates, high expenses and low net earnings which preceded it. Rather should the results be considered most encouraging, as showing, first, that traffic is increasing in volume and that therefore an improvement in the general economic position is evident, second, that the C.P.R. was able to attain the favorable operating ratio for the month at rates much lower than those prevailing formerly, and third, that the improvement in the railway situation continued through October, leading to the belief that this improvement is of a permanent nature. It may be said that the increase in traffic which led to the large increase in C.P.R. gross earnings in Oct. 1921 was seasonal, but while it must be admitted that a large part of it was seasonal, the mere fact of the proportional increase in traffic being as great as in 1920 indicates that general conditions are approaching normal. As a matter of fact, if due consideration be given to the 20% decrease in passenger rates, to the decreases in freight rates effective Jan. 1, 1921, and to the freight rate decreases since made voluntarily, it would occasion no surprise if statistics show that the C.P.R. handled as much business in Oct. 1921 as in Oct. 1920.

In illustration of the improvement which took place in the company's posi-

tion during the first 10 months of 1921, it may be pointed out that the net earnings for them were \$1,754,196 greater than for the corresponding 10 months of 1920. These increased net earnings were secured on gross earnings \$13,760,784 smaller than in the corresponding 10 months of 1920, which amply demonstrates the fact that some progress has been made in bringing earnings and expenses into more proper relationship. While the improvement in net earnings is gratifying from a purely railway viewpoint, yet the fact of the gross earnings having decreased to so great an extent, while for the greater part of the first 10 months of 1921 the rates in effect were much higher than in the corresponding period of 1920, is not gratifying from either the railway or public viewpoint, because it means higher unit transportation expenses for the railway, and higher unit transportation costs for the public. While an expectation, based on business handled by the C.P.R. in Oct. 1921, that traffic had permanently regained its former large volume would probably be unjustified, as is indicated to some extent by unofficial preliminary figures to hand for November, the October figures nevertheless afford some encouragement to business generally, in view of the fact that the volume of railway traffic is a remarkably faithful indicator of business and economic conditions.

The most important indication of the October figures, however, is that the C. P.R., on the volume of traffic handled during the month, was able to show an operating ratio of less than 70, and consideration of that fact brings us back to the underlying principle of the entire Canadian railway industry, viz., that the great need of Canadian railways is more business, and that until a business more nearly approximating the railways' capacity for handling it is furnished, decreases in the costs of transportation service (outside of those directly brought about by changes in wage scales and in material prices) cannot be obtained by the Canadian people. After all, the railway business is similar to most other businesses; when enough of the product is sold to look after the overhead costs and place the business on a paying basis, the product sold after that pays a greatly increased profit. In this case, the business is railroading and the product transportation, and because the product is transportation and the railway a quasi-public institution, it follows that regulation would soon translate greatly increased profits into lower charges for the public. Canadian industry looks to the railways for efficient transportation at as reasonable a price as it can possibly be obtained. The point we would emphasize is that the cost of transportation to Canadian industry depends to a large extent upon the amount of traffic which industry, in all its various forms, furnishes to the railways. The overhead and fixed costs of the railway business form a large part of the total costs, while many other costs do not increase at all proportionately to increases in traffic handled. Continuing efficiency in the operation of the railways being taken for granted, it is evident that the more traffic there is over which to distribute these overhead costs and proportionately decreasing costs, the smaller will be the unit costs of transportation to the public.

Track Section Prize Competition on Canadian Pacific Railway Eastern Lines.

For the past nine years an annual track section prize competition has been carried out on the C.P.R. Eastern Lines, which has aroused a healthy spirit of rivalry and keen competition among the section forces of the different divisions and districts. Sixty-three prizes are awarded in the competition, as follows:—A General Manager's prize to the foreman having done the best season's work on Eastern Lines; four general superintendent's prizes, to the foreman on each district who has done the best season's work, exclusive of the winner of the General Manager's prize; eleven division superintendent's prizes, to the foreman on each division who has done the best season's work, exclusive of winners of higher prizes; forty-five roadmaster's prizes, to the foreman on each roadmaster's territory who has done the best season's work, exclusive of winners of higher prizes.

Under this system no man can win more than one prize, and all foremen have an equal chance, as the quality of the work done throughout the season is the deciding factor, and not the actual physical condition of the section at the end of the season. The basis on which the sections are judged is entirely efficiency, and careful consideration is given throughout the season to the condition of, and work done on, ditches, gauge, spiking, line, surface, bolts, rail wear, so far as it can be controlled by the section forces, switches, sidings, right of way and station grounds, track signs, cattle guards and fences. The amount of work done and the hours of labor put in, both by regular force and extra gang, are also carefully considered, and the foreman accomplishing the best work with the least amount of labor—the physical condition of the section, as to grade, alignment, drainage, and character of roadbed being considered—wins the first prize.

The number of hours of regular labor and the number of hours of extra labor on the section are figured against the number of ties renewed, tie plates installed or changed, rails changed over on curves and ditching done, etc. The amount of track handled, right of way, spikes and bolts, is fairly uniform on all sections, so that the condition with respect to these items at the end of the season is usually a criterion of the amount and quality of the work done thereon throughout the season. Where special conditions affect such work they are taken into consideration. Some idea of the care exercised in judging a foreman's work can be formed by following the work in connection with the selection of a prize section. Towards the end of the season, on each of the 45 roadmasters' territories, a section is picked out as the most deserving in point of work done during the season with the material and labor available. These are carefully inspected by the superintendent and resident engineer, who select the best one on each district for inspection by the general superintendent and division engineer. All divisions of a district are covered by these two officers, and the section selected which they consider eligible for the General Manager's prize. The judging for the General Manager's prize is done personally by the General Manager, the Engineer of Maintenance of Way, the Assistant Engineer of Maintenance of Way, and district officials.

Following is a list of the successful section foremen for 1921:—General Manager's prize, \$100—H. Benoit, Sec. 19, Sherbrooke Subdivision, Farnham Division, Quebec District.

New Brunswick District, General Superintendent's prize, \$50—F. Dickinson, Shogomoc S'd., Woodstock Division.

Brownville Division, Superintendent's prize, \$25—F. Ferland, Moosehead S'd. Roadmasters' prizes, \$10 each—C. C. Tracey, St. John S'd.; W. Gamble, Shore Line S'd.; W. E. Nason, Mattawamkeag S'd.; P. Nadeau, Moosehead S'd.

Woodstock Division, Superintendent's prize, \$25—H. McLaughlin, St. Stephen S'd. Roadmasters' prizes, \$10 each—S. R. McCrum, St. Andrews S'd.; E. A. King, Southampton S'd.; A. Peluso, Aroostook S'd.

Quebec District, General Superintendent's prize, \$50—A. Giroux, Sec. 4, St. Agathe S'd., Laurentian Division.

Farnham Division, Superintendent's prize, \$25—P. W. Delaire, Roadmasters' prizes, \$10 each—A. Bourdeau, Sec. 1, Drummondville S'd.; F. Gadley, Megantic S'd.; Jos. Partridge, Newport S'd.; E. St. Jacques, Sherbrooke S'd.

Montreal Terminals Division, Superintendent's prize, \$25—A. Durancé, Sec. 10, Adirondack Subdivision. Roadmaster's prize, \$10—G. Clement, Adirondack S'd.

Laurentian Division, Superintendent's prize, \$25—V. Carpentier, Three Rivers S'd. Roadmasters' prizes, \$10 each—C. Denoncourt, Piles S'd.; A. Morin, Ste. Agathe S'd.; J. McLeod, Lachute S'd.; A. Pelland, St. Gabriel S'd.

Ottawa Division, Superintendent's prize, \$25—M. Gauthier, Sec. 3, Montreal and Ottawa S'd. Roadmasters' prizes, \$10 each—E. Boileau, Prescott S'd.; N. Huno, Montreal and Ottawa S'd.; A. Robillard, Sec. 1, Maniwaki S'd.

Smiths Falls Division, Superintendent's prize, \$25—C. Burgess, Sec. 9, Chalk River S'd. Roadmasters' prizes, \$10 each—H. Foster, Carleton Place S'd.; A. Rozon, Winchester S'd.; A. Weisenburg, Chalk River S'd.

Ontario District, General Superintendent's prize, \$50—D. Parsons, Sec. 18, Galt S'd., London Division.

Trenton Division, Superintendent's prize, \$25—J. Dowdell, Sec. 11, Belleville S'd. Roadmasters' prizes, \$10 each—G. Dowall, Sec. 14, Havelock S'd.; T. Wilson, Sec. 8, Peterborough S'd. H. Roberts, Sec. 5, Port McNicoll S'd.; C. McCullough, Sec. 10, Kingston S'd.; J. Wickens, Sec. 12, Belleville S'd.; E. Osborne, Sec. 10, Oshawa S'd.

London Division, Superintendent's prize, \$25—T. Rath, Sec. 13, Galt S'd. Roadmasters' prizes, \$10 each—A. Fairbanks, Sec. 4, Windsor S'd.; X. Mathies, Sec. 9, Galt S'd.; F. H. Plain, Sec. 10, Hamilton and Guelph S'd.; J. Cox, Sec. 15, St. Marys S'd.

Bruce Division, Superintendent's prize, \$25—H. Richards, Sec. 1, Owen Sound S'd. Roadmasters' prizes, \$10 each—W. Bell, Sec. 16, MacTier S'd.; J. Telford, Sec. 14, Owen Sound S'd.; J. Hiscox, Sec. 2, Teeswater S'd.

Toronto Terminals Division, Superintendent's prize, \$25—F. Tuckley, Sec. 14, Owen Sound S'd. Roadmaster's prize, \$10—M. Powell, Sec. 5, Teeswater S'd.

Algoma District, General Superintendent's

prize, \$50—A. Cannon, Sec. 15, Thessalon S'd., Sudbury Division.

Sudbury Division, Superintendent's prize, \$25—J. Whyatt, Sec. 12, North Bay S'd. Roadmasters' prizes, \$10 each—S. McCarthy, Sec. 2, North Bay S'd.; G. Greenacre, Sec. 3, Timiskaming S'd.; J. Penfold, Sec. 6, Parry Sound S'd.; J. Sayers, Sec. 26, Thessalon S'd.

Chapleau Division, Superintendent's prize, \$25—E. Pearson, Sec. 27, Nemegos S'd. Roadmasters' prizes, \$10 each—S. Danyluk, Sec. 10, White River S'd.; A. Nuttika, Sec. 20, Nemegos S'd.

Schreiber Division, Superintendent's prize, \$25—J. Michaud, Sec. 22, Heron Bay S'd. Roadmasters' prizes, \$10 each—Z. Ogvodnik, Sec. 7, Heron Bay S'd.; B. Michaud, Sec. 19, Nipigon S'd.

Locomotive Houses at Hornepayne and Sault Ste. Marie.

R. S. McCormick, General Superintendent and Chief Engineer, Algoma Central & Hudson Bay Ry., has written Canadian Railway and Marine World as follows:—"The locomotive house built at Hornepayne, Ont., by Canadian National Rys., as described and illustrated in Canadian Railway and Marine World for Aug. 1921, is a duplicate, in general design, of the locomotive house at the Algoma Central & Hudson Bay Ry. terminals at Sault Ste. Marie, Ont., built in 1912 by me, and described in an article on those terminals in Canadian Railway and Marine World for Feb. 1913, and the general idea covering this locomotive house was original on this railway. It was designed by P. L. Battey, then Chief Engineer of the Arnold Co.'s industrial department, in conjunction with me, and was constructed by the Arnold Co., as general contractors for the A.C. & H.B. Ry. terminal buildings at Sault Ste. Marie."

Locomotive Boiler Explosion at Alcona.

As stated in Canadian Railway and Marine World for December, G. C. McNab, locomotive man, was killed, and G. Reid, fireman, was badly scalded, in a locomotive boiler explosion at Alcona, 186.2 miles northwest of Fort William, on the Lake Superior Subdivision, Fort William Division, Central District, Canadian National Rys. We are officially advised that the locomotive was no. 2394. At Superior Jct., four miles northwest of Alcona, the water glass broke, but the train proceeded to Alcona, where the locomotive man intended to take water, the try cocks being used for the indication of the water level in the boiler. On arrival at Alcona, the locomotive man decided to go on, but the train had proceeded only a quarter of a mile further when the locomotive boiler exploded.

Observation of the boiler after the accident showed that the water was low. The demarcation lines showed that the surface of the water in the boiler was 4½ in. below the highest point of the crown sheet, which would be about 7½ in. below the bottom reading of the water glass. The verdict of the coroner's jury placed the responsibility for the accident on the locomotive man.

New Station at Hornepayne, Ont., Canadian National Railways

A new station has been completed recently by the Canadian National Rys. at Hornepayne, Ont., which is 572.4 miles northwest of Toronto, on the main line to Winnipeg, and is the headquarters of the Superior Division, Ontario District. The building is 134 x 34 ft. Basement walls are 18 in. thick and walls of ground floor to height of window sills are of Portland cement concrete. The balance of the ground floor walls are of red pressed brick 13 in. thick, and the first floor walls are of the same brick 9 in. thick. Basement walls are waterproofed on the outside with pitch, and weeping tile are laid around both exterior and interior of the walls and carried out of the building to the main conduit and drain. This drainage system is very necessary, as the basement is in a water-bearing mixture of clay and sand.

The basement has concrete floor laid on gravel, and is 8 ft. high to the ceiling. It includes boiler room, coal storage and chute, record storage, battery storage, restaurant storage, kitchen and cold storage in connection with the lunch room above. The boiler room has a brick

fixed around the counter, constructed of iron pedestals with oak tops and nickel plated rims around the edge. A flight of stairs and a dumb waiter communicate with the kitchen immediately below. This room has three pairs of double doors to the main platform and a single door at the rear. All windows, doors, etc., are trimmed in Douglas fir. The smoking room, 14 x 21 ft., and general waiting room, 21 x 31½ ft., have concrete floor and base. All walls and ceilings are plastered, and the doors and trim of windows are of Douglas fir. Both men's and women's lavatories have concrete floors, plastered walls and ceilings, and have porcelain and nickel plated fittings with automatic flush tanks and washout drains to floors. The Canadian National Telegraphs office is 14 x 20¼ ft.; it has ¾ in. hardwood floor laid on top of the concrete and is equipped with counters and tables for operators, all of Douglas fir. The dispatcher's office is L-shaped, the main part being 12½ x 20 ft. and the smaller part 8 ft. 1 in. x 8 ft. 5 in. It is finished and equipped similar to the C.N. Telegraphs office. The con-

ing. The height of the story is 10 ft. All outside walls are strapped, lathed and plastered on the inside. Floors are of ¾ in. maple on ¾ in. sub-floor and 2 x 10 in. pine joists. Ceilings are of lath and plaster on 2 x 8 in. joists supported from the roof. No support is given by the partitions. All of the trim and finished woodwork on windows, doors and partitions, are stained dark brown and varnished. Hardwood floors are filled an oiled. Doors are fitted with combination locks and brass hinges.

The roof is of B.C. shingles, laid on ¾ in. t. & g. sheathing on 2 x 6 in. pine rafters, with 30 in. projection all around the walls. The collar ties are also 2 x 6 in. Shingles are stained with creosote stain. The canopy roof at the front and ends of the station is constructed in a similar manner and is supported on 6 x 6 in. built-up brackets and 6 x 6 in. purlins. Galvanized iron eavetroughs and conductor pipes take care of the roof water and all chimneys, hips and valleys are flashed with galvanized iron.

The building is heated by steam, the pressure being reduced to ½ lb. for heating the station and offices, with a 2-pipe gravity return system and Cole trap automatic boiler feed. The boiler also supplies steam for heating 11 passenger car points, which are in front of the station. These are fitted with 2½ in. steam return. The water mains are 4 in. They are laid in conduits, with valves and hose connections at the manholes. The points are 85 ft. apart. Water is supplied from the tank at about 40 lb. pressure. The condensation from the steam pipes is taken back through the Cole trap in boiler room and automatically fed into the boiler.

The platform, which is of plank, is approximately 1,000 ft. long. In front of the building it is 25 ft. wide and beyond the ends of the building 12 ft.

The main drain from the station is of 20 in. vitrified pipe, with concrete manholes at suitable distances apart. This drain takes care of the surface water, under drainage and water from roofs of buildings. The sanitary sewage is taken to a septic tank and discharged into a separate drain.

The station is lighted throughout by electric light with semi-indirect fixtures, the wiring being carried in conduits. The power is supplied by a dynamo in the engine house, but there is also in the basement of the station an auxiliary gasoline engine and dynamo, in case of failure of the other source of supply.

A London, Eng., press dispatch states that in consequence of the great increase in the use of the all British cable between Great Britain and Australia, via the Canadian land line, a proposal is under official consideration for the duplication of the Pacific cable, at an estimated cost of £4,000,000.

The Australian House of Representatives is considering the details of a direct wireless telegraph system between Australia and the United Kingdom. It is proposed that the work be carried out by the Amalgamated Wireless Co., in which the Australian Commonwealth would have a controlling interest, and that high power stations be erected for direct commercial service between Australia, the United Kingdom and Canada.



Hornepayne Station, Canadian National Railways.

chimney 60 ft. high. The ceiling of this room is covered with heavy galvanized sheet iron.

The ground floor rests on construction of reinforced concrete slab and beams throughout. A concrete base, with cove at concrete floor, is run around all rooms. The brick walls are strapped and plastered on the inside. The ceilings are of lath and plaster, with beams to support the floor above. The height from floor to ceiling is 10 ft. All posts and pilasters supporting the beams are plastered and have ornamental plaster capital at the top.

The ground floor is divided into lunch room, lavatories, smoking room, general waiting room, Canadian National Telegraphs room, railway operator's room, yard and agent's office, employees' lavatories, baggage room and entrance vestibule with stairs to first floor. The lunch room is 28½ x 31½ ft., and has concrete floor and base, with horseshoe shaped counter, which has continuous veneered front in Douglas fir, a birch top and shelves, with interior sliding doors, drawers, tills, etc. There is also a center serving counter or urn stand constructed similar to the outside counter. Seats are

ductors' enquiry office, 7 ft. 9 in. x 8 ft. 2 in., is connected with the agent's and ticket offices by sliding wickets, with counter space sufficiently large to allow of register books being conveniently handled. All partitions between the railway operator's office, conductor's room and yard and station agent's office, are of Douglas fir, framed and panelled, and with chipped glass on the upper half. They are so constructed that they can be taken down, and alterations made, without destroying or injuring any part of the partition or the building. The baggage room, 15 x 20 ft., has concrete floor and painted woodwork walls and ceilings. Employees' lavatories have concrete floors and plastered walls, and the woodwork is of Douglas fir.

The stairway from the ground floor to the first floor is built of Douglas fir strings and risers, with maple treads and birch hand rails and newel posts. The first floor is devoted entirely to the divisional offices, which are partitioned off with Douglas fir partitions, framed and panelled, with the upper part in chipped glass. Partitions are so constructed that they can be changed without injury to either partitions or build-

Orders By Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

General order 347. Nov. 2.—Amending general order 258, Nov. 25, 1918, re display of blue signals required by General Train and Interlocking Rule 26. This order is given in full on another page.

General order 348. Nov. 10.—Amending general order 271, Sept. 10, 1919, by adding Canadian Traffic League to parties to receive proof copies of Canadian Freight Classification and Express Classification.

General order 349. Nov. 23.—Amending general order 201, Aug. 1, 1917, by providing new schedule of charges for demurrage to be charged.

General order 350. Nov. 24.—Ordering railway companies to file tariffs, effective Dec. 1, providing for certain reductions in domestic freight rates within Canada.

General order 351. Nov. 26.—Amending general order 350, Nov. 24, restoring rates on cordwood, slabs, edgings and mill refuse for fuel purposes, to basis in effect prior to Sept. 13, 1920.

General order 352. Dec. 1.—Approving a number of reduced standard freight tariffs of maximum mileage tolls to become effective Dec. 1, 1921.

31,709. Oct. 25.—Ordering C.P.R., G.T.R., Pere Marquette Rd., Chatham, Wallaceburg & Lake Erie Ry., Wabash Rd., and Michigan Central Rd., to substitute new scale of mileage rates on sugar beets in carloads.

31,710. Oct. 25.—Amending order 21,670, Oct. 19, re application of North Dumfries Tp., Ont., to extend Martin Ave. across G.T.R.

31,711. Oct. 26.—Approving relocation of C.P.R. station at Carleton Place, Ont., and authorizing C.P.R. to build passing siding at grade across Park Ave. and Franktown Road, and to close within right of way limits portion of Queen St.

31,712. Oct. 26.—Dismissing Alberta Railways and Telephones Department's application for privilege of stopping in transit carloads of telephone poles for treatment.

31,713. Oct. 26.—Ordering Canadian National Rys. to fence right of way in n.e. ¼ Sec. 30, Tp. 38, Range 26, west 1st meridian, Man., by Nov. 15.

31,714. Oct. 26.—Declaring that for the present G.T.R. highway cross (Lake Shore crossing), west of Victoria Harbor, Ont., is protected to Board's satisfaction.

31,715. Oct. 26.—Approving revised location of C.P.R. Rosetown Southeasterly Branch, from mile 44.37 to 63.47, Sask.

31,716. Oct. 26.—Ordering C.P.R. to cut down embankment at first public crossing east of Rock Forest station, Que., to give clear view of railway 500 ft. east from highway and for 200 ft. north on highway.

31,717. Oct. 27.—Ordering Great Northern Ry. to fence right of way through n. ¼ Sec. 20, Tp. 8, Range 5, west 1st meridian, Man., by Nov. 30.

31,718. Oct. 27.—Declaring that for present Canadian National Rys. St. Charles crossing, at Loretteville, Que., is protected to Board's satisfaction.

31,719. Oct. 28.—Dismissing Islemere Golf and Country Club's application for order requiring Canadian National Rys. to move station from Islemere station, Que., to Cadastral Lot 236, adjacent to clubhouse.

31,720. Oct. 28.—Ordering Canadian National Rys. to build standard 5th class station at Ste. Genevieve, Que.

31,721. Oct. 31.—Approving agreement between Bell Telephone Co. and Nelson Telephone Co., Halton and Wentworth Counties, Ont.

31,722. Oct. 20.—Approving location of Canadian Northern Western Ry. freight and passenger shelter at Mayerthorpe, Alta.

31,723. Oct. 31.—Authorizing C.P.R. to build spur for Holland Varnish Co., Montreal.

31,724. Oct. 31.—Approving Brandon, Saskatchewan & Hudson Bay Ry. bylaw 12, authorizing A. J. Dickinson, Passenger Traffic Manager, to issue tariffs of passenger tolls.

31,725. Nov. 2.—Authorizing Canadian National Rys. and Timiskaming & Northern Ontario Ry. to operate trains through crossing and connection at North Bay, Ont., without first stopping.

31,726. Oct. 28.—Approving Hull Electric Co.'s plan showing protection at crossing of Chelsea Road, Hull, Que.

31,727, 31,728.—Approving Bell Telephone Co. agreements with Hyndford-Douglas Telephone Association, and Lightning Telephone Co., Renfrew County, Ont.

31,729. Nov. 2.—Rescinding orders 30,327 and 31,154, Nov. 15, 1920, and June 17, 1921, re-

spectively, authorizing C.P.R. to build spur for Dominion Sugar Co. in Lot 24, Con. 1, Chatham Tp., Ont., and extending time for construction.

31,730. Nov. 2.—Authorizing Michigan Central Rd. to make changes in interlocking plant at crossing of G.T.R., Hagersville, Ont.

31,731. Nov. 2.—Approving proposed alterations in G.T.R. station at Bridgeburg, Ont.

31,732. Nov. 2.—Ordering that all C.P. and G. T.R. locomotives and trains be stopped before proceeding over crossing at Park St., Peterborough, Ont., one of crew to act as flagman to protect highway traffic; rescinding par. 8 of order 13,605, Apr. 24, 1911, limiting operation of trains over spurs at this crossing to 7 a.m. and 6 p.m.

31,733. Nov. 2.—Authorizing G.T.R. to install automatic bell and wigwag signal in lieu of gates and watchmen at crossing of Hope and Woodstock Sts., Tavistock, Ont.

31,734. Nov. 3.—Authorizing C.P.R. to build spur for W. J. Hood, Winnipeg.

31,735. Nov. 3.—Authorizing Grand Trunk Pacific Branch Lines Co. to build its Cutknife Subdivision across highway at mile 44.6 between Sec. 30, Tp. 44, and Sec. 2, Tp. 45, Range 23, west 3rd meridian, Sask.

31,736. Nov. 3.—Authorizing Canadian National Rys. to cross highway between Secs. 22 and 23 and road in s.w. ¼ Sec. 23, Tp. 39, Range 23, west 4th meridian, near Alix, Alta.

31,737. Nov. 3.—Authorizing Grand Trunk Pacific Branch Lines Co. to cross highway at mile 45.9 between Secs. 10 and 11, Tp. 45, Range 23, west 3rd meridian, in Hillsdale rural municipality no. 440, Sask.

31,738. Nov. 2.—Approving Toronto, Hamilton & Buffalo Ry. clearances of water stand pipe between John and Catharine Sts., Hamilton, Ont.

31,739. Nov. 2.—Amending order 17,397, Sept. 5, 1912, re crossing of Canadian National Rys. by three additional C.P.R. tracks near Woods, Man., by providing that watchmen be appointed by C.P.R. instead of C.N.R.

31,740. Nov. 3.—Approving agreement between Bell Telephone Co. and Sunny Valley Telephone Co., Grey County, Ont.

31,741 to 31,743. Nov. 4.—Approving location of Canadian National Rys. 4th class station at St. Walburg, Sask., and freight and passenger shelters at Cleaves and Spruce Lake, Sask.

31,744. Nov. 4.—Declaring that for the present, C.P.R. crossing near Alexander station, Man., is protected to Board's satisfaction.

31,745. Nov. 5.—Dismissing complaint of Town of Fort Frances, Ont., that Ontario & Minnesota Power Co., International Bridge & Terminal Co., and Fort Frances Pulp & Paper Co., or one of them, have not carried out terms of agreement made in Sept. 1917, and that they have violated conditions of order 28,143 by using railway provided for purposes other than hauling log fuel, for delivery to Fort Frances Pulp & Paper Co., and dismissing application of Russell Bros., for order directing International Bridge & Terminal Co. to build bridge over its railway immediately south of their property in Fort Frances.

31,746. Nov. 5.—Declaring that for the present G.T.R. Governor's Road crossing, 2.4 miles east of Eastwood station, Ont., is protected to Board's satisfaction.

31,747. Nov. 8.—Authorizing Canadian National Rys. to build spur for Alex. Young, Ltd., Regina, Sask.

31,748. Nov. 8.—Dismissing complaint of Town of Fort Frances, Ont., that Ontario & Minnesota Power Co., International Bridge & Terminal Co., and Fort Frances Pulp & Paper Co. have not complied with Board's orders respecting crossing at Church St., in that they have not provided watchman and erected gate as required by orders 15,822 and 23,401, nor provided an approach to bridge 66 ft. wide as provided for in order 15,822; also rescinding orders 15,822 and 23,401.

31,749. Nov. 9.—Approving Express Traffic Association's Supplement 2 to tariff C.R.C. no. E.T. 694 covering revised rules in connection with carriage of electrolyte.

31,750. Nov. 8.—Amending order 23,933, July 2, 1915, authorizing Edmonton, Dunvegan & British Columbia Ry. to build across certain highways in Alberta.

31,751. Nov. 5.—Authorizing Kettle Valley Ry. to build the Mill spur, Copper Mountain Branch, at mile 6.89.

31,752, 31,753. Nov. 8.—Declaring that first public crossing east of Marshville station, Ont., and crossing at Courtland, Ont., over G.T.R., is protected to Board's satisfaction.

31,754. Nov. 8.—Approving agreement between Bell Telephone Co. and Bolton Telephone Co., Peel and York Counties, Ont.

31,755. Nov. 11.—Approving C.P.R. plan showing changes in interlocking plant at crossing by London St. Ry. at Richmond St., London, Ont.

31,756. Nov. 9.—Amending order 18,320, Dec. 16, 1912, authorizing Edmonton, Dunvegan & British Columbia Ry. to build across certain highways in Alberta.

31,757. Nov. 10.—Amending order 31,674, Oct. 15, authorizing C.P.R. to build spur for Carbon Coal Co., Carbon, Alta.

31,758. Nov. 10.—Approving revised location of Canadian National Rys. Acadia Valley Branch through Tps. 25 and 26, Ranges 2 and 5, west 4th meridian, Alta., mile 23.90 to 42.23.

31,759. Nov. 9.—Authorizing Saskatchewan Highways Department to build highway crossing over Canadian National Rys., Prince townsite, Sask.

31,760. Nov. 11.—Ordering G.T.R. to repair and rebuild bridge on Turner St., Ottawa, Ont., by Dec. 1.

31,761. Nov. 11.—Authorizing Canadian National Rys. to open for traffic its revised line between mile 333.2 and 335.1, Drumheller Subdivision, Alta.

31,762. Nov. 10.—Approving agreement between Bell Telephone Co. and Tilbury West Telephone System, Essex County, Ont.

31,763. Nov. 11.—Authorizing London St. Ry. and C.P.R. to operate trains over crossings at Richmond St., London, Ont., without first stopping.

31,764. Nov. 11.—Declaring that first crossing northwest of Rock Island station, Que., over Boston & Maine Rd., is protected to Board's satisfaction.

31,765. Nov. 11.—Extending to June 1, 1922, time within which C.P.R. may build spur for St. Maurice Paper Co., Cap de la Madeleine, Que., authorized by order 30,362, Nov. 24, 1920.

31,766. Nov. 11.—Declaring that for the present Canadian National Rys. crossing near Pelly station, Sask., is protected to Board's satisfaction.

31,767. Nov. 11.—Authorizing use of bridge carrying Main St., Watford, Ont., over G.T.R.

31,768. Nov. 12.—Authorizing Grand Trunk Pacific Ry. to build Y at Mirror, Alta., across certain highways.

31,769 to 31,771.—Authorizing G.T.R. to build spurs for Campbell & Lattimore, near Findley station, Ont., A. E. Jupp Construction Co., Saltfleet Tp., Ont., and Myers Lumber Co., York Tp., Ont.

31,772. Nov. 12.—Authorizing C.P.R. to build spur for Toronto Transportation Commission north of G.T.R. between Christie and Bathurst Sts., Toronto.

31,773. Nov. 12.—Dismissing application of Town of Bridgeburg, Ont., for order directing G. T.R. to reduce tariff on the dummy service across bridge between Bridgeburg, Ont., and Black Rock, N.Y.

31,774. Nov. 14.—Amending order 9,129, Dec. 31, 1909, authorizing C.P.R. to build branch connecting with G.T.R. at Canpa Jct., Etobicoke Tp., Ont., by providing that interlocking plant, etc., be maintained by C.P.R.

31,775. Nov. 12.—Authorizing C.P.R. to build spur for Laval Quarry Co., St. Martin Parish, Que.

31,776. Nov. 12.—Authorizing L'Enfant Jesus Parish, Que., to build highway crossing over Quebec Central Ry.

31,777. Nov. 17.—Authorizing Toronto, Hamilton & Buffalo Ry. to build two branches for Cole Lumber Co., Barton Tp., Ont.

31,778. Nov. 15.—Authorizing Saskatchewan Highways Department to make highway crossing over Canadian National Rys. in n.e. ¼ Sec. 6, Tp. 45, Range 12, west 2nd meridian.

31,779. Nov. 14.—Dismissing Esquimaux & Nainaimo Ry.'s application to remove agent at Cowichan station, B.C.

31,780. Nov. 16.—Authorizing C.P.R. to build spur for St. Maurice Lumber Co., Three Rivers, Que.

31,781. Nov. 16.—Declaring that for the present first public crossing south of Delson, Que., over C.P.R., is protected to Board's satisfaction.

31,782. Nov. 16.—Authorizing G.T.R. to rebuild bridge 93 over Coldwater River, milepost 146.85 from Belleville, Ont.

31,783. Nov. 17.—Extending time when men in charge of interlocking plant be appointed by Pointe aux Trembles Ry. at the crossing of Canadian Northern Quebec Ry. in Point aux Trembles Parish, Que., until disposition of appeal by C.N.R. from order 31,312, July 26, provided that Montreal Harbor Commissioners' trains be allowed to pass over crossing in the meantime.

31,784. Nov. 17.—Approving Supplement 18 to Canadian Freight Classification 16.

31,785. Nov. 17.—Authorizing Richmond Tp., B.C., to make highway crossing over Vancouver & Lulu Island Ry. (British Columbia Ry.) along Patterson St., in Secs. 27 and 28, Block 5, North Range 6, West Lulu Island.

31,786. Nov. 17.—Dismissing application of Village of Tuxford, Sask., to make highway crossing over C.P.R. opposite Oeuvre elevator.

31,787. Nov. 18.—Authorizing G.T.R. to build spur for Scottish Fertilizers, Ltd., in Lot 23, Con. 5, Humberstone Tp., Ont.

31,788. Nov. 18.—Authorizing Canadian National Rys. to connect Edmonton, Yukon & Pa-

- cific Ry. with Grand Trunk Pacific Ry., and to cross Main St., Stony Plains, Alta.
- 31,789. Nov. 18.—Authorizing Toronto, Hamilton & Buffalo Ry. to build spur for Martin Bros., in Brantford Tp., Ont.
- 31,790. Nov. 18.—Authorizing Brantford Municipal Ry. to open for traffic portion of track from St. Paul St. to Burwell St., to Morrell St., and to connect with track on West Mill St.; also portion from Market St., to Ontario St., to Port St., and to connection with track on Erie Ave. at corner of Port St., Brantford, Ont.
- 31,791. Nov. 19.—Amending order 31,723, Oct. 31, authorizing C.P.R. to build spur for Holland Varnish Co.
- 31,792. Nov. 19.—Dismissing application of Security Traffic Bureau, St. Paul, Minn., re classification of iron weights shipped with hanging lamps from Duluth, Minn., to Winnipeg.
- 31,793. Nov. 19.—Authorizing G.T.R. to build spur for Rastall Lumber Co., Toronto.
- 31,794. Nov. 21.—Authorizing Lake Erie & Northern Ry. to operate cars over crossing at Morrell St., Brantford, Ont., pending installation of interlocking plant, within three months from date.
- 31,795. Nov. 19.—Relieving Ottawa & New York Ry. and G.T.R. from maintaining signalman at crossing at Hawthorne, Ont., 5.3 miles west of Central Station, Ottawa, so long as present character of movements continues.
- 31,796. Nov. 19.—Authorizing Vancouver, Victoria & Eastern Ry. & Navigation Co. (G.N.R.), to remove rails and discontinue use of spur for W. H. Haight, Pipers Siding, B.C.
- 31,797. Nov. 19.—Authorizing C.P.R. to build spur for W. A. Denby, Calgary, Alta.
- 31,798. Nov. 19.—Authorizing C.P.R. to build spur for Brooks Elevator Co., Port William, Ont.
- 31,799. Nov. 21.—Dismissing application of Fesserton Timber Co., Toronto, for order directing railway companies to carry raw wood material for manufacture of lath at rates published for carriage of cordwood.
- 31,800. Nov. 21.—Declaring that increases in tolls authorized to be charged by British Columbia Telephone Co., under order 31,310, July 27, 1921, should be allowed only in Vancouver, North Vancouver, Victoria, New Westminster and Nanaimo, B.C., and ordering the company to file forthwith tariffs showing such increased rates, effective Dec. 21.
- 31,801. Nov. 19.—Authorizing C.P.R. to divert road allowance between n.w. $\frac{1}{4}$ Sec. 2 and n.e. $\frac{1}{4}$ Sec. 3, Tp. 12, Range 23, west principal meridian, at Harding, Man., by extending John St. northerly across its tracks to join east and west road allowance on north of secs. 2 and 3; to build tracks across road allowance, and to close diverted portion of road within right of way limits.
- 31,802. Nov. 19.—Recommending to Governor in council for approval Brantford & Hamilton Electric Ry. bylaw, amending bylaw 11, regulating travel on cars.
- 31,803. Nov. 12.—Authorizing G.T.R. to build spur for Hamilton Cotton Co., Hamilton, Ont.
- 31,804. Nov. 19.—Approving proposed relocation of signals at crossing of St. John Bridge & Railway Extension Co.'s tracks by St. John Ry. on Douglas Ave., St. John, N.B., in consequence of building of new cantilever bridge over St. John River and revised location of track.
- 31,805 to 31,807. Nov. 21.—Approving Bell Telephone Co. agreements with Moore Municipal Telephone System, Lambton County, Ont.; Yarmouth Rural Telephone Co., Elgin County, Ont., and Glenelg Municipal Telephone System, Grey County, Ont.
- 31,808. Nov. 23.—Authorizing C.P.R. to use bridge 1.8 over St. John River, St. John Subdivision, N.B.
- 31,809. Nov. 24.—Ordering British Columbia Telephone Co. to make effective by Dec. 1; certain tolls between Kerrisdale and Fraser; Collingwood and Eburne; and Collingwood and Kerrisdale, B.C.
- 31,810. Nov. 24.—Recommending to Governor in council for sanction rules for government of Michigan Central Rd. operating department.
- 31,811, 31,812. Nov. 23.—Approving Bell Telephone Co. agreements with Woodbridge & Vaughan Telephone Co., York and Peel Counties, Ont., and Specy River Telephone Co., Grey County, Ont.
- 31,813. Nov. 24.—Authorizing Canadian Northern Saskatchewan Ry. to open for traffic its Melfort Northeasterly Branch, from junction with Canadian Northern Ry. near Melfort, to Ridgedale, Sask., mile 0 to 23.7.
- 31,814. Nov. 24.—Authorizing Canadian Northern Ry. to cross a number of highways on its St. Rose du Lac extension, mile 100.3 to 121.04 Man.
- 31,815. Nov. 26.—Authorizing C.P.R. to open for traffic deviated portion of its line between mile 1.38 and 1.93, St. John Subdivision, N.B.
- 31,816. Nov. 23.—Authorizing Canadian Northern Ry. to make highway across its track between Secs. 20 and 19, Tp. 36, Range 23, west principal meridian, Man.
- 31,817. Nov. 23.—Authorizing G.T.R. to install automatic bell with wigwag signal at crossing of Main St., Seaforth, Ont., in lieu of watchman.
- 31,818. Nov. 23.—Authorizing Canadian Northern Ontario Ry. to build spur for Harvey & Angst, Waubamuk, Ont.
- 31,819. Nov. 23.—Authorizing G.T.R. to build spur for London Shipping Containers Ltd., London, Ont.
- 31,820. Nov. 24.—Dismissing application of National Dairy Council of Canada for order cancelling the 20% increase in express rates on cream, allowed by general order 327, Feb. 2, 1921, and re-establishing special commodity rates on cream in existence prior to said order.
- 31,821. Nov. 24.—Dismissing complaint of Montreal and Quebec Boards of Trade and Canadian National Millers' Association against tariffs filed by railways showing reduced rates on hay, corn, and feed when shipped to Department of Agriculture, Quebec, for feeding purposes.
- 31,822. Nov. 23.—Authorizing Mervin rural municipality 499, Sask., to divert road allowance on north boundary of Sec. 12, Tp. 51, Range 21, west 3rd meridian, southeasterly through Sec. 12, to connection with Railway Ave., Turtleford, Sask.
- 31,823. Nov. 26.—Approving Canadian National Rys. plan showing proposed layout of bridge over Red Deer River, at mile 59 Hanna-Medicine Hat Branch, and crossing Government Forced Road on south side of river.
- 31,824. Nov. 28.—Amending order 25,969, Mar. 13, 1917, re Canadian National Rys. crossing of Main St., Vegreville, Alta., by providing that watchman be appointed by the town.
- 31,825. Nov. 26.—Extending to Jan. 9, 1922, time within which C.P.R. may install wigwag signal at crossing of Dundas St., Woodstock, Ont., as required by order 31,480, Sept. 9.
- 31,826. Nov. 28.—Recommending to Governor in council for sanction Canadian Northern Ry. rules for prevention of accidents, passed Nov. 3, 1921.
- 31,827. Nov. 28.—Authorizing Canadian Northern Ry. to open for traffic portion of its line between Preeceville and Lintlaw, Sask., mile 72.6 to 100.3.
- 31,828. Nov. 28.—Approving agreement between Bell Telephone Co. and Prescott Rural Telephone Co., Prescott County, Ont.
- 31,829. Nov. 28.—Extending to July 1, 1922, time within which C.P.R. may build siding for Milverton Furniture Co., Milverton, Ont., authorized by order 30,379, Nov. 29, 1920.
- 31,830. Nov. 24.—Authorizing Saskatchewan Highways Department to build highway crossing over Canadian National Rys. on surveyed road in n.e. $\frac{1}{4}$ Sec. 16, Tp. 14, Range 8, west 2nd meridian, Sask.
- 31,831. Nov. 28.—Authorizing Grand River Ry. to build spur for Lang Tanning Co., Kitchener, Ont.
- 31,832. Nov. 28.—Dismissing complaint of Atlas Coal Co., Drumheller, Alta., against proposed closing of spur by Canadian National Rys. pending payment of certain accounts for repairs of same.
- 31,833. Nov. 28.—Authorizing Canadian Northern Ry. to open for traffic portion of its line from Turtleford to St. Walburg, Sask., mile 57 to 77.3.
- 31,834. Nov. 28.—Dismissing G.T.R. application for order amending order 9,809, March 1, 1910, by authorizing it to substitute electric alarm bell with wigwag signal for flagman at crossing of Echo Drive, Ottawa, Ont.
- 31,835. Nov. 21.—Ordering that cost of repairs to subway carrying Forsyth St. under C.P.R., Montreal, be paid, two-thirds by city and one-third by Montreal Tramways Co.
- 31,836. Nov. 30.—Authorizing Canadian Northern Western Ry. to connect its Brazeau Subdivision at mile 24.39 with Grand Trunk Pacific Ry. Three Hills Subdivision at mile 79.06 near Alix, Alta.
- 31,837. Nov. 29.—Authorizing C.P.R. to build spur for British American Nickel Corporation, Deschenes, Que.
- 31,838. Nov. 30.—Authorizing Canadian Northern Western Ry. to connect its Brazeau Subdivision, mile 20.98, with Grand Trunk Pacific Ry. Three Hills Subdivision, mile 76.97, near Alix, Alta.
- 31,839. Nov. 28.—Authorizing Canadian Northern Ontario Ry. to operate branch line for Canada Wire & Cable Co., York Tp., Ont.
- 31,840. Nov. 30.—Authorizing Canadian Northern Ry. to build across surveyed road in s. $\frac{1}{2}$ of Sec. 31, Tp. 33, Range 8, west 3rd meridian, Sask.
- 31,841. Nov. 30.—Authorizing Canadian Northern Ry. to connect its Drumheller Branch with Grand Trunk Pacific Ry. Three Hills Branch at mile 197.13.
- 31,842. Nov. 29.—Authorizing Canadian National Rys. to connect its tracks from about 360 ft. east of Brown St., Fort William, Ont., with C.P.R. spur serving Western Terminal Elevator Co.
- 31,843. Nov. 29.—Authorizing Canadian Northern Western Ry. to open for traffic portion of its Onoway Subdivision, from Robinsons to Whytecourt, Alta., mile 33.8 to 72.3.
- 31,844. Nov. 30.—Authorizing G.T.R. to build spurs or sidings south of Spring St. and east of Lancaster St., Kitchener, Ont.
- 31,845. Nov. 29.—Amending order 31,795, Nov. 19, re Ottawa & New York Ry. and Grand Trunk Ry. crossing at Hawthorne, Ont.
- 31,846. Nov. 30.—Authorizing C.P.R. to make highway crossing at Parkbeg, Sask.
- 31,847. Dec. 2.—Authorizing Canadian National Rys. to build across C.P.R. in the Canadian Cresooting Co.'s yards, Trenton, Ont.
- 31,848. Dec. 2.—Dismissing application of residents of Nutana, Sask., for order directing Canadian National Rys. to remove automatic electric bell voluntarily installed by it at crossing of 11th Ave., Saskatoon, Sask.
- 31,849. Dec. 2.—Declaring that for the present, Brantford & Hamilton Electric Ry. crossing immediately west of Langford Siding, Ont., is protected to Board's satisfaction.
- 31,850. Dec. 2.—Authorizing C.P.R. to remove station agent at Monarch, Alta., caretaker agent to be appointed.
- 31,851. Dec. 2.—Approving clearances at overhead I beam on Crane Ltd. spur, Calgary, Alta., subject to certain conditions.
- 31,852. Dec. 2.—Authorizing Canadian Northern Ry. to connect its Craik Subdivision, mile 5.40, with Grand Trunk Pacific Branch Lines Co.'s Riverhurst Subdivision, mile 3.83, near Regina, Sask.
- 31,853. Dec. 2.—Authorizing Canadian Northern Ry. to connect its Vegreville Subdivision with Grand Trunk Pacific Ry. Viking Subdivision in n.e. $\frac{1}{4}$ Sec. 13, Tp. 53, Range 24, west 4th meridian, crossing Fort Saskatchewan Trail and Norton (66th) St., Edmonton, Alta.
- 31,854. Dec. 3.—Declaring that for the present G.T.R. second public crossing near Danville Jct., Ont., is protected to Board's satisfaction.
- 31,855 to 31,868. Dec. 3.—Authorizing Canadian Northern Western Ry. to cross 14 highways in Alberta.
- 31,869. Dec. 3.—Authorizing Canadian Northern Ontario Ry. to move its station at Washago, Ont., to mile 89.1 Muskoka Subdivision.
- 31,870. Dec. 3.—Dismissing J. L. Debrunski's application for separation of grades at farm crossing over Canadian National Rys. at Rosebud, Alta.
- 31,871. Dec. 7.—Approving Grand River Ry. Supplement 1 to standard mileage freight tariff C.R.C. 57.
- 31,872. Dec. 7.—Approving Lake Erie & Northern Ry. standard mileage freight tariff C.R.C. 165.
- 31,873. Dec. 7.—Ordering G.T.R. to build siding for Ontario Highways Department at West Hill, Ont.
- 31,874. Dec. 6.—Authorizing Canadian Northern Ry. to build across three road allowances on line of its co-ordination with Grand Trunk Pacific Branch Lines Co.'s track, mile 3.83 Riverhurst Subdivision, at mile 5.40 Craik Subdivision, near Regina, Sask.
- 31,875. Dec. 6.—Authorizing Canadian Northern Ry. to cross highway at Henribourg, Sask.
- 31,876. Dec. 6.—Authorizing C.P.R. to install half interlocking plant at crossing of Peterborough Radial Ry. at George St., Peterborough, Ont.
- 31,877. Dec. 6.—Dismissing complaint of McCollom Lumber & Supply Co., Winnipeg, Man., against advanced charges for heat, or supplying heaters without heat, in refrigerator cars for apples moving from British Columbia to the Prairie provinces.
- 31,878. Dec. 6.—Authorizing C.P.R. to make highway over its track at Ste. Madeleine St., Cap de la Madeleine, Que.
- 31,879. Dec. 6.—Authorizing C.P.R. to build spurs for Alex. Brenner, Ltd., Montreal.
- 31,880. Dec. 6.—Authorizing G.T.R. to close its station at Rockland, Ont., on condition that it keep open tracks between Y switch and station as siding, and place cars there for unloading, if so consigned by owner.
- 31,881. Dec. 9.—Recommending to Governor in council for sanction Hamilton Radial Electric Ry. bylaw 11, regulating travel on its cars.
- 31,882. Dec. 9.—Authorizing Canadian National Rys. to make highway over its tracks between Sec. 13, Tp. 64, Range 22, and Sec. 18, Tp. 64, Range 23, west 4th meridian, Alta.
- 31,883. Dec. 6.—Authorizing Interior Department (Canadian National Parks) to make highway over C.P.R. at Banff, Alta.
- 31,884. Dec. 9.—Ordering that when signals are shown G.T.R. trains may be operated over crossing at Main St. East, Hamilton, Ont., with out first stopping, also that when derails are closed, Hamilton, Grimsby & Beamsville Electric Ry. cars may be operated over crossing without first stopping; speed of trains and cars not to exceed 6 miles an hour.
- 31,885. Dec. 9.—Authorizing Alberta Public Works Department to make highway over Canadian National Rys. in s.e. $\frac{1}{4}$ Sec. 22, Tp. 31, Range 16, west 4th meridian, Alta.
- 31,886. Dec. 9.—Declaring that for the present Canadian National Rys. crossing near Preeceville, Sask., is protected to Board's satisfaction.
- 31,887. Dec. 9.—Amending order 31,763, Nov. 11, authorizing C.P.R. to operate trains over crossing at Richmond St., London, Ont., without first stopping.

Handling Scrap on C. P. R. at West Toronto

It is a fact, not commonly appreciated, that the scrap business is one of the best organized lines of trade carried on in Canada or the United States. Railways are necessarily large contributors to this trade, on account of the large quantities of material used by them, and the railways themselves are in a position to save a great deal of money, or lose a great

ment, with little or no classification, on orders from the purchasing officials. The advantages of a central scrap yard, operated in conjunction with the stores department, and in charge of a man experienced in handling material, are many. In the first place it presents an opportunity for saving, and returning to use, a great deal of good material which finds

R. at West Toronto. Fig. 1 is a general view of a portion of the scrap platform, which is divided into sections, for the temporary storage of certain classes of materials, and which has tracks at both sides. The incoming material is unloaded at one side; material which is to be reclaimed is piled for the time being in the various compartments on the plat-

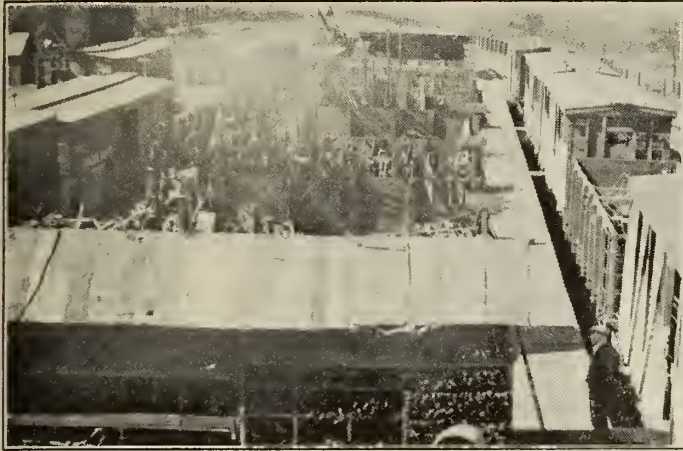


Fig. 1. General View of Scrap Platform.

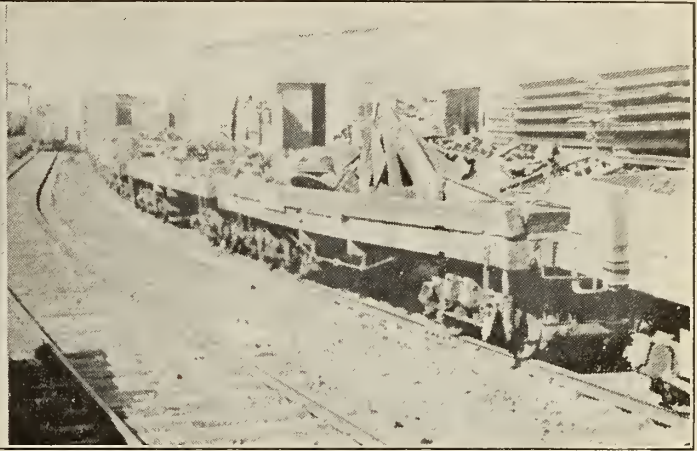


Fig. 2. Cars of Scrap arriving for unloading.

deal, in accordance with the methods adopted in handling their scrap material. The idea that the department which uses certain materials in its work is best qualified to handle and dispose of the scrap arising from the use of that material, has been demonstrated as most fallacious, and it is now generally recog-

its way into scrap piles at outlying points. It ensures a minimum quantity of scrap material being kept on hand; enables better prices to be obtained through proper classification; presents opportunity for reduced handling costs, and, finally, takes the matter out of the hands of men who, for example, are

form, and the scrap proper is loaded into cars on the opposite side. The height of the platform is such that it comes even with the car doors. Fig. 2 shows several cars of scrap on hand to be switched into place for unloading. The cars shown are used exclusively in the collection of scrap within the Toronto terminals.



Fig. 3. Reclaiming couplers and pockets.



Fig. 4. Bent and twisted tie plates.



Fig. 5. Tie plates reclaimed.

nized that the handling of scrap material is purely a stores department function. The Railway Storekeepers Association has standardized recommendations for the classification and handling of scrap, which include the central scrap yard, designed to supplant a system in which each large shop or department collected its own scrap and loaded it up for ship-

there to repair cars and locomotives, and places it where it belongs, in the hands of men who are there to look after material.

A central scrap yard, in charge of H. Brooks, District Storekeeper, and J. E. McEwan, Scrap Foreman, where scrap is received from points on the Ontario District lines, is maintained by the C.P.

In a carload of scrap, as it arrives, is old material of all descriptions, from steel turnings up to castings weighing several hundred pounds. Included in this incoming scrap are many articles which can be used again, either with or without a certain amount of fixing up, and it is one of the most important functions of the yard to keep this material separate

from that which is to be offered for sale as scrap. Pieces of pipe, with fittings attached, are common; the fittings are taken off, and soaked in oil (the oil being obtained when tank cars are cleaned out, with a small amount of coal oil added) to remove rust and scale, after which they may be re-used. Short pieces of good pipe are cut up for making nipples, while many long pieces of good pipe are salvaged. Many brake beams arrive in a badly bent condition. They are straightened and returned to use. If a brake beam is past redemption, the heads may be removed, and applied to a beam lacking these parts. Many good brake shoes find their way into the incoming scrap; they are taken out and returned to service. Bent brake shoe keys are straightened and returned to use.

Fig. 3 shows a portion of the space provided for couplers and coupler pockets which are taken out of the incoming material. It may happen that a good coupler may come in with a broken pocket. The pocket is taken off, and furnishes material to make either one or two draw-bar carrying irons, while a good pocket is taken off a broken coupler and put in its place. The good parts of freight car door hangers are matched up in the same way, so that out of the scrap many good ones are returned to service. Carrier irons, and angle irons, as used on dead-woods, are straightened up and returned to service, while castings which arrive

attached to pieces of timber, such as car sills, draft timbers, etc., are taken off, to be returned to service.

In connection with the yard is a small shop for handling bolts, which are reclaimed in large numbers. It is provided with an air operated straightening hammer, shears, and threading machines, and from the thousands of worn bolts which come in, thousands of good bolts are turned out, in lengths according to stores department orders. Corresponding numbers of nuts are cleaned and rethreaded. Tie plates are reclaimed in large numbers. Figs. 4 and 5 show plates before and after straightening by an air hammer.

Space does not permit a full account of the many classes of material which may be salvaged from scrap as it arrives at the reclamation yard. In any railway scrap pile one may expect to find such things as locomotive springs, coupler springs, truck springs, bolts, nuts, couplers, knuckles, chain, track jack parts, gearing, car replacers, angle cocks, brake wheels, worn train line and steam heat hose, with good fittings, and so on ad infinitum, all of which represents good material, and from the above few examples, it is seen that great savings in material can be effected by a proper system of reclamation.

The material which is reclaimed for further use, having been sorted out of the scrap received, that which is left is

scrap in the true sense of the word. This is loaded into cars at the opposite side of the platform, each class being kept separate, and is then ready for shipment. The classification includes nos. 1, 2 and 3 wrought, nos. 1 and 2 cast, malleable, with separate classes for cast steel, spring steel, pipe, etc. From West Toronto, certain classes of material are sent to the yard at Angus, Montreal, the yard at West Toronto bearing the same relation to the yard at Angus, so far as these particular materials are concerned, as the many points on Ontario lines where scrap is first collected bear to the yard at West Toronto.

In the West Toronto yard the foreman and 11 men, 8 of whom do the unloading, sorting and loading, the other operating the various machines used in the reclaiming work, operate the entire plant. From 40 to 50 cars a month of scrap are received, and in addition to great deal of rails which have been taken up are unloaded, classified, sorted, and distributed. On seeing the vast amount of material, for practical purposes as good as new, which is reclaimed, and on considering that, lacking such a system, it would be sold for ordinary scrap prices, one is convinced that such a scrap handling yard is an investment which yields large returns, and that the stores department men in charge of the reclaiming operations certainly deserve the title of the "economy men" of the railways.

The Container Car.

Walter C. Sanders, of the New York Central Lines' Equipment Engineering Department, read a paper, "Avoidable Waste in Car Operation—The Container Car," before the American Society of Mechanical Engineers at New York, recently. Following is a summary:—

The container car was the result of U. S. war time railway congestion, caused in part by the inability of getting cars placed for unloading, and by manufacturers and others using cars as storage warehouses, despite high demurrage. This type of equipment was introduced on the New York Central Lines by A. H. Smith, President, and at present there are three container cars in operation, one of the mail or express type and two, which are being used for high class freight. Three mail container cars now being built will be equipped with all-steel containers of improved type, and a new freight container car is being designed, while refrigerator and tank container cars are contemplated.

The container car is nothing more than a long car with a steel side or fence, similar to a low side gondola, loaded with large steel safes or containers, made as light as possible, in which commodities of all kinds travel from consignor to consignee, protected against thieves, fire, weather and breakage. The safes or containers are lifted on or off the car by cranes or hoisting devices, permitting the "parent" rolling stock to continue in immediate transportation circulation. In appearance the loaded car seems to be a solid load of safes, or steel vaults, set aboard a steel underframe with a low protecting steel fence. The container system provides that the portable container shall be loaded and locked at the shipper's own store door, conveyed by motor truck to the railway yard, and lifted by crane aboard the container car,

where steel bulkheads and sides form absolute protection against opening the container in transit. At the destination the locked container is unloaded by a crane, and carried by motor truck directly to the warehouse or consignee's door, to be unloaded at his convenience. This simple system of handling goods will make it possible to greatly reduce the force of employees now necessary.

The two freight type container cars are 50 ft. long, which is exceptional for a car used in freight service, being 9 ft. longer than the longest New York Central box cars. Each car carries six containers, length 6 ft. 7 in., width 7 ft. 1½ in., and clear height 7 ft. 7½ in., all inside measurements. Each container has a steel frame, base, and roof of open hearth steel, sides of fir wood, and a radial roof so that water will shed off. All joints are double riveted. The door in the freight type of container is located in the width side and is of standard refrigerator design. As the door is in the end, or width side, of the container, five 12 in. x ¼ in. steel plates are riveted to the sides of the car, extending across the inside of the car, through the open clearance spaces between containers, so in case one or more containers are removed from the car, the doors of the remaining containers cannot be opened.

The express container car now in use is 61 ft. 3 in. long, with trucks and fittings which make it interchangeable with standard passenger equipment for use in any passenger train. All modern safety appliances for a special type of car are installed, such as air brakes, hand-hold irons, sill steps, etc. This car carries nine containers, each 9 ft. wide by 6 ft. long, with an inside clear height of 7 ft. 4 in., and a door 3 x 6 ft. The containers are as nearly burglar, fire and weather proof as it is possible to make

them, and have a carrying capacity up to 7,000 lb. They have wood floors, and are arranged with four eyelets or hooks, one at each outside top corner, for convenient lifting and handling. The doors are of standard refrigerator design, and are arranged with a hasp and staple for the shipper's padlock, also with pin and slot for standard freight car seal. The steel sides of the car are spaced to suit the width of the containers, with a clearance of ½ in. on each side. The containers cannot be made as wide as the car itself, because of the various state highway laws which regulate the width of motor trucks.

In the interior of the body of the gondola part of the car are sectional guides, made of ¼ in. steel, resembling channel steel, with the laps projecting out from the open ends, to enable them to be riveted to the sides of the car. There are guides at each place on the side of the car where the corner of a container will lie. At each corner on the length side of each container there is a shoe, also of pressed steel, which will fit into the socket formed by the two guides. This arrangement guides the containers to the floor of the car, and holds them in place while it is in transit, without additional blocking or fastening. If it is found necessary to move the car over the road after one or more containers have been removed, it is unnecessary to put in any kind of blocking, because the guides and shoes are arranged to hold the containers and prevent them from shifting or falling over owing to the oscillations of the car.

The three new mail type container cars will be equipped with 8 containers each, length 7 ft. 2½ in., width 9 ft. 3½ in., and clear height 8 ft. 2 in., with a 5 ft. 9 in. x 3½ ft. door on the length side. Cubic capacity will be 438 ft., light

weight 3,000 lb., and capacity 7,000 lb.

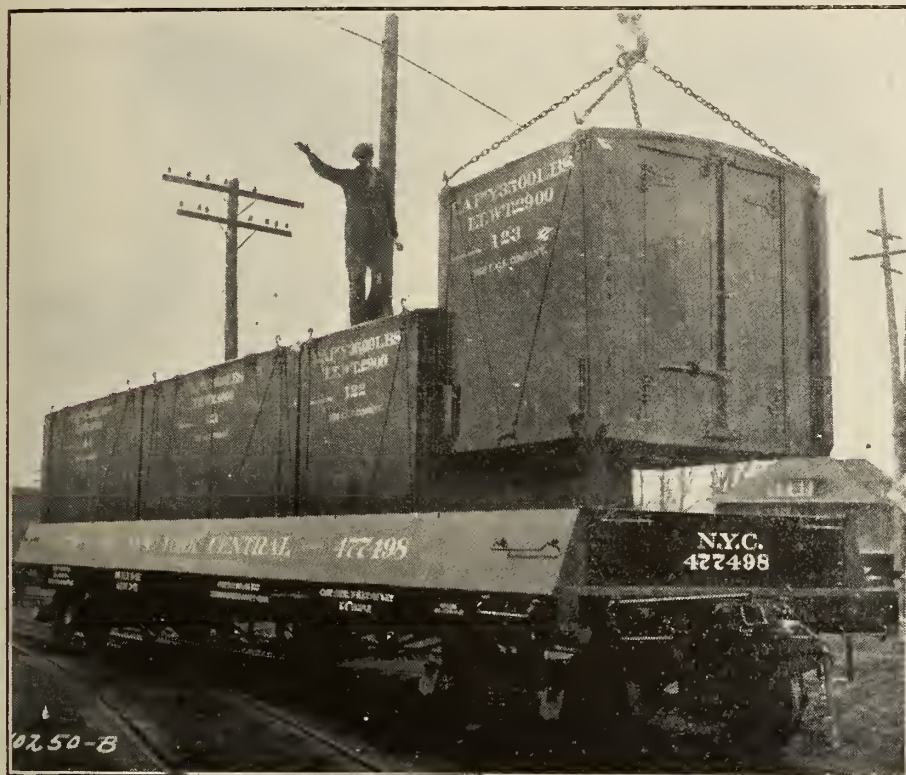
In a test run with mail from New York to Chicago in May, 1921, with the express type of container car, the nine containers were unloaded on to waiting post office motor trucks in 21 minutes, or one-fifth the time used in unloading an ordinary mail car. This enabled connections to be made with western mail trains

A summary of the prime advantages claimed for the contained car system is as follows:—It will furnish a means of expediting delivery of less than carload lots of commodities by eliminating the time and expense of rehandling, checking and trucking. It will eliminate costly crating and packing. The immediate unloading and loading of containers at

The increased service capacity of each unit by the development of the container car system is thought to hold far-reaching economic possibilities in railway operation of the future, as well as in the co-ordinated use of the motor truck and the electric railway.

The foregoing matter cannot fail to be of interest to anyone connected with railway transportation. Many of the advantages claimed for the new type of equipment are at once evident, particularly the safeguard provided against freight loss and damage en route, the elimination of costly packing and crating, and of handling and checking expense. For the handling of mail, the container car apparently fills a long felt want. For a shipper who sends out a large quantity of l.c.l. freight daily, with comparatively large consignments to individual customers, the container car system would appear to be particularly well suited, and with suitable loading and unloading apparatus to handle the containers to and from the cars at the shipping and receiving points, would seem to possess a good degree of flexibility.

While car movement would undoubtedly be speeded up, and other expenses decreased, the greatest economy possible in connection with the container car system would not be obtained until it was so nearly universally in operation that the necessity for operating l.c.l. freight houses would be practically non-existent. While it is evident that the advantages claimed for the container car are real and practical, it would nevertheless seem that further development is needed before it can be described as being entirely suitable for the handling of l.c.l. freight, and express matter. The containers would no doubt be suitable for shipments which would fill one or more of them to capacity, but it is probable that in operation the need would arise for smaller containers than have yet been tried, to take care of the smaller l.c.l. shipments. It is evident that some arrangement would have to be made for the railways to exercise some sort of supervision over the



Unloading Container from Freight Type of Container Car.

which had never before been made. On the return trip, the containers were unloaded from the car in New York in 18 minutes. It is believed that the use of containers in mail service will prevent

terminal points eliminates demurrage, at the same time promptly releasing rolling stock, clearing the yards of cars and reducing congestion. It will eliminate the piecemeal loading of cars at railway sid-



Express Type Container Car, with Containers in place.

loss of mail; mean a saving to the Government in the handling of mail, and a saving to the railways in the use of equipment; make possible a quick transfer at important gateway points and the maintaining of close railway connections otherwise impossible, and afford an increased weight and capacity over the average load now handled in mail cars.

ings in exposure to all kinds of weather. It will tend to keep the car moving at all times, making possible double the mileage as made now by an ordinary piece of rolling stock. Containers are fire and weather proof, and also burglar proof, as they cannot be opened while on the car, or while being transferred by handling device to and from it.

filling of the containers, to be assured that the goods being transported were as represented. It is also probable that some facilities for storage of the containers would have to be made at freight stations, to provide for cases where consignees would not be in a position to accept delivery immediately on arrival, if the cars are to be kept in continuous

operation and a better average car mileage per day obtained.

The introduction of the container car system to the railway business, like the introduction of any other method or device which promises to promote economy, would necessitate immediate capital expenditure, and for that reason its adoption would be gradual, even with its desirability fully demonstrated. Capital expenditure in this case would involve the construction of new cars, or the re-modeling of existing cars to receive the containers, the acquisition of the containers themselves, and the installation of loading and unloading cranes. Whether the container car system will be generally adopted by railways, either in something like its present form, or after great change and modification, must remain to be seen, but it is evident that the system is the result of a frank recognition of the economic wastes existing in transportation, and that it is representative of a genuine attempt to remove some of these wastes and introduce more efficient methods. For this reason, the article is deserving of all our readers' full attention.

Freight and Passenger Traffic Notes.

The Pacific Great Eastern Ry. Co. on Dec. 2 ran its first train through from Squamish to Quesnel, B.C., since the flood of Oct. 28.

The Canadian Freight Association on Dec. 3 submitted for the Board of Railway Commissioners' approval Supplement 19 to Canadian Freight Classification 16.

The total catch of halibut landed at Prince Rupert, B.C., during November, is stated in a press report to have been approximately 3,000,000 lb., the record for the season.

The Dominion Atlantic Ry. is reported to have carried 3,713 cars of apples to Dec. 8 for the 1920 season, against 2,575 cars to the same date in 1921. There were reported to be about 900,000 barrels in storage in the Annapolis Valley and North Mountain districts on Dec. 1 awaiting shipment.

A Winnipeg press dispatch of Dec. 14 stated that grain was being loaded at stations in the prairie provinces at the rate of 800 cars a day for eastern points. The clean up of grain for shipment on the last day of navigation is reported to have left a total elevator capacity of 20,000,000 bush. at the head of the lakes.

A meeting of men interested in mining held in Toronto, Dec. 19, passed a resolution calling Hon Mackenzie King's attention to the fact that the mining industry is responsible for 35% of the railway freight revenue of the Dominion, or double that of agriculture, the next most important freight producer, and asking that a Minister of Mines be appointed in the new government.

Shipment of grain from the Columbia River and Puget Sound ports show, according to a press report, an increase of 54% for July, August and September, over those for the corresponding three months of 1920, and the shipment to United Kingdom and European continental ports from Pacific ports during September are said to have been 7,843,000 bushels. S. McClay, one of the Vancouver harbor commissioners, is reported

to have said at Winnipeg recently that more than 1,000,000 tons of space had been booked at Vancouver for grain shipments to foreign ports.

Canadian National Rys. Traffic Officials met in Winnipeg during the third week of December, and discussed passenger traffic matters, service, etc., the meeting being attended by representatives of the passenger, baggage, advertising, industrial, and resources departments from all parts of the system. Among those present were C. A. Hayes, Vice President in charge of traffic, and H. H. Melanson, Passenger Traffic Manager, Toronto; R. Creelman, A.P.T.M., Winnipeg; W. E. Duperow, G.P.A., Winnipeg; Osborne Scott, P.G.A., Vancouver; G. A. McNichol, A.G.P.A., Prince Rupert; C. E. Jenney, G.A., New York; J. Madill, D.P.A., Edmonton; W. J. Quinlan, D.P.A., Winnipeg; W. Stapleton, D.P.A., Saskatoon; W. L. Crighton, General Advertising Agent, Toronto; W. C. Riddell, Advertising Agent, Toronto; C. W. Higgins, Advertising Agent, Winnipeg; C. A. Skog, D.F. & P.A., Duluth; K. E. McLeod, D.P.A., Vancouver; J. F. McGuire, G.A., Seattle; W. F. Barry, G.A., San Francisco. These meetings are held yearly, last year's having been in Toronto, the idea being to visit a different portion of the system each year.

The Importance and Value of Railway Statistics.

The following extracts from an address by L. F. Loree, President, Delaware & Hudson Co., to the Railway Accounting Officers Association, Atlantic City, recently, are well worth remembering by every railway man. "Statistics cannot take the place of judgment, but they are most valuable aids to judgment. They serve as instruments to thought, to knowledge and to work, and should be compiled in the clearest, the briefest and the most compact form. The ramifications of railway operations are so widespread, the sources of possible wasteful expenditures, or possible economies, so numerous, that if a railway is to be managed with a maximum of efficiency, it is important that all information bearing on work done, and cost of operation, be drawn together and tabulated on uniform bases; that is, there should be adequate statistical information. If sufficiently comprehensive, statistics will aid in the solution of problems and enable conclusions to be drawn and judgment measured. Constant usage cultivates a sense of arithmetical values, to which the mind becomes responsive in a way analogous to that in which the trained ear becomes responsive to values in harmony. Statistics should be as few as will cover the essential items, and contain the details that explain the fluctuations which have taken place and where they occur. They are exposed to the danger of a careless assumption of data, without testing their correctness, and to undue refinement in the calculations based thereon. They should be kept so that information can be condensed, from period to period, on statements that will enable comparison of cumulative periods. Time is of the essence of all statistical data. Careful study should be made of the dates upon which statistical data are to become available, and resolute discipline imposed so that they be produced on time."

Railway Finance, Meetings, Etc.

Canadian Pacific Ry.—An issue of \$25,000,000 of C.P.R. perpetual 4% consolidated debenture stock was sold recently to the National City Co., in association with a number of banking houses, in connection with which the following announcement was made Dec. 19:—"This is the first issue of the premier security of the C.P.R. to be sold in the United States, all previous issues having been made in London, Eng., and it therefore marks an important step in American finance. The exceptionally high character of the security is indicated by the fact that the average price of the issue on the London Stock Exchange for the 14 years preceding the outbreak of the world war was 106%. This price compares with the average prices of American railroad bonds as follows: Atchison, Topeka & Santa Fe general 4's, 97%; Union Pacific first mortgage land grant 4's, 100%; Northern Pacific prior lien 4's, 98%. The high price reached by the consolidated debenture stock on the London Stock Exchange was 118½ in 1902."

A New York dispatch of Dec. 21 stated the bonds were offered to the public to yield 5.13%, which is said to be the lowest yield for a railway bond since the war, and that the issue was oversubscribed.

Pacific Great Eastern Ry.—The British Columbia Legislature on Dec. 1 voted \$500,000 to cover deficiencies in P.G.E.R. operation.

Timiskaming & Northern Ontario Ry. The net results of operation for the year ended Oct. 31, 1921, are stated to have been an excess of earnings over expenses of \$181,778.89, and the Commission at the close of the year paid the Ontario Government \$200,000 in connection with surplus earnings.

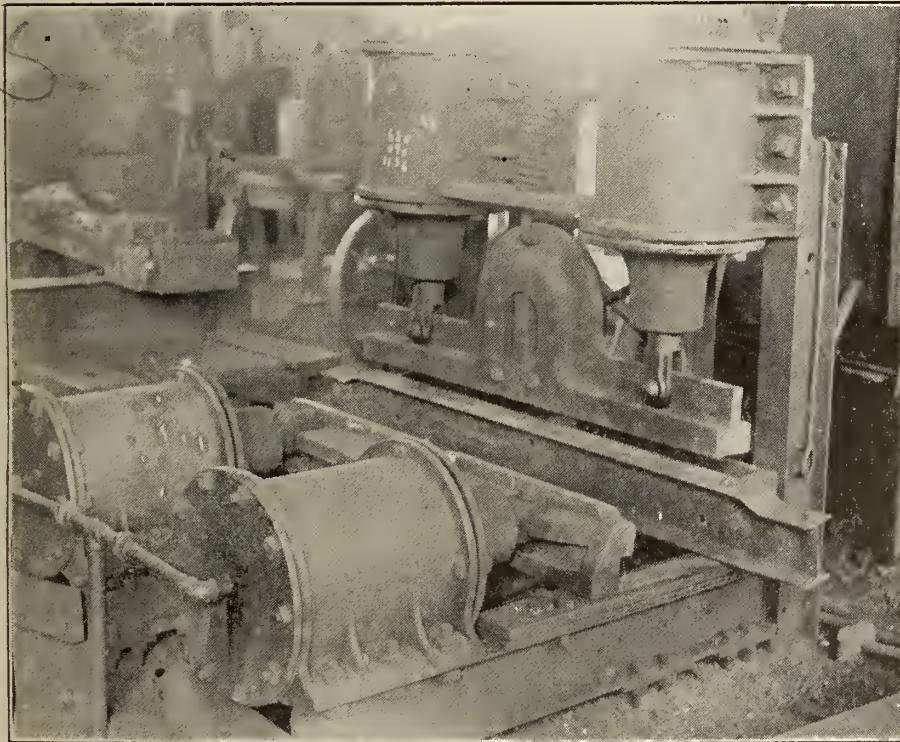
The Transportation Club of Toronto held its annual dinner and general meeting at the Prince George Hotel, Toronto, Dec. 16, the President, M. McIlroy, General Agent, Passenger Department, C.P.R., Detroit, Mich., being in the chair. The members elected the directors for the ensuing year, and at a subsequent meeting the directors elected the following officers and chairmen of committees:—President, Thos. Symington, Superintendent, Canadian Cartage & Storage Co.; Vice President, G. W. Vaux, General Agent, Union Pacific Ry.; Treasurer, Murdo MacDonald, Assistant Superintendent, Weighing, G.T.R.; Secretary, W. J. Hotrum, chief clerk, local freight office, G.T.R. Chairmen of committees:—Membership, A. M. Adams, Local Freight Agent, G.T.R.; Entertainment, G. S. Donaldson, General Agent, Chicago & Northwestern Ry.; Publicity, J. J. Rose, General Agent, Robert Reford Co.; Sick, W. M. MacPherson, Canadian Agent, Delaware & Lackawanna & Western Ry.; Reception, W. J. Moffatt, City Passenger Agent, G.T.R.

The Future of British Railways, was the title of a paper read before the Institute of Transport in London, Eng., recently, by Sir George Paish. Speaking of the grouping of railways, he pointed out that while in the United States, it had been a gradual process of nearly 40 years, it had sprung up, as it were, over night, in Great Britain. British railways were built on a cheap labor basis, and now that labor is dear, past methods will need constant revision and adaptation.

Railway Mechanical Methods and Devices.

Reclaiming Brake Beams from Scrap.

The accompanying illustration shows a device designed and built at C.P.R. Angus shops, Montreal, for straightening brake beams which have become bent in various ways in service. A good many of these old beams come in from time to time, among the scrap which is shipped in from various points on the system, and though some of them are bent or twisted, they are a great deal more valuable as brake beams than they are as scrap, hence the incentive for reclaiming them. The way in which the straightening device is assembled is shown in the illustration. The two vertical cylinders, supported as shown, have attached to their piston rods a steel beam, of sufficient length and with a flat surface, for straightening the brake beam vertically; the two horizontal cylinders are arranged similarly for straightening the brake beam horizontally. The coil spring, set vertically between the two vertical cylinders, is to lift the straightening beam up when pressure above the pistons in the vertical cylinders has been relieved. The pistons are operated by air pressure, the pipe conveying the air to the back of the pistons in the horizontal cylinders being shown in the illustration. The valves for the horizontal cylinders are arranged so that when the air is exhausted from behind the pistons, enough is admitted in front of them to force the horizontal straightening beam back to position. In the vertical cylinders, the spring does this as noted. The two straightening beams may be operated simultaneously, making it possible to straighten a brake beam very quickly.



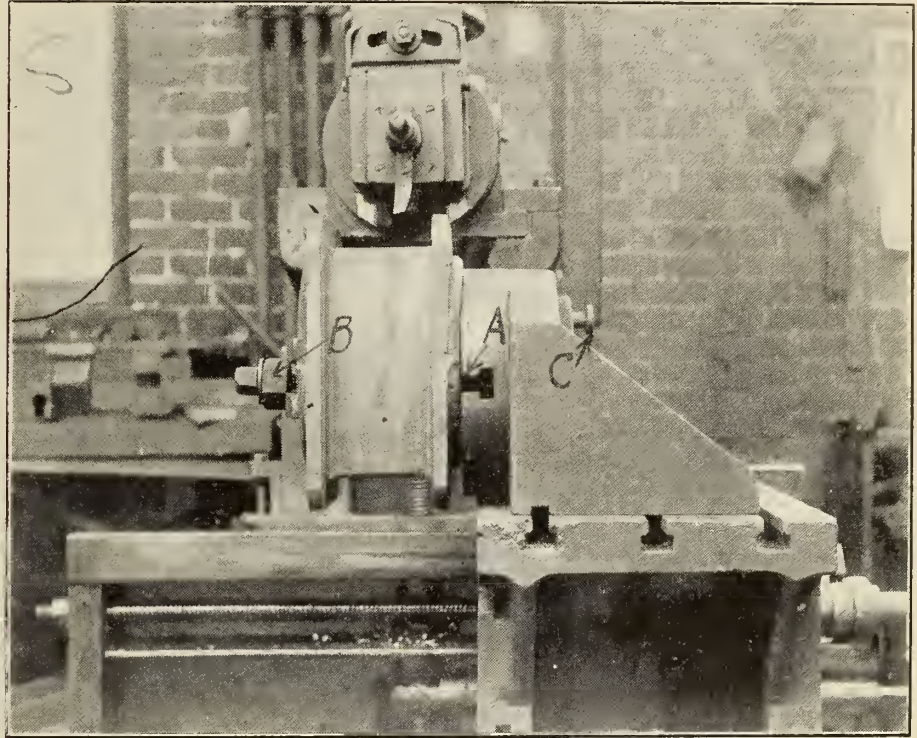
Reclaiming Brake Beams from Scrap.

Before straightening, the brake beams are stripped of all fittings. The savings possible by this device, one of many used in reclamation at Angus shops, are large.

Chuck for Machining Main Rod Brasses.

The accompanying illustration shows a chuck used in connection with the machining of rod brasses, set up in the

set-up, with only an adjustment which is very quickly made between the machining of each side of the brass. A large bolt, the head fitting in the opening A as shown in the illustration, passes through the center of the brass, the brass being



Chuck for Machining Main Rod Brasses.

secured by the nut B, on the end of the bolt, as shown. The circular portion of the chuck may be revolved on the axle, the end of which is countersunk into it, with a nut on the end at the extreme right, below the pin C. When one face of the brass has been machined, the pin C is withdrawn from the hole in which it fits, in the circular portion of the chuck, and the brass and circular portion of the chuck are given a quarter turn, the nut on the end of the axle for the circular portion being first slacked off a turn. The pin C is re-inserted in another hole in the circular portion, 90 degrees from the preceding one. The third and fourth faces of the brass are put into position for machining in a similar manner, by loosening the nut on the extreme right, withdrawing pin C, turning the circular portion through 90 degrees, re-inserting pin C, and tightening nut at extreme right. We are indebted for this information to M. J. Hayes, General Foreman, Locomotive Department, T. H. & B.R.

The American Wood Preservers Association's last report stated that 112 wood preserving plants throughout the U.S. used 50,000,000 lb. of zinc chloride and 69,000,000 gall. of creosote in the treatment of over two billion board feet of timber. The treated material consisted mainly of railway ties, construction timbers for wharf, bridge, highway, mining and building purposes, piling, telephone and power poles, fence posts, wood blocks for street paving and for factory floors, and lumber for miscellaneous uses.

Timiskaming & Northern Ontario Railway Extension.

The T. & N.O. Ry. was projected as a colonization railway by the Ontario Government in 1902 to open up for development and settlement the district north of North Bay. Surveys were completed and construction was started at the end of that year, track laying was started in 1903, and the section of the line from North Bay to New Liskeard, 113.9 miles, was put in operation at the end of 1904. The work of construction was carried out under the T. & N.O.R. Commission, which was also given the operation of the line.

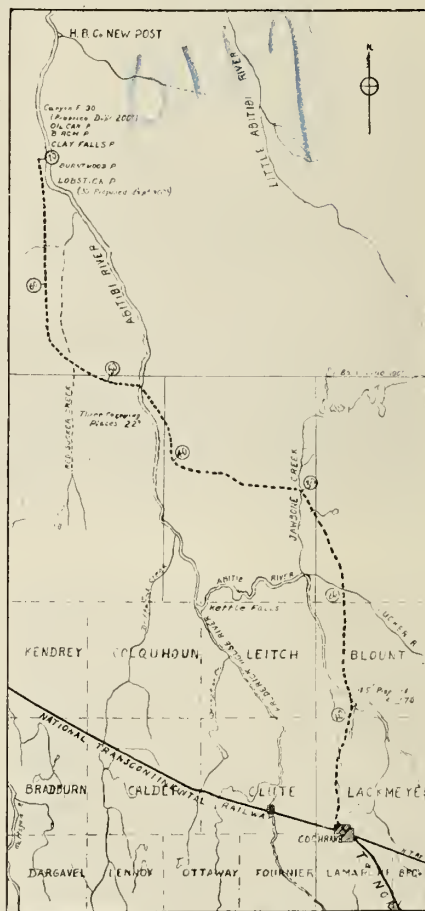
The discovery of silver and cobalt in the vicinity of Haileybury, etc., during the construction of the line, resulted in a large influx of population, of a kind that was not anticipated at the time the construction of the line was decided upon. The mining area developed faster than the agricultural area of territory opened up, and the southern part of the district attracted large numbers of tourists during the summer. The inception of the project of the National Transcontinental Ry. by the Dominion Government in 1903 led to the undertaking of a T. & N.O.R. extension northerly from New Liskeard to a junction with the N.T.R. at Cochrane, 139.7 miles from New Liskeard and 253.6 miles from North Bay, which was put in operation Nov. 25, 1908. Since that time the line from North Bay to New Liskeard has been brought to the higher standard to which the extension to Cochrane was built. A number of branch lines have also been built to serve the mining and forest territory opened up for development.

The objective of the line has always been the James Bay area of Hudson Bay, and the country between Cochrane and the Bay has been thoroughly surveyed as to possible routes, and the natural resources to be developed. Early last autumn the Premier of Ontario announced that construction would be started on the extension of the line northerly for about 70 miles, and towards the end of October the clearing of the right of way was begun. Tenders will be received by the Commission to Jan. 9 for the construction of the roadbed ready for ties and rails, and also for the track laying, ballasting and fencing of the extension, which will be from Cochrane to a point on the west side of the Abitibi River, about 10 miles southwest of New Post, which is on the east side of the river. The present extension will leave about 100 miles of the line to be built to reach Moose Factory on James Bay. The contractor, it is stated, will be required to complete the first 40 miles from Cochrane to the Abitibi River by Dec. 31, 1922, and the remaining 30 miles by Dec. 31, 1923. Tenders for steel bridges will be invited later. The Commission will provide ties, rails and fastenings. The estimated cost of construction is about \$3,500,000.

The route of the extension has, we are officially advised, been located with a view to opening up for settlement and development the largest possible area, and the ultimate extension of the line to Moose Factory at tidewater. The line is being located to a comparatively high standard of gradients and curvature. The maximum gradient is 0.05 of 1%, fully compensated for all curvature, the maximum being 4 degrees. Grading will be comparatively light. Two crossings of the Abitibi River will be necessary, one

at the Long Sault, mile 11, and the other at mile 47, near the Carrying Place. A number of smaller bridges will also be required. As far as possible permanent structures will be built, without unduly increasing the cost of construction. The track will be laid with 80 lb. steel rails, 6,000 tons of which have been ordered from the Algoma Steel Corporation, which it is expected will be ample for 1922 construction. Contracts are reported let for 75,000 ties, the order being divided among R. S. Porter, Matheson; P. McCool, North Bay; and the Harris Tie & Timber Co., New Liskeard.

Two location parties are in the field completing the location work, under the direction of W. R. Maher, who has had



Route of T. & N.O.R. Extension from Cochrane Northwesterly.

general charge of the exploratory and location surveys under S. B. Clement, Chief Engineer. The engineers in charge of the parties are A. A. Fraser and A. Sunstrum. The construction engineering staff has not yet been organized. (Dec., 1921, pg. 646.)

Pacific Great Eastern Ry. Accounting. The British Columbia Legislative Assembly passed two resolutions affecting the Pacific Great Eastern Ry. recently, directing that all financial accounts between the province and the P.G.E. Ry. Co. respecting construction and all receipts and expenditures of the company be subject to the scrutiny of the Public Accounts Committee in the same manner and to the same extent as are the ordinary public accounts of the province. The P.G.E. Ry. is owned and operated by the province.

President Hanna's Christmas Message

D. B. Hanna, President, Canadian National Rys., issued the following message, Dec. 22, 1921: "In my first Christmas message to Canadian National Rys. employees three years ago, I asked for your co-operation in making a success of Government owned railways, and stated that our duties to that end should be regarded as a public trust. I am glad to say that I feel we have had the loyal support of all employees in our efforts to make the Canadian National Rys. an efficient transportation system. The improvement in operating results in the last few months, and the better relative position which the National System enjoys, are gratifying to the management and reassuring to the Canadian public, and I desire to express my hearty appreciation of the co-operative efforts of officers and employees. We can only hope to succeed through the whole hearted efforts of our organization, and the work in the main must be done by those in the field. In the spirit of the season's goodwill, I desire to extend the wish that happiness attend you at Christmas and throughout the new year."

Cattle Guard Types to be Decided by Railways.

The Alberta Association of Municipal Districts, at its annual convention in Nov. 1921 passed the following resolution:—"Whereas there is a great need for more adequate cattle guards on the railways of this province; therefore be it resolved that this convention is in favor of the establishment of the pit system of cattle guards, and request our executive to press this matter on the Board of Railway Commissioners."

The resolution was submitted to the Board at its sittings in Edmonton, and the following notice of ruling was given: "Under date of Nov. 25, 1921, the Board ruled that the Railway Act provides by sec. 274, subsec. 1 (c), for the installation of cattle guards on each side of the highway, at every highway crossing, at rail level with the railway; that the act does not specify the type of cattle guard to be installed; that the burden is upon the railway company as to the efficiency of the type; and that if a specific type of cattle guard is to be indicated, it would appear to the Board to be a matter for legislation and not for action of the Board."

Air Service Between Newfoundland and Canada.—An experimental mail air service has been inaugurated between Newfoundland and Halifax, N.S. The first flight was to be made from Botwood, Nfld., Dec. 10. Major Cotton had charge of the aeroplane, which, however, developed engine trouble and had to descend near Deer Lake, Nfld., after completing about 200 miles of the trip, which was apparently then abandoned. The Canadian Postmaster General authorized the carrying of mail from Halifax to Newfoundland, by the route, but declined to take any risk in connection with letters dispatched by the mail. Such letters were in addition to being prepaid at the regular rate of 4c. an ounce, to have an additional 30c. worth of stamps affixed, and were to be handed in to the post offices, and not to be mailed in the regular way.

Canadian Pacific Railway Construction, Betterments, Etc.

Bridge at Reversible Falls, St. John, N.B.—The Board of Railway Commissioners passed order 31,808, Nov. 23, authorizing the C.P.R. to use and operate bridge 1.8 over the St. John River, St. John Subdivision, which was built under authority of order 30,709, March 5, 1921. It also passed order 31,815, Nov. 26, authorizing the company to open for traffic the approaches to the new bridge, viz., the deviation of its railway between miles 1.38 and 1.93, St. John Subdivision, New Brunswick District. All traffic between St. John and Fairville is being carried over the new bridge, the use of the old one having been discontinued.

The New Brunswick Government has taken proceedings against the C.P.R. Co. and the St. John Ry. Bridge & Extension Co., in the Supreme Court of New Brunswick's Chancery Division, to determine whether the province or the Dominion has the right to regulate navigation on the St. John River. It is claimed that under the Ashburton treaty of 1842, between Great Britain and the United States, the regulation of navigation on that river was vested in the Province of New Brunswick. The British North America Act vested the regulation of navigable waters in the Dominion Government. The question to be decided is whether the B.N.A. Act overrides the provisions of the treaty of 1842. The railway bridges across the St. John River have, it is claimed, been erected without the New Brunswick Government's consent or authority; it is claimed that they are an obstruction to free navigation and should be either removed or raised so as to afford the same clearance and fairway as is given by the highway bridge.

St. John West Trestles.—The St. John, N.B., City Council on Dec. 7 approved of a draft agreement between the city and the C.P.R. with respect to the west end trestles. The agreement is for 10 years from Nov. 1, 1920, unless in the meantime the property should be taken over by the Dominion Government, in which case the C.P.R. is to be reimbursed for material placed in the structures. The C.P.R. agrees to do certain repairs and renewals to the property, the tracks on which give access to sheds 1, 2, 3, 4, 5 and 6 and to the potato warehouse; and not to make any extra charge against traffic on account of the agreement. The city gives the company the right to keep its rails on certain streets during the existence of the agreement, and to cancel its bylaw requiring car rental for the use of the trestles, etc.

Windsor St. Station, Montreal.—The remodelling of the main entrance to the station on Osborne St. was reported to have been completed on Dec. 13. For some years there has been an open space on each side of the main entrance, which at one time was part of the ticket office. This space was converted into a service depot for the convenience of passengers coming off or going on trains.

Interprovincial & James Bay Ry.—We are officially advised that about two miles of grading has been completed on the 68 mile extension of the Interprovincial & James Bay Ry., from 10 miles beyond Kipawa towards the Des Quinze River, and the branch to Ville Marie, Que.

Peterborough Union Station.—A draft agreement with respect to the erection of a union station in Peterborough, Ont.,

was reported on Dec. 10 to have been forwarded to the City Council by the C.P.R. The proposed site of the station as agreed upon by the C.P.R., the Canadian National Rys. and the City Council is near the intersection of Townsend and Bethune streets.

London Division Improvements.—A press report states that about 80 miles of track on the London Division will be relaid with 100 lb. rails, and that a considerable amount of other maintenance work is planned for this year.

Windsor Freight Sheds, Etc.—A Windsor, Ont., press report says that a new city freight shed and team tracks are to be built there by the company at an approximate cost of \$250,000.

Schreiber Station.—We were officially advised Dec. 2 that no decision has been reached as to building a new station at Schreiber, Ont., which had been mentioned in press reports.

Moose Jaw Station.—The opening of the new station at Moose Jaw, Sask., for all traffic purposes, took place Nov. 20, 1921, although it had been used in part for over a month previously. Construction was started on the new building in August, 1920, by the contractors, Curtis, Halls & Aldinger Co., Winnipeg. An illustration of the front of the new building was given in Canadian Railway and Marine World for June, 1920. The main entrance to the building, which is on Main St., leads to a concourse, to the right of which are the ticket office, information bureau, parcel check room and baggage room, and to the left is the news stand and behind it the section of the waiting room reserved for passengers awaiting departure of trains. The exit to the trains is directly opposite the main entrance and is 20 ft wide. The waiting room is 124 x 50 ft., with a vaulted ceiling; and off it separate men's and women's rooms, each with lavatory accommodation. The dining hall and kitchen are south of the waiting room.

Coquitlam Flooded Again.—Another flood on the Coquitlam River on Dec. 11 washed out the temporary bridge erected to carry the railway over the river at Coquitlam, B.C., after the flood of Oct. 28, and necessitated the routing of the C.P.R. trains over the Canadian National Rys. between Hope and Vancouver. A new temporary pile trestle was put in place Dec. 13, and through traffic was resumed.

Aid for Alberta Farmers.—An Ottawa press dispatch of Dec. 25 stated that an order in council had been passed providing \$25,000 as the Dominion Government's share towards assisting farmers in the dry area of Southern Alberta. A joint agreement has been reached between the Dominion and Alberta Governments and the railways whereby feed will be transported free into the districts which suffered from drought during last summer, and cattle will be shipped out to feeding points and returned freight paid. Each party to the arrangement will contribute equally.

The Dominion Atlantic Ry. is reported to have put a daily freight service in operation between Yarmouth and Middleton, N.S.

The Pacific Northwest Passenger Association will meet at Victoria, B.C., Jan. 12.

Common Carriers' Liability for Goods in Quebec.

An important case affecting the liability of common carriers for lost baggage was decided in the Quebec Superior Court, Dec. 2, 1921, by Justice Duclos. The action was brought by Mrs. Chambers of Ottawa, to recover \$1,745 from the Canadian Transfer Co., as the value of a trunk lost after being deposited with the company for transfer from Bonaventure station to Windsor St. station, Montreal, on Dec. 2, 1920. Mrs. Chambers was travelling from Ottawa to New York, via G.T.R. to Montreal, and thence by C.P.R. and Delaware & Hudson Rd. On reaching Bonaventure station she gave her baggage check to a Canadian Transfer Co.'s agent and asked to have it transferred to the C.P.R. Windsor St. station. The evidence showed that the transfer company obtained possession of the trunk, and left it unguarded at the station, from which it disappeared, and all trace of it was lost. The company tendered \$50 as damages, and submitted that this was the limit of its liability.

Justice Duclos held that this contention could not be upheld, as the ticket given by the company's agent was not a contract between the parties, but was merely a receipt for the goods, given by universal custom to enable the owner to redeem his or her property at destination. Even if it was a contract, it contained no express contract; and the statement as to the \$50 limit was not binding upon the owner of the property deposited. The company came within the definition of a common carrier, and the liability of such a company in Quebec is fixed by the Code's article 1675, which releases a company from liability if it can prove that the loss or damage is caused by a fortuitous event, or irresistible force, or arises from a defect in the thing itself. The Code's article 36 provides that notice by carriers of limitation of liability is binding upon persons to whom it is made known, but it is further provided that the carrier is liable whenever it is proved that the damage was caused by carrier's fault or the fault of those for whom it is responsible. In the present instance the company had failed to prove a fortuitous event or irresistible force, or a defect in the trunk, or even that the plaintiff had knowledge of the condition alleged to limit the company's liability. Even if such knowledge could be presumed, and he failed to see how it could, the evidence showed that the trunk was lost through the fault of the company's agent in allowing it to remain, without a proper guardian, at a railway station where everybody had free and easy access. Judgment was therefore given for the amount claimed with costs.

Another almost similar action came before Justice Duclos, Dec. 13, 1921, when the Redmond Co. sued the Dominion Transport Co. for \$357.25 for loss of a consignment of hats delivered to the company for delivery to the C.P.R. freight sheds. The consignment was delivered to a man named Tremblay, who was driving a Dominion Transport Co.'s lorry. It transpired that Tremblay was a discharged employe of the D.T. Co., who had borrowed the lorry from another driver, and collected the goods, which were subsequently traced to a receiver of stolen property. The court found negligence on the part of the company by its agent, and gave judgment for the Redmond Co. for \$282.25.

Railway Wages and Working Conditions in Canada and the United States.

The negotiations concerning wage reductions, between the G.T.R. and its employees who are members of Canadian Brotherhood of Railway Employees, International Brotherhood of Railroad Stationmen, International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees, and Brotherhood of Stationary Firemen and Oilers, and the progress of the dispute before the board of arbitration in the matter, were dealt with fully in Canadian Railway and Marine World for Dec. 1921, pg. 648, and the board's majority report signed by J. M. Godfrey, chairman, and H. H. Vaughan, for the G.T.R., was summarized. On Dec. 2 the minority report of Peter Bercovitch, K.C. for the employees, was received containing the following recommendations: That the reduction to monthly paid employees made effective July 16 be approved, where it was not greater than 10%, and if greater than 10%, the amount involved to be restored to the employee. That the reduction to hourly paid employees should not exceed 5c an hour, and that where a greater reduction was made, the amount deducted by a reduction greater than 5c an hour be restored to the employee. That in view of the different rates of pay for the same character of work, uniform minimum rates should be established for each class; that no change be made in working conditions which would constitute a further reduction in wages or less favorable conditions for the employees; and that the railway find out from the employees concerned, who now are distributed among four different employees organizations, what organization they want to represent them, and that the single organization receiving the support of the largest number of employees be the one organization recognized by the railway in dealing with all employees, of the classes affected.

Mr. Bercovitch stated in his report that, in his opinion, the U.S. Railroad Labor Board's decisions should not arbitrarily apply in Canada, and claimed that the cost of living in Canada is 10% higher than in the U.S., on the average, and that the employees of the classes affected by the dispute receive a higher minimum wage on U.S. railways than do those on the G.T.R. He also stated that "there was nothing put before the Board of Arbitration to show that the U.S. Railroad Labor Board seriously considered any of the factors hereinbefore enumerated before handing down decision 147, and that on behalf of the employees it was urged that the U.S. Railroad Labor Board passed over the various factors very lightly." The factors referred to as "hereinbefore enumerated" were the conditions to be given consideration by the U.S. Railroad Labor Board in arriving at wage reductions, and were given in full in Canadian Railway and Marine World for Dec. 1921, pg. 649. It is evident from the above statement that there must have been, at the arbitration meetings, a lack of thorough acquaintance with the enquiries conducted by the Labor Board in Chicago prior to the issuance of order 147, by which the wage reduction on U.S. railways was made effective July 1, and it may be stated that the study and enquiry into all conditions affecting wages conducted by the U.S. Railroad Labor Board, on which decision

147 was based, was most thorough.

As stated in Canadian Railway and Marine World for Dec. 1921, the International Brotherhood of Railroad Stationmen, International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees, and Brotherhood of Stationary Firemen and Oilers had arrived at an agreement with the G.T.R. concerning the wage reduction of July 16, 1921. The reduction, with some modification to secure more equitable distribution among the employees concerned, has been in effect since that date, and is applicable to the members of the three above named organizations, and similarly to the members of the C.B.R.E. engaged in similar work.

The reports of the members of the board of arbitration dealing with the dispute between the Canadian National Rys. and the C.B.R.E. were summarized in our Dec. 1921 issue, the majority report recommending some modification of the wage reductions as applied July 16, 1921. The railway has not adopted the majority report in so far as the making of any retroactive payments is concerned, but it is probable that where examination proves it desirable, changes in the reductions will be made so as to secure more equitable distribution.

Members of the Longshoremen's Union in the G.T.R. employ at Portland, Me., ceased work on Dec. 21, 1921, after failure to reach an agreement with the company on working conditions. Between 300 and 400 men are affected. After considerable negotiation, the men agreed to adopt a reduction in wages proposed by the company, but would not agree to changes in working conditions which the company proposed. It is stated that an embargo has been declared on export freight for Portland, and that the G.T.R. will use Halifax, N.S., Boston, Mass., and New London, Conn., for loading export freight until the dispute is settled.

December saw the formation of another "outlaw" union, this time among the membership of the Commercial Telegraphers Union of America, to which organization many of the commercial telegraphers employed by the Canadian Pacific and Canadian National Telegraphs belong. C. W. Mitchell, a telegrapher employed until recently by the Canadian National Telegraphs, at Toronto, but now laid off on account of a reduction in staff, started a movement to form a Canadian union of commercial telegraphers. The international union has taken measures to prevent Canadian members from leaving its ranks, and at a meeting in Toronto in December, at which P. Schnur, Vice President of the union, was present, the advantages of international unionism were pointed out by him and by Jas. Simpson and Controller Jos. Gibbons, of Toronto. The Toronto branch of the international union was reorganized, and it is stated that Mitchell has but very few followers in his attempt to form an independent union.

Following the lead of shopmen employed on U.S. railways, members of the federated shop crafts employed on Canadian railways have declared their intention of applying for increases in pay averaging 35% when the question of wages is next re-opened with the railway managements. It is commonly felt that the demands for increases which will be made by em-

ployes' representatives when they meet the railway executives in the U.S. will be merely counter demands with which to meet the demands for wage reductions, and the same view may logically be taken of the demands for increases which shopmen on Canadian lines state they intend to make.

United States.—The U.S. Railroad Labor Board has finally disposed of the multitude of disputes before it, concerning the rules and working conditions affecting shopmen. An agreement of nation wide application concerning wages and working conditions was made with the shopmen employed on the U.S. railways during the period of Government control, and, after private operation was resumed, the railway managements petitioned the Labor Board to have the national agreement abrogated, claiming that the rules contained in it were destructive of efficiency and were imposing a large financial drain on the companies. After protracted hearings before the Board in Chicago, a decision was given Apr. 14, 1921, directing the railways and their shop employees to come to agreements among themselves concerning rules and working conditions. In very few cases were agreements arrived at, however, the negotiations leading to further disputes which were referred back to the Board. This resulted in the Board declaring the national agreement in effect until further notice. Subsequently, judgments were issued by the Board concerning overtime, Sunday work, seniority in departments, requirements for tradesmen, etc.

On Nov. 29, 1921, the Board issued addendum 6 to decision 222, designed to clear up all controversy in connection with shop working conditions, the decision being effective Dec. 1, 1921. The decision is essentially a compromise between the railways and the employees; it involves, in effect, a new national agreement, in that the rules given are meant to be applicable to railways throughout the entire U.S. In this respect, the decision is unfavorable to the railways, as they had consistently argued that conditions differed so greatly in different parts of the country that it was impossible to apply the same wages and rules in all parts, with equal justice to all employees. However, the railways have been favored in that the greater part of the rules which they claimed were either wasteful, destructive of efficiency and discipline, or absolutely unfair, have been cancelled. The rules regarding overtime have been modified to suit the railways' objections concerning those formerly prevailing; rules concerning piecework provide that it may be introduced into the shops by agreement between individual managements and their employees. Employees who are not members of the recognized organizations which comprise the American Federation of Labor's railway employees' department can pick their own representative when it is necessary to take up grievances or other matters with the management, this provision showing clearly that it was not the Labor Board's intention to make the closed shop the rule on the railways. Provision is made in the new rules for the employment of special apprentices, who will, however, as concerns the application of the rule limiting the number of apprentices in each trade, be counted among the regu-

lar apprentices. The rules have also been so modified that it will not be necessary for half a dozen men, all concerned in seeing that they do nothing that might come under the work of a man in another craft, to work on a job which any one of them could complete. While the railways would have preferred to have rules of national application done away with entirely, and be left free to negotiate working conditions with their own employes, it may be stated that while the new rules constitute a national agreement in the same way as did the original ones, they remove the most objectionable features of the original agreement. It is also provided by the decision that if rules had been agreed on by any individual road and its employes, they may remain in effect.

The Labor Board has also issued a ruling concerning rules and working conditions affecting men employed in the maintenance of way department. This decision, effective Dec. 16, 1921, practically provides for a new national agreement to take the place of the old one; although it is stated that where agreement has been reached, the rules agreed upon may be continued in force. It is evident that the rules prescribed by the Board will be standard for the U.S., so that, as in the case of the shopmen, they will be practically national in scope. The most notable feature of the new rules is that punitive overtime will not be paid to maintenance of way employes till 10 hours work have been completed. While the former national agreement contained this ruling as to extra gangs, regular maintenance forces were paid punitive overtime after 8 hours. This change does not mean that the standard work day is

to be considered as 10 hours, however, as the Board specifically states that 8 hours shall constitute a day's work. The new rules are applicable to more employes than were those in the former national agreement, signal men and certain classes of employes formerly affected by the shop crafts' agreements being brought under the maintenance of way classification. No change was made in the rules concerning promotion, seniority, or the disposal of grievances.

The U.S. railway managements are going ahead with notices to their employes that further wage reductions are contemplated, and the employes on the majority of the roads have been asked to meet representatives of the managements to discuss the matter. When the recently threatened strike was called off by the brotherhoods, the Labor Board assured the labor leaders that no further action on the wages of any class of railway employes would be taken until the question of rules and working conditions for that class had been finally settled. As is seen, the rules and working conditions affecting shopmen and maintenance of way employes have been disposed of, and there remains but little for the Board to do till it will be in a position to consider the railways' applications for further wage reductions. The leaders of the shopmen whose six organizations are affiliated with the American Federation of Labor have prepared demands for wage increases, to be presented to the railway executives when they are met in connection with the railways' intention of further reducing wages. The increase to be asked for will be 5c. an hour over the rate established by the Labor Board's decision 2, which would make the wages

sought 13c. an hour greater than at present, in view of the fact that shopmen's wages were cut 8c. an hour July 1 by decision 147. A press report states that the Brotherhood of Railway and Steamship Clerks, Freight Handlers and Express and Station Employes will also demand increases in wages when its representatives meet the railway executives.

The controversy between the Railroad Labor Board and the Pennsylvania Rd., as to the Board's powers in connection with the methods used in selecting representatives of the railway's employes to negotiate rules and working conditions with the company's officers, has not yet been settled. Full particulars of this controversy were given by Canadian Railway and Marine World in previous issues. A temporary injunction to prevent the Labor Board from issuing an order in which it was expected that the Pennsylvania Rd. would be directly charged with violation of the Board's rulings, was issued in a Federal court at Chicago Dec. 9. Argument concerning the differences in the interpretation of the labor clauses of the Transportation Act, as between the railway and the Labor Board, was set for Dec. 21, 1921.

On Dec. 2, 1921, the Labor Board issued a decision by which the rates of certain classes of clerical labor on lines in the New England territory were adjusted, the hourly rate for men who work six days a week being made identical with that for those working seven days a week. The ruling became effective Dec. 16 and affects the Boston & Maine Rd., Maine Central Rd., New York, New Haven & Hartford Rd., Central New England Ry., and the Portland, Maine, Terminal Co.

Traffic Orders by Board of Railway Commissioners.

Reduced Standard Freight Tariffs.

General order 352. Dec. 1, 1921.—Re application of railway companies for approval of reduced standard freight tariffs of maximum mileage tolls to become effective Dec. 1. Whereas standard freight tariffs have been filed by the undermentioned railway companies, to become effective Dec. 1, 1921, on the reduced basis prescribed by general order 350, Nov. 24, 1921. The Board orders that the following standard freight tariffs of maximum tolls be approved; the rate scales of the said tariffs to be published in at least two consecutive weekly issues of The Canada Gazette, preceded by the following notice:—"The undermentioned standard freight tariffs having been filed for the approval of the Board of Railway Commissioners for Canada, and having been found by the Board to be in accordance with its general order 350, dated Nov. 24, 1921, and having been approved by general order 352, dated Dec. 1, 1921, the rate scales thereof are hereby published."

Names of Railways.	C.R.C. no.
Algoma Central & Hudson Bay	579
Algoma Eastern	320
Atlantic, Quebec & Western	Sup. 1 to 83
Boston & Maine	2088
British Columbia Electric	191
Canadian National	Sup. 1 to E-177
	Sup. 1 to E-178
Canadian Pacific	W-185, E-3904, W-2613
Central Canada	74
Central Vermont	1647
Cumberland Railway & Coal Co.	14
Dominion Atlantic	688
Edmonton, Dunvegan & British Columbia	158
Esquimalt & Nanaimo	498
Essex Terminal	600

Fredericton & Grand Lake Coal & Ry.,	Sup. 5 to 103
Glengarry & Stormont	178
Grand Trunk	E-4576
Grand Trunk Pacific	485
Great Northern	1735, 1736, 1737, 1738
Kettle Valley	283
Maine Central	C-2087
Michigan Central	3066
Napierville Junction	246
New Brunswick Coal & Ry.	Sup. 5 to 70
New York Central	2475, 2476
Pere Marquette	2364
Quebec Central	806
Quebec, Montreal & Southern	750
Quebec Oriental	Sup. 1 to 101
Temiscouata	Sup. 1 to 413
Thousand Island	403
Toronto, Hamilton & Buffalo	1329
Toronto Suburban	7

Passenger rates between Bridgeburg and Black Rock.

31,773. Nov. 12, 1921.—Re application of Town of Bridgeburg, Ont., under Secs. 235 and 359 of the Railway Act, 1919, for an order directing the G.T.R. Co. and the International Bridge Co. to reduce the tariff on dummy service across the bridge between Bridgeburg, Ont., and Black Rock, N.Y. Upon hearing the application at Niagara Falls, Ont., June 27, 1921, the applicant and the railway being represented, and what was alleged; and upon reading the further submissions filed, the Board orders that the application be refused.

Express Rates on Cream.

31,820. Nov. 24, 1921.—Re application of National Dairy Council of Canada for an order cancelling the 20% increase in express rates on cream, allowed by general order 327, Feb. 2, 1921, and re-establishing the special commodity rates on cream in existence prior to the said order.

Upon hearing the application at Ottawa, Nov. 15, 1921, the National Dairy Council of Canada, the Express Traffic Association of Canada, and the Dominion Express and the Canadian National Express Companies being represented, the Board orders that the application be refused.

Hay, Corn and Feed Rates.

31,821. Nov. 24, 1921.—Re complaint of Montreal and Quebec Boards of Trade and Canadian National Millers' Association against tariffs filed by railway companies showing reduced rates on hay, corn, and feed when shipped to the Department of Agriculture, Quebec, for feeding purpose. Upon hearing the complaint at Ottawa, Nov. 15, 1921, the Montreal and Quebec Boards of Trade, the Canadian National Millers' Association, Grain and Provision Association, the Quebec Department of Agriculture, the Canadian Pacific, the Grand Trunk and the Canadian National Railways being represented, the Board orders that the complaint be dismissed.

Grand River Railway Freight Tariff.

31,871. Dec. 7, 1921.—Re application of Grand River Ry. under Sec. 330 of the Railway Act, 1919, for approval of its Standard Mileage Freight Tariff, C.R.C. 57, Supplement 1. Upon its appearing that the said tariff is on the basis of the rates authorized under general order 350, Nov. 24, 1921; and upon the report and recommendation of the Board's Traffic Officer, the Board orders that the com-

pany's said supplement be approved; the tariff, with a reference to this order, to be published in at least two consecutive weekly issues of The Canada Gazette.

Lake Erie & Northern Railway Freight Tariff.

31,872. Dec. 7, 1921.—Re application of the Lake Erie & Northern Ry. under Sec. 330 of the Railway Act, 1919, for approval of its Supplement 2 to Standard Mileage Freight Tariff C.R.C. 165. Upon its appearing that the said tariff is on the basis of the rates authorized under general order 350, Nov. 24, 1921; and upon the report and recommendation of the Board's Traffic Officer, the Board orders that the company's said supplement be approved; the tariff, with a reference to this order, to be published in at least two consecutive weekly issues of The Canada Gazette.

Charges for Heat or Heaters in Refrigerator Cars for Apples.

31,877. Dec. 6, 1921.—Re complaint of McCollom Lumber & Supply Co., Winnipeg, against the advanced charges for heat, or supplying heaters without heat, in refrigerator cars for apples moving from British Columbia to the prairie provinces. Upon hearing the complaint at Winnipeg, Nov. 9, 1921, in the presence of counsel for the railway company, no one appearing for the complainant, and what was alleged, the Board orders that the complaint be dismissed.

Switching Charges at Prince Rupert.

31,895. Dec. 6, 1921.—Re application of Canadian Fisheries Association for an order reducing the switching charge of \$15 at Prince Rupert, B.C. Upon hearing the application at Prince Rupert, Oct. 6, 1920, the applicant being represented at the hearing, and what was alleged, and upon reading the submissions filed, the Board ordered that the application be refused.

Dominion Atlantic Ry. Terminal Charge at Halifax.

31,927. Dec. 20, 1921.—Re application of Nova Scotia Shippers' Association, of Kentville, for an order suspending Dominion Atlantic Ry.'s Supplement 7 to C.R.C. 375. Upon its appearing that the effect of the said supplement is to re-establish the terminal charge at Halifax, on export and import traffic, of 1½¢. per 100 lb., minimum \$5 a car, which was suspended by the Board on Nov. 27, 1920, the Board orders that the said supplement issued to become effective Jan. 5, 1922, be suspended pending hearing on a date to be fixed by the Board.

The Canadian Council of Agriculture passed a resolution at Winnipeg Dec. 22, recommending in connection with the operation of the Canadian National Railways that most rigid economy be practiced, duplication eliminated, unnecessary mileage abandoned as far as possible, unprofitable and expensive train service eliminated or greatly reduced, and every possible effort made to diminish the "enormous annual deficit being added to the public debt from this source."

Pacific Great Eastern Ry. Pay and Classification. — The British Columbia Government's order in council 1136, which provided that the rates of pay and the different classifications in force from time to time in respect to the C.P.R. lines in B.C. should apply in like manner to the Pacific Great Eastern Ry. lines, has been rescinded by order in council 1537, dated Nov. 29, 1921.

Removal of Transportation Taxes in the United States.

Under the Revenue Act of 1921 the taxes on railway transportation in the U.S. are to be removed, effective Jan. 1, 1922. The tax, applied by the Revenue Act of 1918, was 3% on freight charges, 8% on passenger charges, and on express it was 1c. for every 20c. or fraction thereof in charges. It is evident that the repeal of these taxes will mean a large decrease in the annual cost of transportation service to the U.S. people, and at the same time will exert a favorable influence on the railways' business. In Sept. 1920 the gross earnings of U.S. railways from freight were \$354,000,000 and the tax was \$10,620,000; passenger earnings were over \$100,000,000, and the tax was over \$8,000,000. While undoubtedly the revenues lost through the repeal of these taxes will have to be made up from other sources, the fact remains that the people in paying the taxes have not differentiated the amounts so paid from ordinary transportation charges, so that the effect of the repeal of the tax will be to create the impression in the public mind that a substantial reduction in transportation rates has been secured.

Geo. C. Taylor, American Railway Express Co., says the elimination of the tax will take \$1,500,000 monthly from express charges borne by the public. The tax during 1920 was \$17,502,918. The average charge for each express shipment in the U.S. during that year was \$1.50, and the average tax on each shipment was 8c. The elimination of the tax will virtually amount to a reduction in express charges of a little over 5%, which should have a tendency to stimulate express business. The elimination of the tax will relieve the American Railway Express Co. from an immense amount of labor which has been involved in calculating, way-billing, accounting, and checking on account of the tax, and will have a similar effect in reducing the amount of labor in the railways' freight and passenger accounting departments.

A Newfoundland Industrial Development Proposal.

An extensive plan for the development of the natural resources of the Humber River valley of Newfoundland has been arranged between the Reid Newfoundland Co. and Sir W. G. Armstrong, Whitworth & Co., of Newcastle-on-Tyne, Eng., by H. D. Reid, President, Reid Newfoundland Co., during his recent trip to England. He is reported to have stated on his return to St. John's, Nfld., on Dec. 14, that it is proposed to spend about \$7,000,000 during the next two years. The plans include the development of a water power at Grand Lake, estimated to produce 235,000 h.p.; the erection of a pulp and paper mill with a capacity of 1,000 tons a day; an aluminum plant, and other industrial concerns. It is estimated that permanent employment will be found for about 1,500 men, with some 2,000 men in the bush during the lumbering season.

Two of the Armstrong-Whitworth Co.'s engineers are reported to be making surveys in connection with the proposed development operations. It is stated that the Newfoundland Government will be asked to guarantee the interest on the debenture bonds and sinking fund of the development corporation.

A St. John's press report of Dec. 16 states that this Humber valley development proposal is evidently another name for the corporation intended to be created under the Newfoundland Products Corporation Act of 1915, which confirmed an agreement signed by Hon. R. Bennett, Colonial Secretary for the Newfoundland Government, and by H. D. Reid and R. G. Reid, directors on behalf of the Newfoundland Products Corporation. The agreement grants the company land and other rights on the east coast of Newfoundland, in the Hamilton River area, and in Humber River valley, with numerous privileges, upon condition that \$15,000,000 was to be expended within five years, and an additional \$5,000,000 within a further five years. It is stated that beyond some surveys nothing has been done.

Proposed Electrification of Timiskaming & Northern Ontario Railway.

In connection with the proposals to electrify the T. & N.O. Ry. and its branches, either as a whole or in part, the T. & N.O.R. Commission has authorized S. B. Clement, Chief Engineer, and J. G. Kerry, Consulting Engineer, to report as to the power possibilities along the route, the power requirements for operation, and the general feasibility of electrification. They are authorized to utilize the services of A. L. Mudge, electrical engineer, and A. G. McMaster, hydraulic engineer, in preparing the report, which is to be ready about the end of March.

There are some very extensive water powers on the Abitibi River, which can be reached for development with the completion of the extension of the T. & N.O. Ry. from Cochrane for 70 miles northwesterly, for which tenders have been asked. It is estimated that approximately 300,000 h.p. can be developed at two of the falls alone.

Russian Railway Material at Coquitlam, B.C.—A Vancouver press dispatch says:—"Forty thousand tons of railway material are to be sold by the British War Munitions Board to Russia. Practically all of this equipment is at Port Coquitlam, and a small army of men has been engaged for several months repairing minor defects resulting by long exposure to rainy weather, as well as painting and greasing preparatory to moving the immense bulk. Included in the lot are 4,000 box cars, of a broad gauge type, not suitable for the railways of this continent. The material will be shipped as soon as satisfactory financial arrangements can be made." We are advised that the matter is in the hands of the British War Mission's Disposal and Liquidation Commission, New York, N.Y., and that the material consists of approximately 4,000 Russian box cars of 1,200 pood capacity and 5 ft. gauge, which were bought by the Committee of Russian Ways and Means during the war from Canadian Car & Foundry Co., and Eastern Car Co., and paid for by British credit.

Winnipeg Traffic Club—The following have been elected directors of the Winnipeg Traffic Club:—C. A. Fullen, A. J. Barber, H. A. Stinson, C. K. Parrish, R. M. McMillan, M. Wood, H. C. Hodgson, A. N. Nicolson, and C. S. Oswald.

Canadian National Railways Construction, Betterments, Etc.

Atlantic Ports Live Stock Shipping Facilities.—We are officially advised that the C.N.R. has enlarged its live stock shipping facilities at Richmond, Halifax, N.S., to accommodate 280 head, instead of 140 head as formerly. The Dominion Public Works Department is fitting up shed 15 D. at West St. John, N.B., with additional facilities for handling live stock, to be used jointly by the Canadian National and the Canadian Pacific Rys.

Telephone Dispatching.—The installing of a telephone dispatching system on the Maritime Division is being extended from Newcastle to Campbellton, N.B., 106.9 miles, and we were officially advised that it was expected to have it completed by Dec. 31, 1920. With the completion of the work the following sections of the Maritime District will be equipped for telephonic operation:—Moncton St. John, N.S., 89.03 miles; Moncton to Truro, 124.8 miles; Truro to Halifax, N.S., 64.4 miles; Moncton to Campbellton, 186 miles, a total of 464.23 miles.

East Burrill Viaduct.—We are officially advised that the steel viaduct on the East Burrill deviation, between Glenalda and St. Boniface, mile 87.6 to 91.6, St.

ture was manufacturer and erected by the McGregor, McIntyre Co., Toronto.

Canadian Northern-Grand Trunk Pacific Track Connections.—The Board of Railway Commissioners has authorized the connection of the Canadian Northern Ry. tracks with those of the Grand Trunk Pacific Ry. at the following points: mile 5.40 on the Clark Subdivision, mile 3.83 on Riverhurst Subdivision, near Regina, Sask.; mile 24.39 on the Brazeau Subdivision, and mile 79.06 on the Three Hills Subdivision, near Alix, Alta.; mile 20.98 on the Brazeau Subdivision, and mile 76.97 on the Three Hills Subdivision, near Alix, Alta.; the Drumheller branch with the Three Hills Subdivision at mile 197.13; in n.w. ¼ Sec. 13, Tp. 53, Range 24, west 4th Meridian, Vegreville Subdivision.

A press report states that it was expected to complete a track connection between the Canadian Northern Ry. and the Grand Trunk Pacific Ry. near Barlow, Alta., Dec. 15, and that all the G. T.P.R. freight and passenger trains will be run into the Canadian National Rys. yards, while the C.N.R.'s local freight shed will be closed, and all local freight

house to be built on the wharf completed recently at Prince Rupert, B.C., for which a contract has been let to J. H. Simmons, Winnipeg, is to be of timber construction, so called "semi-fireproof," but will have full fire protection and a complete sprinkler system. It will be 146 ft. wide by 820 ft. long, the wharf being 173 x 861 ft. The warehouse will be capable of containing 350,000 cases of salmon, or 22,000 tons of merchandise. Its estimated cost is about \$230,000, including sprinkler system, but exclusive of equipment.

Self Propelled Cars on Canadian National Railway.

The storage battery car, fully described and illustrated in previous issues of Canadian Railway and Marine World, is still operating between Bathurst and Campbellton, 62.96 miles, on the Bathurst Subdivision, Campbellton Division, Maritime District, having been fitted for winter service at the C.N.R. Moncton shops, as mentioned in our December issue. This car, which was at first furnished by the Railway Storage Battery Car Co., New York, for trial purposes, has now been bought by the C.N.R. The gasoline motor car operated between Brockville and Westport, 44.4 miles, on the Brockville Subdivision, Ottawa Division, Ontario District, which was described in Canadian Railway and Marine World for Nov. and Dec. 1921, which was furnished by Ledoux, Jennings, Ltd., Montreal, for trial purposes, has been bought by the C.N.R. In the latter part of December it was shopped for a general overhaul, on the completion of which it will be returned to service on the same run. It has consistently made an operating profit and its patrons have expressed satisfaction with the service given. To replace this car while being overhauled, the gasoline motor car operated during the summer between Cross Creek and Stanley, 5.74 miles on the Nashwaak and Stanley Subdivisions, Edmundston Division, Maritime District, and which was described in our Dec. 1921 issue, was placed on the run between Brockville and Westport, but owing to its limited capacity steam train service has also been restored temporarily.

The C.N.R. management is considering the purchase of a gasoline motor car of improved design, to be placed on the Brockville-Westport run with the Ledoux, Jennings car when the later is returned to service.

Exchange and Surcharge on International Freight and Passenger Business. In accordance with the Board of Railway Commissioners' order of Jan. 14, 1921, the rate of exchange in connection with shipments of freight between points in Canada and the United States, from Dec. 1 to 14, 1921, was 9%, and from Dec. 15 to 31 it was 8½%. The surcharge on this traffic from Dec. 1 to 14 was 6%, and from Dec. 15 to 31 it was 5%. The rate of surcharge on international passenger business from Dec. 1 to 31 was based on 9% exchange.

Freight Rates Equalization.—The Board of Railway Commissioners will sit at Halifax, N.S., Jan. 17; St. John, N.B., Jan. 19; and Ottawa, Feb. 15, in connection with the general investigation re equalization of eastern and western freight rates. Final argument will be heard at the Ottawa sitting.



East Burrill Viaduct, Canadian National Railways.

Lawrence Subdivision, Que., has been completed and traffic is being operated over it. The viaduct is at mile 89.7 west of Quebec, near St. Boniface, and crosses the Lavergne gully, through which the East Burrill Creek flows. It is a single track viaduct, with steel towers, on concrete pedestals and abutments. The track is on a 2 degree curve throughout the length of the bridge, the super elevation of 1½ in. being taken up by tilting the spans. The dimensions of the structure, which is illustrated on this page, are:—Length 645 ft.; greatest height, 80 ft.; centers of grades, 9 ft.; spans, 2 end spans of 60 ft. each; 4 intermediate spans of 60 ft. each, 1 intermediate span of 85 ft., and 4 tower spans of 40 ft. each; these spans are supported on 5 braced steel towers and 1 rocker bent tower. The substructure consists of 22 concrete pedestals averaging 10 ft. high; batwing abutment at east end 26 ft. high, and temporary timber abutment at west end resting on rock fill, to be replaced by permanent concrete abutment when the fill settles. The contract for the substructure was let to the late Angus Sinclair, Toronto, who sublet to Campbell & Latimore, Toronto, and the steel superstructure

will be handled at the G.T.P.Ry. freight shed.

Sasatchewan Lines Opened.—The Board of Railway Commissioners has authorized the opening for traffic of the extension of the Thunderhill Branch from Preeceville, mile 72.6, to Lintlaw, mile 100.3; and the extension of the Turtleford Branch from Turtleford, mile 57, to St. Walburg, mile 77.3. The last named line starts from North Battleford, Sask., and was projected to reach Edmonton, Alta. The extension now opened takes the line to St. Walburg, about 80 miles from St. Paul de Metis, to which point a line is in operation from Edmonton, 127.5 miles.

Alberta Line Opened.—The Board of Railway Commissioners has authorized the opening for traffic of the extension of the Onoway Subdivision, from Robinsons, mile 33.8 to Whytecourt, mile 72.3.

Cowichan Extension Proposed.—The Premier of British Columbia is reported to have stated that he had received information that a 10 mile extension of the Canadian National Rys. into the Cowichan District of Vancouver Island was proposed. (Dec., 1921, pg. 644.)

Prince Rupert Warehouse.—The ware-

Mainly About Railway People Throughout Canada.

E. W. Beatty, K.C., President, C.P.R., has been elected President of the Boys' Farming and Training School, Shaw-bridge, Que.

G. T. Blackstock, K.C., who died at Toronto, Dec. 27, was employed as counsel for the C.P.R. in a number of cases, including the arbitration between the Dominion Government and the company respecting the class of construction of part of the British Columbia section, in the eighties.

Bradford Earl Chace, whose appointment as City Ticket Agent, C.P.R., Nelson, B.C., was announced in our last issue, was born at New York, N.Y., Feb. 29, 1884, and entered C.P.R. service June 1, 1904, since when he has been, to Sept. 14, 1904, mail clerk, Operating Department, Vancouver, B.C.; Sept. 14, 1904 to March 24, 1906, clerk, Passenger Department, Vancouver, B.C.; Oct. 23, 1906 to Jan. 1, 1907, clerk, Passenger Department, Vancouver, B.C.; Jan. 1, 1907 to July 1, 1911, ticket clerk, Vancouver, B.C.; July 1, 1911 to March 1, 1913, cashier and ticket clerk, Vancouver, B.C.; March 1, 1913 to Sept. 9, 1916, wharf ticket agent, Vancouver, B.C.; Sept. 9, 1916 to Dec. 11, 1918, City Ticket Agent, Portland, Ore.; Dec. 11, 1918 to Nov. 23, 1921, chief rate clerk, Passenger Department, Vancouver, B.C.

W. C. Bowles, who has been appointed Assistant Freight Traffic Manager, Eastern Lines, C.P.R., Montreal, was born there, June 3, 1875, and entered C.P.R. service in 1891, since when he has been, to Sept. 1, 1897, in various positions in District Freight Agent's office, Montreal, and General Agent's office, Chicago, Ill.; Sept. 1, 1897 to Apr. 1, 1903 rate clerk, Traffic Manager's office, Winnipeg; Apr. 1, 1903 to Mar. 1905, Assistant General Freight Agent, Calgary, Alta.; Mar. 1905 to Oct. 1907, Assistant General Freight Agent, Vancouver, B.C.; Oct. 1907 to Mar. 1908, General Freight Agent, Nelson, B.C.; Mar. 1908 to June 5, 1909, General Freight Agent, Winnipeg; June 5, 1909 to June 1911, General Freight Agent, Pacific Division, Vancouver, B.C.; June 1911 to Dec. 8, 1921, General Freight Agent, Western Lines, Winnipeg.

Acton Burrows, Proprietor, Canadian Railway and Marine World, has been elected chairman of the Canadian National Newspapers and Periodical Association's postal and parliamentary committee.

F. F. Busted, formerly Assistant Engineer, C. P. R., Vancouver, B.C., who died there recently, left an estate of \$40,800. He left a life interest in the whole to his widow, and on her death the property is to be equally divided between a son and a daughter.

Henry Coffin, a retired foreman of the Prince Edward Island Ry. shops at Charlottetown, died recently, aged 84, at the home of his son, L. H. Coffin, Manager, Canadian Bank of Commerce, Montagu, P.E.I.

George Montague Cordingly, whose appointment as Chief Dispatcher, C.P.R., Saskatoon, Sask., was announced in our last issue was born at Montreal, Feb. 13, 1886 and entered C.P.R. service Apr. 6, 1900, since when he has been to Oct. 2, 1902, call boy and stenographer, dispatcher's office, Winnipeg; Oct. 2, to Oct. 28, 1902, operator, Larivière, Man.; Oct. 28, 1902

to Aug. 27, 1907, operator, Winnipeg Terminals; Aug. 27, 1907 to May 1, 1909, relieving dispatcher, Winnipeg; May 1, 1909 to Nov. 14, 1921, dispatcher and acting Chief Dispatcher, Saskatoon, Sask.

R. Creelman, Assistant Passenger Traffic Manager, Canadian National Rys., Winnipeg, attended the Transcontinental Passenger Traffic Officials Association's annual meetings in Chicago, Ill., Dec. 7.

Colonel J. S. Dennis, C.M.G., Chief Commissioner of Colonization and Development, C.P.R., Montreal, and Mrs. Dennis, sailed for England on Dec. 13. A London, Eng., press dispatch of Dec. 23 said that Col. Dennis had arrived there to negotiate with the British authorities in regard to emigration to Canada, and had issued a statement to the British press in that connection.

J. M. R. Fairbairn, Chief Engineer, C. P.R., Montreal, and President, Engineering Institute of Canada, addressed the Institute's Ottawa branch at luncheon on Dec. 8.

Thos. C. Irving, who was General Manager of Bradstreet's, for Western Canada, until he retired in 1919, and who died at Toronto, Dec. 6, aged 72, was well known among railway men throughout Canada. He was an intimate friend of the late Sir William Whyte of the C. P.R., with whom he made many trips over the company's Western Lines.

Charles Ewart Jenkins, whose appointment as London Booking Agent, C.P.R., London, Eng., was announced in a recent issue, was born there Aug. 22, 1881, and entered railway service in Jan. 1895, since when he has been, to Sept. 1902, junior clerk, Goods Department, London & South Western Ry., London, Eng.; Oct. 1902 to March 1903, freight clerk, Natal Government Rys., Durban, South Africa; March 1903 to Dec. 1906, tourist and booking clerk, Thos. Cook & Sons, tourist agents, Durban, South Africa; Feb. to Dec. 1907, counter clerk, C.P.R., London, Eng.; Jan. 1908 to Aug. 1909, passenger clerk, C.P.R., Manchester, Eng.; Sept. 1909 to Jan. 1910, counter clerk, C.P.R., London, Eng.; Feb. 1910 to March 1911, passenger clerk, C.P.R., Ipswich, Eng.; Apr. to Dec. 1911, Travelling Passenger Agent, C.P.R., London, Eng.; Dec. 1911 to Dec. 1915, chief clerk to General Passenger Agent, C.P.R., London, Eng.; Jan. 1916 to July 1919, various sectional duties for General Passenger Agent, and European General Manager, C.P.R., London, Eng.; July 1919 to Sept. 1921, chief booking clerk, C.P.R., London, Eng.

C. E. Jenney, District Passenger Agent, Canadian National-Grand Trunk Pacific Rys. and Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C., was presented with a gold watch by his associates, Dec. 2, on leaving Vancouver for New York, where he has been appointed General Agent, Passenger Department, Canadian National-Grand Trunk Rys.

W. B. Lanigan, Freight Traffic Manager, C.P.R., Montreal, visited Winnipeg in Dec. 1921 on business.

R. C. W. Lett, General Agent, Industrial and Resources Department, Canadian National Rys., Edmonton, Alta. returned there Dec. 9, after attending the International Live Stock Show at Chicago, Ill.

J. A. McLeod, Assistant Chief of In-

vestigation Department, C.P.R., Winnipeg, died at Rochester, Minn., Nov. 27.

W. G. McPherson, Division Master Mechanic, Regina Division, Saskatchewan District, C.P.R., Regina, was entertained at dinner there recently, and presented with a travelling bag and two easy chairs by the local staff, on his removal to Moose Jaw, Sask., where he has been appointed Division Master Mechanic, Moose Jaw Division, Saskatchewan District.

Lord Mount Stephen, first President of the C.P.R., whose death was mentioned in our last issue, has, according to London, Eng., press dispatches, left the residue of his estate to the King Edward Hospital Fund. The amount is not stated, but it is said that with the exception of a few small legacies it represents the total of the estate. His previous gifts to the hospital fund approximated \$2,500,000.

Lieut.-Col. R. L. Nelles, formerly Freight Agent, G.T.R., Toronto, died at Toronto, Dec. 27. He was born Nov. 4, 1842, and entered G.T.R. service in Oct. 1862, since when he was, to 1867, clerk, Calendon, Ont.; 1867 to 1870, agent, Canfield, Ont.; 1870 to 1881, agent, Calendon, Ont.; 1881 to 1896, agent, Brantford, Ont.; 1896 to July 1, 1905, agent, Parkdale, Ont.; July 1, 1905 to Nov. 1, 1909, when he retired on superannuation, freight agent, Toronto. He was Lieutenant-Colonel of the Haldimand Rifles.

Senator Frederic Nicholls, Chairman of the Board, Canadian General Electric Co., who was the first President of the Canadian Northern Ry. Co. and a director of it until its lines were transferred to the Dominion Government in Sept. 1918, and was Vice President, Toronto Ry. Co., when he died at Toronto, on Oct. 25, 1921 left an estate valued at \$461,592.72, of which \$344,551.90 was life insurance. His will directs the creation of a trust fund of \$300,000, the income from which is to be divided equally among his two daughters and four sons, until his youngest living grandchild becomes 21 years old, when the fund is to be divided among his children. Any amount which the estate realizes over \$300,000 is to be divided among his six children, as soon as it can be done conveniently.

A. B. Ogilvie, Road Foreman of Locomotives, G.T.R., Ottawa, Ont., died there, Dec. 8, aged 46. He was formerly in Canada Atlantic Ry. service and remained with the G.T.R. when it took over the C. A. R. in 1905. He was a son of Jas. Ogilvie, Assistant Chief Operating Officer, Board of Railway Commissioners, a brother of C. E. Ogilvie, General Foreman, Ottawa & New York Ry., and a nephew of W. D. Robb, Vice President, Transportation, Construction and Maintenance, G.T.R.

Geo. A. Oxnard, who died at Guelph, Ont., Nov. 21, 1921, aged 87, and who was born at Portland, Me., Jan. 31, 1833, entered G.T.R. service in 1853 at Island Pond, Vt., and was transferred to various points as follows:—1855, Detroit, Mich.; 1858, Guelph, Ont.; 1859, London, Ont. In 1860 he returned to Guelph, and was city ticket agent until retiring in 1901.

C. W. Parker, Signal Engineer, C.P.R., spoke at the electrical co-operative luncheon in Montreal, Nov. 30, on signalling.

F. H. Phippen, K.C., formerly General Counsel, Canadian Northern Ry., who was one of the G.T.R.'s counsel in the recent arbitration as to the value of its stock and who has also been one of the Toronto Ry.'s counsel in its arbitration with the City of Toronto, has broken down from overwork and has had to leave Toronto for treatment.

J. M. Rapelje, who has been appointed Vice President in charge of operating and maintenance, Northern Pacific Ry., St. Paul, Minn., was born at Chippewa, Ont., Jan. 22, 1857, entered railway service in Aug. 1879, and for some time was brakeman on the G.T.R., and later entered Atcheson, Topeka & Santa Fe Ry. service. From May 1882 to Nov. 1887, he was a conductor on the C.P.R.; Nov. 1887 to 1898, conductor, Northern Pacific Ry.; 1898 to Apr. 1905, Trainmaster, conductor and again Trainmaster, same road; Apr. 1905 to July 1908, Superintendent, Yellowstone Division, same road; July 1908 to May 1910, Superintendent, Rocky Mountain Division, same road; May 1910 to 1912, Superintendent, Idaho Division, same road; 1912 to May 1914, General Superintendent, Mandan, N.D., to Paradise, Mont., same road; May 1914 he was appointed Assistant General Manager, and shortly after, General Manager, same road, which position he held at the date of his present appointment.

H. T. Rawlings, formerly Lake Forwarding Agent, Canadian National Rys., Cleveland, Ohio, and for some time past Vice President and director, A. F. Baier Coal Co., Cleveland, has resigned the latter position to become Vice President and director, Schroeder-Kelly Coal Co., Cleveland.

H. D. Reid, President, Reid Newfoundland Co., returned to St. John's, Nfld., Dec. 12, after spending some three months in England.

Senator J. D. Reid, ex-Minister of Railways and Canals, and Mrs. Reid, left Ottawa, Dec. 8, to spend the winter in England and the south of France.

James William Reid, whose appointment as Inspector of Railway Safety Appliances, Board of Railway Commissioners, Calgary, Alta., was announced in our last issue, was born at Harvey, N.B., Nov. 12, 1872, and entered transportation service in 1910, and shortly after entered C.P.R. service, receiving training in several departments, in conjunction with a course in railway engineering at McGill University, graduating in 1914, after which he remained in C.P.R. service in various capacities. During the war, he served overseas with the Royal Air Force.

W. C. Riddell, formerly Advertising Agent, Grand Trunk Pacific Ry., Winnipeg, was presented with a case of pipes Dec. 14, by his associates at Winnipeg, on leaving for Toronto, where he has been transferred to the Canadian National Rys. staff. He had been Grand Trunk Pacific Ry. Advertising Agent at Winnipeg since Aug. 1918, having been transferred from the G.T.R., Montreal.

H. R. Safford, who has been appointed Vice President, Chicago, Burlington & Quincy Rd., Chicago, Ill., was from Oct. 1911 to Sept. 1918, Chief Engineer, G.T.R., Montreal. From Sept. 1918 to March 1, 1920, he has Engineering Assistant, Central Western Region, United States Railroad Administration, Chicago, and since then Assistant to President, Chicago, Burlington & Quincy Rd., Chicago.

Thomas Steele, who died at Ottawa,

Dec. 11, aged 68, was one of the early employees of the Canada Atlantic Railway, now part of the G.T.R.

P. A. Stewart, who died at Vancouver, B.C., Nov. 27, aged 63, was engaged on the C.P.R. in its early construction days under H. J. Cambie and other engineers. He was born in Ireland, came to Canada in the early 80's and served in the Riel Rebellion and in the South African war.

Mrs. M. F. Tompkins, wife of the General Freight Agent, Canadian National Rys., Moncton, N.B., died there at the end of November.

Railway Earnings.

Canadian Government Railways.

Following are total operating revenues, total operating expenses, and net operating deficits, for the Intercolonial, Prince Edward Island, National Transcontinental, and local lines in the Maritime Provinces and Quebec which have been acquired by the Dominion Government and added to the Canadian Government Rys., as far as they are available to date.

	Revenue	Expenses	Net deficits
	1921	1921	1921 1920
Jan.	\$3,527,304	\$4,347,728	\$ 820,423 \$ 508,178
Feb.	3,526,658	4,367,491	840,833 1,205,925
Mar.	3,595,144	4,538,904	943,761 1,235,265
Apr.	3,363,072	3,915,995	552,923 115,191
May	2,914,973	3,728,949	813,976 618,809
June	2,859,986	3,811,205	951,309 608,456
July	2,988,552	3,547,379	558,827 508,569
Aug.	3,366,391	3,436,475	70,084 795,428
Sept.	3,515,200	3,774,283	259,083 877,618
Oct.	3,812,673	3,533,685	278,988* 655,445

	\$33,469,863	\$39,002,094	\$5,532,231	\$7,192,584
Decr.	\$1,493,325	3,153,678	1,660,353	.....

*Net revenue.

Canadian National Railways.

Following are approximate monthly gross earnings for the Canadian Northern Ry. System and Canadian Government Rys., the latter including the Intercolonial Ry., Prince Edward Island Ry., National Transcontinental Ry., and various local which have been acquired by the Dominion Govt. in the Maritime Provinces and in Quebec, enment.

	1921	1920
January	\$8,781,839	\$7,267,562
February	8,150,341	6,516,059
March	9,497,740	7,761,329
April	8,164,955	7,937,478
May	7,794,147	8,305,850
June	7,885,548	7,776,539
July	8,837,354	9,063,674
August	8,881,530	9,582,999
September	10,548,589	9,895,681
October	11,691,881	12,351,167
November	10,742,852	12,426,824

\$100,986,596 \$98,885,159

Canadian Northern Railway System.

Following are approximate monthly gross earnings for the Canadian Northern Railway System:

	1921	1920
January	\$5,094,100	\$4,200,700
February	4,840,500	3,862,300
March	6,119,700	4,587,700
April	4,978,500	4,732,623
May	4,742,200	4,863,500
June	4,606,800	4,427,600
July	5,506,900	5,168,500
August	5,708,500	5,899,700
September	7,057,400	6,140,500
October	7,988,030	7,620,000
November	6,978,930	7,602,700

\$63,620,930 \$59,102,823

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920, as far as they are available, to date:—

	Revenue	Expenses	Net deficits
	1921	1921	1921 1920
Jan.	\$5,851,220	\$7,538,786	\$1,687,566 \$1,672,283
Feb.	5,575,782	6,861,337	1,285,555 1,839,756
Mar.	5,812,790	6,746,912	934,122 1,280,887
Apr.	4,994,027	6,327,739	1,333,712 911,321
May	4,427,994	5,742,052	1,314,058 1,041,273
June	4,295,881	5,536,771	1,240,890 1,084,815
July	5,027,917	5,448,014	420,097 1,603,874
Aug.	5,638,538	5,421,271	217,267* 1,454,666
Sept.	6,247,753	5,473,618	774,135* 2,180,065
Oct.	6,947,044	6,310,614	636,430* 980,717

	\$54,818,946	\$61,407,114	\$6,588,168	\$14,052,657
Incr.	\$3,718,686	.....	.....	.....
Decr.	.....	\$3,745,803	\$7,464,489	.....

*Net revenue.

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1921, compared with 1920:—

	Gross	Expenses	Net	Increases
Jan.	\$14,465,430	\$13,824,005	\$641,425	\$55,484
Feb.	12,768,987	11,955,595	813,392	99,518
Mar.	14,705,727	12,254,818	2,450,909	493,144
April	13,761,840	11,115,709	2,646,131	304,285
May	13,892,045	10,598,493	3,293,552	95,609
June	14,461,643	11,356,885	3,104,758	473,940
July	15,772,929	13,718,613	2,054,316	434,839
Aug.	17,064,266	14,488,126	2,576,140	375,327
Sept.	19,494,761	15,174,712	4,320,050	411,395
Oct.	22,089,624	15,378,137	6,711,487	*989,336

	\$158,477,251	\$129,865,094	\$28,612,157	\$1,754,196
Incr.	.....	.....	1,754,196	.....
Decr.	\$13,760,784	\$15,514,980	.....	.....

Approximate earnings for November, \$18,507,000, against \$23,524,000 for Nov. 1920.

The discrepancies between the above figures and those issued by the Dominion Bureau of Statistics are owing to the fact that the Bureau is, at its request, furnished with figures by the C.P.R., including the Esquimalt & Nanaimo Ry., and the Montreal & Atlantic Ry. earnings, as well as the C.P.R. ones. The figures supplied the Bureau are exclusive of certain income items which are included in figures supplied Canadian Railway and Marine World.

Grand Trunk Railway.

Following are total operating revenue and total operating expenses for lines in Canada for 1921, also total net operating revenue or deficit for 1921 and 1920, with increases or decreases in totals, as compared with those for 1920, as far as they are available to date:—

	Gross	Expenses	Net revenue or deficit
	1921	1921	1920
Jan.	\$6,187,539	\$6,886,930	\$699,391* \$624,310*
Feb.	5,468,732	5,439,039	29,693 690,857*
Mar.	6,271,921	5,584,721	687,200 398,859
Apr.	5,659,813	5,241,107	418,706 651,789
May	5,957,779	5,596,194	361,585 605,310
June	6,672,766	5,919,063	753,702 456,747
July	6,563,693	5,620,730	942,963 863,642
Aug.	7,472,694	6,084,883	1,387,811 1,345,926
Sept.	7,240,823	7,085,571	155,252 501,078

	\$57,495,760	\$53,458,238	\$4,037,521	\$3,508,184
Incr.	\$ 461,695	.....	\$29,337	.....
Decr.	.....	\$67,642	.....	.....

*Deficits.

Approximate earnings for October, \$9,072,323, against \$10,906,579 for Oct. 1920; and for November, \$8,854,368, against \$10,402,390 for Nov. 1920.

Grand Trunk Pacific Railway.

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920, as far as they are available to date:—

	Revenue	Expenses	Net deficits
	1921	1921	1921 1920
Jan.	\$1,441,225	\$1,813,982	\$ 372,757 \$ 737,357
Feb.	1,013,712	1,872,946	859,234 670,817
Mar.	1,007,499	1,664,227	656,728 655,560
Apr.	908,147	1,645,916	737,769 596,625
May	965,763	1,373,613	407,850 985,655
June	1,109,053	1,488,366	379,313 1,516,152
July	1,085,359	1,423,516	338,160 1,411,615
Aug.	1,348,912	1,488,745	139,833 1,795,380
Sept.	1,585,284	1,601,059	15,775 1,082,596
Oct.	2,146,418	2,025,705	120,713* 552,794

	\$12,611,352	\$16,398,075	\$3,786,706	\$10,004,551
Incr.	\$2,052,979	.....	.....	.....
Decr.	.....	\$4,164,866	\$6,217,845	.....

*Net revenue.

Prosecution for Alleged Extortion.—St. Thomas, Ont., press dispatch, Dec. 22. R. D. McGowan, special agent, Grand Trunk-Wabash Railways, was committed for trial today on criminal charges of intent to extort. Two witnesses, C. L. Moore and Geo. Hill, former G.T.R. shop employes, swore that McCowan had given them the preference of being arraigned in the Police Court on charge of theft of tools from the railway or settling the matter out of court by paying \$200 each. They testified that they had paid the money demanded.

Canadian Railway Club.—A. E. MacMillan, Assistant Superintendent, Atlantic City and Shore Rd., who is a Canadian, and went to Russia with a British prisoner for 10 months, addressed the mission during the Great War, being im-Canadian Railway Club in Montreal, on Dec. 13, on the difficulties of railway transportation in Soviet Russia

Avoidable Waste in Locomotive Operation as Affected by Design.

A paper with the above title, read by Jas. Partington, Estimating Engineer, American Locomotive Co., before the American Society of Mechanical Engineers, Railroad Division, was published in Canadian Railway and Marine World for Dec. 1921. The reading of the paper was followed by considerable discussion, in which it was made abundantly clear that there is still great opportunity for improving the efficiency and economy of the steam locomotive.

F. H. C. Coppus contended that the efficiency of steam locomotives can be so developed that electrification of railways will be long deferred; by the use of mechanically induced front end draft; by condensing the steam exhausted from the cylinders and carrying the condensate back to the tender; by forcing the water from the tender into the boiler by a pump, passing it through a waste gas and waste steam heater, and by using forced draft under the grates, in the ash pan. He pointed out that mechanical drafting of a locomotive would allow of the reduction of the back pressure to 4 lb., which would mean an increased h.p. of 24%, or a fuel saving of 20%. The hot water from the tender pumped through a waste steam heater would enter the waste gas heater at 220 deg. F., and the waste gas heater would raise the temperature to 300 deg., which would introduce a further fuel saving of 20%. In his opinion, forced draft in the ash pan, in conjunction with mechanical front end draft, would give rise to an even draft on the fire, which would greatly cut down cinder loss, stop the inrush of cold air every time the fire door is opened, and greatly increase efficiency in combustion. He calculated that a further 20% saving in fuel would result from this cause, and deducting the fuel required for the steam used in operating pump, blowers, etc., he arrived at the conclusion that the saving would be about 45%, and stated that he looked forward with confidence to the time when steam locomotives will be operating at half the present cost.

In connection with maximum steam requirements of the cylinders, W. F. Kiesel, Jr., Mechanical Engineer, Pennsylvania System, pointed out that the American Locomotive Co.'s formula for superheated locomotives is $H.P. = .0229 P A$, where P is boiler pressure and A is cylinder area. He said that this formula is satisfactory in comparing locomotives which have the same cutoff in full gear, but that in comparing a locomotive with a 90% cutoff, with one with a maximum cutoff of 50%, such as the Pennsylvania 11s decapods, the formula falls down badly. A test of this decapod locomotive, details of which were given in Canadian Railway and Marine World for Dec. 1921, pg. 654, showed that in full gear at low speed, the steam per indicated h.p. hour was 38% less than the steam rate for a locomotive with 90% cutoff, while under the average conditions of service the saving was at least 15%. The table referred to gives the steam rate in pounds per h.p. hour for the Pennsylvania decapod as 20.8, but with a saving of 15%, this rate would be 17.68, which compares favorably with test results. The best test result indicated a steam rate of 14.9 lb. per h.p. hour. He also pointed out that the American Locomotive Co.'s formula, as given above, has its value as

a basis of comparison further affected by relative freedom of draft, and by the influence of large combustion chambers.

L. J. L. Nicholson made plain the possibilities of the thermic syphon as an efficiency and economy factor. This device is an inverted triangular water leg, the plane of which is vertical, and with a direct connection between the throat and barrel of the boiler and the space above the crown sheet. Two, or three, syphons in a firebox support the brick arch, and by their use a larger firebox heating surface is available, and a desirable circulation is set up in the boiler by water being drawn from the throat and barrel, through the syphons and into the space over the crown sheet. If two syphons were applied to locomotive 50,000, specifications of which were also given in Canadian Railway and Marine World for Dec. 1921, the effect would be to add 62 sq. ft. to the firebox heating surface, equivalent to the addition of 164 boiler h.p. to the capacity of the locomotive, which figure would be further increased by the desirable circulation set up. The boiler h.p. of locomotive 50,000 was 92% of the cylinder h.p.; the addition of syphons would increase the boiler h.p. to 100% of the cylinder h.p.; allowing for the weight of the syphons, the weight of the locomotive could be reduced to 113 lb. per boiler h.p. as compared with 119.6 lb. without the syphons.

It was further shown that, in the case of the Mountain type locomotives built for the Chicago, Rock Island & Pacific Ry., by the American Locomotive Co., which are equipped with three syphons each, if they were not equipped with syphons the boiler h.p. would be reduced from 2,855 to 2,550. At present, these locomotives weigh 129.3 lb. per boiler h.p.; without syphons, their weight would be 144.7 lb. per boiler h.p. Calculations demonstrate that if these mountain type locomotives had been equipped with 100% boilers without syphons, the first cost due to increased weight would have been \$7,410 greater and the locomotive would have been 39,000 lb. heavier.

The application of the una-flow engine and the Diesel engine to locomotive practice was also discussed.

Grain in Elevators.

Returns for the week ended Dec. 16, 1921, to the Dominion Bureau of Statistics, Internal Trade Branch, show that the quantity of grain in store at the various elevators throughout the Dominion increased by 7,002,636, as follows,—wheat 3,797,663 bush., oats 2,517,064 bush., barley 431,359 bush., flax 36,788 bush., and rye 219,762 bush. Receipts of wheat at country elevators were 8,992,623 bush., and shipments 9,124,307 bush. The interior elevators showed increases in wheat, oats and flax, of 243,972, 95,406 and 93 bush. respectively, and barley showed a decrease of 4,333 bush. In the public and private elevators at Fort William and Port Arthur, increases were shown in all grains,—wheat 234,587 bush., oats 749,145 bush., barley 61,552 bush., flax 56,003 bush., and rye 39,790 bush. The receipts of all grains were 8,916,688 bush., and the shipments by ship were 6,789,355 bush., and by rail 986,256 bush. In the private terminal elevators at Win-

nipeg increases were shown in wheat and oats of 191,355 and 109 bush. respectively, and there was a decrease in rye of 516 bush.

In the eastern public elevators increases were shown in wheat of 289,385 bush., barley 167,695 bush., rye 7,054 bush., and decreases in oats of 167,228 bush., and flax 31,035 bush. The receipts of wheat were 1,283,153 bush. by ships and 881,470 bush. by rail, while the shipments were 493,220 bush. by ships and 1,382,020 by rail.

There were 3,861,482 bush. of U.S. grain in store at eastern public elevators, compared with 1,763,367 for the same period in 1920, the bulk of the former being made up of wheat 865,397 bush., and corn 2,063,230 bush.

The movement of grain by water from Sept. 1 to the close of navigation in 1921 shows 57,942,423 bush. to lower lake ports, 1,134,205 bush. to Montreal, a total of 59,076,638 bush.; and 74,848,806 bush. to Buffalo, 4,856,252 bush. to other U.S. lake ports, a total of 79,705,058 bush., a grand total of 138,781,686 bush., compared with 38,136,511 bush. to lower lake ports, 1,366,482 bush. to Montreal, a total of 39,502,993 bush.; 53,281,890 bush. to Buffalo, 9,088,170 bush. to other U.S. lake ports, a total of 62,370,060 bush., and a grand total of 101,873,053 bush. for the same period 1920.

Intermediate or Ultimate Carrier Not Responsible for Loss.

M. de Petro, of Naples, Italy, shipped a quantity of goods to Parrin Freres, Montreal, by an ocean steamship leaving Naples for New York, where they were delivered to the New York Central Rd. for transportation to Montreal. On the consignment reaching the consignee it was found that a quantity of gloves were missing. An action was brought in the Quebec Superior Court against the New York Central Rd. to recover the cost of the goods, and the court decided against the company. An appeal was taken and judgment was given Dec. 14, Justices Tellier and Bernier, after reviewing the facts and the law, holding that the railway company having received the case of goods in apparently good order in New York, and delivered it to the Customs authorities in Montreal, also in apparently good order, had discharged all its obligations. A railway company is not responsible for pilferages unless it is proved that they took place while the goods were in the railway's possession. The intermediate carrier has not the right to open cases of goods in transit in order to verify the contents if the case is in apparent good order. There is no special provision in the Quebec Code establishing the responsibility of the second or last carrier, and all that a second carrier can do in a case like this is to give a receipt for goods as being in good order, without committing itself to responsibility for the contents. The appeal was granted, and the action dismissed with costs, Mr. Justice Green-shields dissenting.

The Edmonton, Dunvegan & British Columbia Ry. began operating a way freight service between Edmonton and Westlock, 52 miles, on Dec. 5. The train leaves Edmonton Mondays, Wednesdays and Fridays, and leaves Westlock on the return trip Tuesdays, Thursdays and Saturdays.

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Grand Trunk Shareholders Granted Right to Appeal to British Privy Council.

Counsel for G.T.R. shareholders applied to the British Privy Council's Judicial Committee in London, Eng., Dec. 21, for leave to appeal to the Privy Council against the decision of Sir Walter Cassels, President of the Exchequer Court, and Sir Thos. White, representing the Dominion Government, in the arbitration to determine the value of certain G.T.R. preference and common stocks taken over by the Dominion Government, which declared those stocks to be of no value, a decision from which Hon. W. H. Taft, the other arbitrator, representing the G.T.R., dissented. The petition was heard by Lord Chancellor Birkenhead and Lords Haldane and Cave.

Sir John Simon, for the G.T.R. shareholders, directed his argument mainly to the rejection by Sir Walter Cassels and Sir Thomas White of evidence as to the physical value of the G.T.R. as legally inadvisable. This, he submitted, had brought the matter within the scope of the Privy Council's authority. The Lord Chancellor remarked that Sir John Simon's task was to satisfy their lordships that there was a question of law at stake of a substantial character and fairly disputable, and added that subject to anything which W. N. Tilley, K.C., counsel for the Dominion Government, might say, the petitioners seemed to have a point of substance.

Sir John Simon contended that the Canadian legislation appointing the board of arbitration directly specified that an appeal should lie to the Privy Council. It was impossible, however, for the Canadian statute to place upon their lordships a direct obligation to hear the appeal. Nevertheless he was not asking leave for such appeal as a special favor, but that it should be granted in accordance with special Canadian legislation.

W. N. Tilley, K.C., in opposing the application, submitted that the matter was not a question of law, but the Lord Chancellor reminded him that the members of the board of arbitration had distinctly declared it to be an important question of law. Mr. Tilley said that the arbitration chairman did not see how it could bear on the question which they had to decide concerning the value of the G.T.R. stock, having regard to the earning power, present and future, of the line.

Lord Haldane said it struck him as a very considerable question of legal principle.

The Lord Chancellor remarked to Mr. Tilley that the latter was in difficulty, because though the chairman of the committee was in his favor, he also said that the matter was of legal importance.

Lord Haldane said the term "stock they held" was just a short way of saying assets they owned.

The Lord Chancellor wanted to know what interpretation on the value of the railway would be submitted supposing, for instance, it was swept away by devastation and had to be replaced, and added: "I most carefully abstain from expressing an opinion on these matters, but is not any opposition view plainly a disputable one?"

Lord Haldane remarked that the Dominion Parliament might have said that this was purely a domestic matter, but taking a wide-minded view their lordships said if there is a difference of opin-

ion they wished the matter to go before the King in council. "You have had great experience, Mr. Tilley," he said. "You must see how clearly the Dominion Parliament has presented this matter before ourselves. Nobody knows better than you the disadvantage of arguing a case merely on an application for leave to appeal."

In making an order granting the shareholders leave to appeal, the Lord Chancellor said it was particularly desirable that it should be understood that their lordships did not express the slightest opinion on the points brought up in the application. Their only conclusion was that there were matters reasonably disputable which, within the plain terms of the statute, might properly be considered by the King in council. He expressed the hope that the case would be ready for presentation at the next term.

Grant Hall's Western Trip.

Grant Hall, Vice President, C.P.R., left Montreal at the end of November on one of his periodical trips of inspection over the company's western lines, and arrived in Winnipeg, Dec. 1, accompanied by D. C. Coleman, Vice President, Western Lines, who met him at Port Arthur. He left Winnipeg Dec. 4, arrived in Vancouver Dec. 8, went to Victoria, Dec. 12, returned to Vancouver Dec. 13, and went east via the Kettle Valley Ry., Calgary, Edmonton and Winnipeg to Montreal.

Mr. Hall is reported to have stated at Winnipeg that he was looking into the matter of the construction work to be undertaken during 1922, but until the appropriations were decided he could not say what would be done. He is reported to have said at Vancouver that one of the most important projects in view for the year is the erection of the additional pier on the waterfront.

E. H. Fitzhugh vs. Central Vermont Ry. et al.

A Concord, N.H., press dispatch of Dec. 8 stated that it had been announced in court that a settlement had been reached in the action brought by E. H. Fitzhugh, former Vice President, Central Vermont Ry., and now of New London, Conn., against the Central Vermont Ry. Co., the Grand Trunk Ry. Co., Sir Alfred Smithers, Chairman of the G.T.R. directorate; E. J. Chamberlin, formerly President, G.T.R., and E. H. Smith, President, Central Vermont Ry., to recover \$200,000 damages for alleged conspiracy to prevent his obtaining further employment as a railway man. The terms of the settlement were not announced, but it is stated that a paper was filed in the court to the effect that no further suits can be brought on the same charges. We are officially advised that after the trial had gone on for some days, the case was settled between the parties, counsel on both sides agreeing that the terms should not be made public.

The Toronto Star, in publishing a press telegram in reference to this matter head it "An Earl's Lawsuit." It will be news to Mr. Fitzhugh to see that he has been raised to the British peerage.

Railway Development, Projected Lines, Surveys, Construction Betterments, Etc.

Alberta & Great Waterways Ry.—The Northern Construction Co.'s staff returned to Edmonton, Alta., at the end of Nov. 1921, having completed work on the line for the season. E. R. Jackson, Divisional Engineer, is reported to have stated that the line is now in good shape and that there should be no difficulty in carrying the heavy traffic expected during 1922. About 95% of the line was completely ballasted; the remaining 5% consisting of dry knolls which were not in such urgent need of ballasting as were the low lying sections. The spur track from the end of rail to the waterfront at the Clearwater River was completed, and trading and other buildings were being erected. A road had been built from the rail terminus into McMurray, and a telephone line strung. (Dec. 1921, pg. 646.)

Canada & Gulf Terminal Ry.—We are officially advised that during 1921 the company built an extension of its line from Matane to Hammermill, Que., 2.4 miles.

Canadian Light Railways Construction Co. has been incorporated under the Ontario Companies Acts, with authorized capital of \$1,500,000 and office at Toronto to carry on business as public contractor, and more particularly to build and equip a light railway or railways in the unorganized Ontario districts, and to acquire any or all of the Canadian Light Ry. Construction Co.'s assets and liabilities. The provisional directors are A. W. Hunter, J. C. Thomson, W. T. Johns, solicitors; W. W. McKeown, student at law; and G. R. Sproat, accountant, all of Toronto. (Dec. 1921, pg. 646.)

Central Canada Ry.—Under the terms of an operating agreement with the Edmonton, Dunvegan & British Columbia Ry. and the Central Canada Ry., the C.P.R. undertook to build a 20 mile extension of the Central Canada Ry. from Peace River Crossing towards the Waterhole country. A contract for this work was let to W. A. Dutton, Winnipeg, and we are officially advised that the grading was completed during 1921, and that track was laid thereon. Ballasting and other work has to be completed before the opening of the extension for traffic, which it is expected will be in the summer.

Dominion Atlantic Ry.—We are officially advised that during 1921 the company completed a 2.5 mile extension from mile 39.77 on the Yarmouth Subdivision, near Weymouth, N.S., to the Sissiboo Pulp & Power Co.'s pulp mill.

Esquimalt & Nanaimo Ry.—We are officially advised that track was laid during 1921 on 3.7 miles of the branch lines to Great Central Lake, Vancouver Island. The total length of the branch is 10.5 miles, and the grading on it was completed in 1920. (Dec. 1920, pg. 646.)

Grand Trunk Ry.—A press report states that the piers of the new bridge across the new Welland Ship Canal at lock 25 will be built during the winter.

The company is reported to have re-laid 92 miles of its main line on the London Division, east of London, Ont., with 100 lb. rails during 1921, thus completing the relaying of the line with heavy rails between Toronto and London. The report also states that arrangements have been made for replacing the present 85 lb. rails between Hamilton and Niagara,

and between Hyde Park and Sarnia, together about 90 miles, with 100 lb. rails.

Kettle Valley Ry.—We are officially advised that track has been laid on the line extending southerly from Penticton to Dog Lake, 2.4 miles, on which the grading was completed in 1920; and that approximately five miles of grading have been completed on the 16.7 mile section of the line from the southern end of Dog Lake to the irrigated lands. The contract for the latter grading was let in October to A. E. Griffin & Co., Vancouver, B.C. (Nov. 1921, pg. 583.)

Pacific Great Eastern Ry.—The British Columbia Legislature on Dec. 1 voted \$773,884 to defray charges on capital expenditure on the P.G.E.R. to March 31, 1923.

The Premier of British Columbia in the course of a recent debate on this railway stated that the estimated damage to the line due to recent floods was \$200,000. It is the Government's intention to continue and complete the construction of the line from Quesnel to Prince George, so that connection may be made with the Grand Trunk Pacific Ry.

As a result of a delegation of business men waiting on him, the Premier advised the B.C. Legislature Dec. 1, that he had decided to ask D. B. Hanna, President, Canadian National Rys., and E. W. Beatty, President, C.P.R., to recommend persons competent to enquire into the whole situation as regards the P.G.E.R. and to advise the Government.

West Vancouver City Council on Nov. 29 approved of a draft agreement for taking over the section of the line from North Vancouver to Whytecliffe, 13 miles, as a municipal enterprise, subject to a vote of the ratepayers, and to legislative confirmation. (Dec., pg. 646.)

Transportation Men in the Dominion General Elections.

Hon. E. Bristol, K.C., one of the directors of Canada Steamship Lines Ltd., who was minister without portfolio in the Meighen Government, was re-elected in Center Toronto.

Hon. C. C. Ballantyne, who was Minister of Marine and Fisheries and of the Naval Service in the Meighen Government, and who was again a candidate in St. Lawrence-George Division, Montreal, was defeated.

F. A. Campbell, who was a New Brunswick Power Co.'s conductor, on its St. John Ry., until the beginning of the strike some time since, and is President of the Union Bus Co., which has been running motor busses in opposition to the electric cars, was endorsed by the Canadian Labor Party as one of its candidates in St. John-Albert, but was defeated. He was a defeated Labor candidate for city commissioner at the last St. John elections.

J. M. Campbell, President, Kingston Navigation Co., who was the Liberal candidate in Kingston, Ont., was defeated.

Thos. Cantley, of New Glasgow, N.S., formerly President, Nova Scotia Steel & Coal Co., and subsequently Chairman of the Board, who resigned from the Canadian National Rys. directorate on being

chosen as the Government candidate for Pictou, N.S., was defeated.

M. P. Finn, C.P.R. conductor, who was the Dominion Labor Party candidate for Lethbridge, Alta., was defeated.

Brigadier General Chilion L. Hervey, D.S.O., C.E., of Lancaster, Ont., and Montreal, who was the Government candidate for Glengarry and Stormont, Ont., was defeated.

Jas. Murdock, Vice President, Brotherhood of Railroad Trainmen, who was the Liberal candidate for South Toronto, was defeated, but was selected by the new Prime Minister as Minister of Labor and was sworn in Dec. 29. A seat will have to be found for him.

George Brecken Nicholson, of Chapleau, Ont., who represented Algoma East in the last Dominion Parliament, and was again the Government candidate, but was defeated, was born at Westmorland, P. E.I., March 17, 1868. He began in railway construction work in 1884, continuing until April 1901. He established the present business of Austin & Nicholson, lumbermen, at Chapleau, in partnership with Jas. Austin, in 1901.

W. G. Ross, formerly General Manager, Montreal Tramways Co., who resigned as President of the Montreal Harbor Commission to become the Government candidate for St. Antoine, Montreal, was defeated.

Hon. J. A. Stewart, K.C., who was Minister of Railways and Canals in the Meighen Government, was again a candidate in Lanark, Ont., and was re-elected.

Edward E. Sheppard, a Timiskaming & Northern Ontario Ry. conductor, at North Bay, Ont., who, as stated in Canadian Railway and Marine World for Nov. 1921, was selected as the Government candidate for Timiskaming, Ont., retired, stating that entirely unforeseen conditions which had developed since the convention at Englehart, at which he was nominated, had compelled him to do so. It is taken for granted that his resignation was caused by the Ontario Government's decision to require provincial civil servants to take no active part in political affairs, although the members of the Government campaigned for the farmers' party.

The Bad Order Car Situation.

The Railway Association of Canada has issued a statement showing that the total number of cars on Canadian lines during the 15-day period ending Dec. 1, 1921, was 207,781. The American Railway Association has laid down the principle that not more than 7% of the freight equipment of a railway should be in bad order at any time, if it is to be efficiently maintained, and on this basis, 14,544 cars could be expected to be in bad order. Actually, there were 16,683 in bad order, an excess of 2,139 on the 7%. Of surplus cars in good order there were 23,536, so that altogether there were 40,219 cars idle, or 25,675 without counting those that could be expected to be in bad order on the A.R.A. basis. For the 15-day period ended Dec. 15, 1921, the total number of cars on Canadian lines was 208,746. The allowance for bad order cars on the A.R.A. basis would be 14,612; the actual bad order cars numbered 16,388, an excess over the A.R.A. allowance of 1,776. Surplus cars in good order numbered 32,615, making the total number of idle cars 49,003, or 34,391 on the 7% bad order basis.

Steam Railway Operating Revenues, Expenses and Other Statistics for September.

The following comparative table for September, 1921 and 1920, has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics' Transport-

tation Branch.

The figures in the column headed "All railways," include all steam railways with an annual operating revenue of \$500,000 and over, except the St. Law-

rence and Adirondack Ry., which is not able to give the 1920 figures, and is therefore being omitted from 1921 reports, as its inclusion would not show a true comparison. The 1921 figures, however, will

be available for comparative purposes for 1922.

The column headed "Canadian Government," includes the Intercolonial, Prince Edward Island, National Trans-

	All railways		Canadian Government		Canadian Northern		Canadian Pacific etc.		Grand Trunk		Grand Trunk Pacific	
	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920
Operating revenues												
Freight	\$30,526,664	\$31,167,864	\$2,390,527	\$2,686,744	\$4,729,570	\$4,243,423	\$13,778,955	\$13,900,393	\$5,120,604	\$5,765,881	\$1,232,950	\$887,016
Passenger ..	8,049,273	10,182,904	706,587	922,730	877,144	1,038,421	3,898,062	5,070,866	1,339,737	1,745,485	207,469	297,953
Mail ..	640,041	331,516	79,380	44,198	85,076	40,054	286,486	142,811	118,131	56,324	11,835	11,835
Express ..	1,558,811	1,309,154	129,870	117,461	199,730	123,410	692,118	733,249	369,477	214,191	79,793	32,884
All other ..	2,207,349	2,500,122	201,113	201,113	361,230	483,529	1,110,419	1,219,794	292,871	277,437	35,585	61,263
Total railway operating revenues	\$42,982,140	\$45,491,561	\$3,515,200	\$3,972,248	\$6,247,752	\$5,928,840	\$19,766,032	\$20,467,145	\$7,240,823	\$8,059,270	\$1,585,283	\$1,200,903
Operating expenses												
Maintenance of way and structures ..	\$9,468,630	\$10,834,262	\$1,254,974	\$1,427,333	\$1,400,174	\$2,553,800	\$3,436,821	\$3,293,406	\$2,011,550	\$1,596,854	\$415,447	\$935,323
Maintenance of equipment ..	8,852,875	9,886,981	748,568	903,939	1,349,207	1,329,154	3,907,661	4,004,930	1,620,016	1,857,617	204,936	503,463
Traffic ..	930,393	851,371	31,435	41,096	114,940	130,237	556,320	440,488	132,710	162,309	25,886	23,766
Transportation ..	16,386,213	20,713,957	1,059,882	2,041,467	2,621,002	3,743,644	6,779,463	8,128,628	3,083,074	3,684,270	770,073	778,589
Miscellaneous operation ..	597,518	817,967	54,897	71,783	154,199	256,790	261,564	365,312	48,548	42,624	6,120	13,015
General ..	936,660	947,818	24,523	64,247	162,954	180,002	359,747	310,321	221,189	234,515	41,896	29,388
All other ..	394,812	Cr. 68,079	.....	.....	Cr. 328,861	Cr. 84,724	.....	.....	Cr. 1,519	.....	Cr. 79,001	.....
Total railway operating expenses	\$36,777,479	\$43,984,281	\$3,774,282	\$4,849,866	\$5,473,618	\$8,108,905	\$15,301,579	\$16,542,087	\$7,085,570	\$7,538,193	\$1,601,059	\$2,283,499
Net operating revenue	6,204,661	1,507,280	259,982	\$77,618	774,134	218,064	4,464,463	3,925,058	155,252	501,077	15,775	1,082,594
Ratio of operating expenses to revenue ..	85.56%	96.69%	107.37%	122.69%	87.61%	136.77%	77.41%	80.82%	97.85%	93.78%	100.99%	190.15%
Mileage and operating statistics												
Average no. of miles of road operated ..	38,303.10	38,080.91	4,564.05	4,475.75	9,759.4	9,654.7	13,785.8	13,772.1	3,571	3,571	2,807.3	2,807.3
Tons moved (revenue) ..	9,093	10,747	660	1,090	1,351	1,278	2,998	3,126	1,944	2,375	358	229
Tons moved one mile (revenue) ..	2,624,671	2,803,246	224,351	266,650	461,836	421,842	1,171,603	1,234,389	382,075	474,913	176,332	85,509
Tons moved (all freight) ..	10,588	12,342	872	1,244	1,593	1,540	3,620	3,851	2,223	2,680	397	292
Tons moved one mile (all freight) ..	2,931,772	3,123,723	255,252	286,140	542,698	494,051	1,318,735	1,413,302	406,949	501,664	192,708	101,995
Passengers carried ..	3,876	4,453	328	645	381	444	1,431	1,621	1,009	1,147	74	58
Passengers carried one mile ..	273,514	325,465	29,564	35,441	33,415	36,048	125,038	163,563	49,041	49,921	7,597	7,033
Freight train miles ..	4,899	5,289	400	525	961	998	2,003	2,168	885	888	301	223
Passenger train miles ..	3,735	4,084	381	430	512	583	1,680	1,835	662	680	127	151
Mixed train miles ..	550	613	110	113	137	154	138	172	59	59	28	39
Loaded freight car miles ..	112,467	122,873	11,064	12,622	18,866	19,603	47,902	53,990	17,284	18,950	6,587	4,793
Empty freight car miles ..	60,781	46,003	3,437	3,472	12,239	7,668	26,068	20,086	7,720	7,720	4,267	2,545
Passenger car miles ..	28,212	30,720	3,004	3,463	3,670	3,724	13,014	14,599	4,251	4,495	1,234	1,278
Total amount of pay roll ..	\$20,362,228	\$28,070,557	\$2,418,486	\$3,779,812	\$3,981,964	\$5,275,155	\$7,762,395	\$10,031,448	\$3,762,380	\$4,889,497	\$900,575	\$1,300,934
Averages per mile of road operated												
Operating revenue ..	\$1,122.16	\$1,194.60	\$770.19	\$887.50	\$640.18	\$614.09	\$1,433.80	\$1,486.13	\$2,027.67	\$2,256.87	\$564.70	\$427.78
Operating expenses ..	\$960.17	\$1,155.02	\$826.96	\$1,083.59	\$560.86	\$839.89	\$1,109.95	\$1,201.13	\$1,984.19	\$2,116.55	\$570.38	\$813.41
Net operating revenue ..	\$161.99	\$39.58	\$79.32	\$183.91	\$79.32	\$225.80	\$323.85	\$285.0	\$43.48	\$110.32	\$5.62	\$385.69
Tons moved one mile (revenue) ..	68.524	73.613	49.156	59.577	47.322	43.693	89.630	89.630	106.994	132.992	62.812	30.460
Tons moved one mile (all freight) ..	76.541	82.029	55.927	63.931	55.608	51.172	95.659	102.620	113.960	140.483	68.645	36.332
Averages per freight and mixed train mile												
Freight receipts ..	\$5.60	\$5.28	\$4.68	\$4.21	\$4.30	\$3.68	\$6.43	\$5.68	\$5.59	\$6.08	\$3.73	\$3.37
Tons of freight (revenue) ..	481.6	474.8	439.3	417.7	420.3	365.9	546.9	527.4	527.4	501.1	325.2	501.1
Tons of freight (all freight) ..	538.0	529.1	499.8	448.2	493.8	428.5	615.5	603.9	444.6	529.3	583.5	387.9
Loaded freight cars ..	20.6	20.6	21.7	19.8	17.2	17.0	22.4	23.1	18.9	20.0	19.9	18.2
Empty freight cars ..	11.2	7.8	6.7	5.4	11.1	6.7	12.2	8.6	10.6	8.2	12.9	9.7
Averages per passenger and mixed train mile												
Passenger receipts ..	\$1.88	\$2.17	\$1.44	\$1.70	\$1.35	\$1.41	\$2.14	\$2.53	\$1.86	\$2.36	\$1.33	\$1.09
Passengers carried ..	63.8	69.3	60.1	65.2	51.4	48.8	68.7	81.6	67.9	67.5	48.6	36.8
Passenger cars ..	6.6	6.5	6.1	6.4	5.6	5.0	7.2	7.3	5.9	6.1	7.9	6.7
Average per freight, passenger and mixed train mile												
Operating revenue ..	\$4.68	\$4.55	\$3.94	\$3.72	\$3.88	\$3.41	\$5.20	\$4.90	\$4.59	\$4.95	\$3.46	\$2.90
Operating expenses ..	\$4.00	\$4.40	\$4.23	\$4.54	\$3.40	\$4.67	\$4.00	\$3.96	\$4.49	\$4.61	\$3.50	\$5.51
Average length of haul (rev. freight) miles	288.6	260.8	339.5	244.4	341.7	329.9	390.8	394.8	196.5	199.9	471.7	372.4
Average passenger journey, miles	70.6	73.1	55.9	54.9	87.5	81.2	48.6	48.6	87.4	43.5	102.0	43.5
Average tons per loaded freight car ..	26.1	25.4	23.1	22.7	28.8	25.2	27.5	26.2	23.5	26.5	29.3	21.3
Ratio loaded to total freight car ..	64.9%	72.8%	76.3%	78.4%	60.7%	71.9%	64.8%	72.9%	64.0%	70.9%	60.7%	65.3%
Ratio of pay roll to revenue ..	47.4%	61.7%	68.8%	95.2%	63.7%	88.9%	39.4%	51.9%	51.8%	60.7%	56.8%	108.3%
Ratio of freight receipts to operating expenses	55.4%	63.8%	64.1%	77.9%	72.7%	65.1%	50.9%	61.7%	53.0%	61.7%	56.2%	57.0%
Average freight receipts per revenue ton mile	1.163c.	1.112c.	1.066c.	1.008c.	1.024c.	1.006c.	1.176c.	1.077c.	1.214c.	1.214c.	1.037c.	1.037c.
Average passenger receipts per pass. per mile	2.943c.	3.129c.	2.390c.	2.604c.	2.625c.	2.881c.	3.117c.	3.095c.	2.732c.	3.496c.	2.731c.	2.956c.

continental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.

The column headed "Canadian Northern," includes the lines operated as the Canadian Northern Ry. System, prior to its acquisition by the Dominion Government.

The column headed "Canadian Pacific, etc.," includes also the Montreal and Atlantic, and Esquimalt & Nanaimo Rys.

The column headed "Grand Trunk" includes its Canadian lines only.

The Railways' Operating Statistics for September.

A further improvement in Canadian railways' operating position is evident in the Sept. 1921 figures, compared with those of Sept. 1920 and preceding months of 1921. As compared with Sept. 1920, total operating revenues decreased \$2,509,421, or 5.5%, but were \$3,038,077 greater than those of Aug. 1921. Compared with Sept. 1920, Canadian Government Rys. gross operating revenues decreased 11%, C.P.R. 3.5%, and Grand Trunk 10%. Canadian Northern gross operating revenue increased 5% and G.T. Pacific 32%. All railways except the G.T.R. had greater operating revenues in Sept. 1921 than in Aug. 1921.

The railways as a whole had a substantial reduction in operating expenses, the decrease as compared with Sept. 1920 being \$7,206,802, or 16%. Canadian Government Rys. expenses decreased 22%, Canadian Northern, 32%; Canadian Pacific, 8%; Grand Trunk, 6%; and Grand Trunk Pacific, almost 30%. For the railways as a whole, maintenance of way and maintenance of equipment expenditures for Sept. 1921 were such as to indicate that maintenance was kept up well during the month. Taking into consideration the decrease in wages effective July 16, 1921, and the lower material prices prevailing, it is evident that more work was done on the physical properties in Sept. 1921 than in Sept. 1920. Both the Canadian Pacific and Grand Trunk spent more in maintenance of way in Sept. 1921 than in Sept. 1920, while for maintenance of equipment all the lines show expenditures which lead one to believe that locomotives and cars are being maintained in first class condition. Transportation expenses show reductions which are worthy of note, the decreases on all railways being much greater in proportion than the decreases in traffic handled, while on the Grand Trunk Pacific, notwithstanding a freight traffic density representing an increase of more than 100% over Sept. 1920, transportation expenses show a small decrease. The greater part of this decrease in transportation expense is accounted for, of course, by the decrease in the payroll, which, in addition to reflecting the 12% wage decrease, takes into consideration \$2,211,835 paid in Sept. 1920 as back pay.

The Sept. 1921 operating ratio of the railways as a whole, 85.56, was the best obtained to that time during 1921, that in August being 86.41. The Canadian Government Rys. showed a large improvement over Sept. 1920, although the ratio was not so favorable as in August, when it was 102.08. The Canadian Northern performance, however, represented such an improvement over preceding months that the net earned by this road was sufficient to wipe out the deficits incurred by the other lines included in the Canadian National Rys., and give the whole system net earnings for the month of over \$500,000. The deficit incurred by the Grand Trunk Pacific, however, was very small, the operating ratio, 100.99, being by far the best yet obtained. The Canadian Pacific figures were reviewed at

length in Canadian Railway and Marine World for Dec. 1921, pg. 629.

As compared with Aug. 1921, freight traffic showed a satisfactory increase, being 38% greater, and although this increase was largely seasonal and due to crop movements, the ton mileage of revenue freight was only 6.5% smaller than in Sept. 1920. Passenger traffic showed a decrease of 21% from Aug. 1921, this being largely seasonal also, but as compared with Sept. 1920 the decrease was 16%, indicating that passenger traffic did not hold up as well during the month as did freight traffic. Freight traffic on the Canadian Northern increased over 9%, and on the Grand Trunk Pacific over 100%. Although, compared with Sept. 1920, revenue freight ton mileage fell off only 6.5%, freight train mileage decreased 7.4%, indicating that operating efficiency was well maintained, as is also shown by the fact that the average number of tons of revenue freight per train mile was 481.6 in Sept. 1921 and 474.8 in Sept. 1920. The longer average revenue freight haul, 288.6 miles in Sept. 1921, compared with 260.8 miles in Sept. 1920, was also an aid in keeping freight train mileage relatively low in proportion to revenue freight handled. While passenger traffic fell off 16% from Sept. 1920, passenger train mileage was but 8.6% less, which indicates that passenger train mileage could not be curtailed to correspond with reduced business as could freight train mileage. The statistics for passenger car mileage further indicate this condition. The statistics for loaded and empty freight cars indicate that the traffic in Sept. 1921 was not nearly so well balanced as in Sept. 1920, the loaded freight car miles being much less in Sept. 1921 than in Sept. 1920, while the empty freight car miles were much greater in number, the ratio of loaded to total freight car miles being 64.9 and 72.8 in Sept. 1921 and 1920 respectively. The revenue tonnage per train being greater in Sept. 1921 than in 1920, and almost four more empty cars per train being hauled than in Sept. 1920, it is evident that the gross tonnage of freight trains in Sept. 1921 was much greater than in Sept. 1920.

As before noted, the great decrease in the payroll is due in large part to back time payments being made in Sept. 1920, although in addition to the effect of the 12% wage cut now in effect, it is probable that the programmes of strict economy in effect during the whole of 1921 have been a large influence in reducing labor costs. The abnormally large ratios of payroll to revenue, and payroll to operating expenses, as shown for Sept. 1920, are due largely to the back time payments for that month, while the corresponding ratios for Sept. 1921 indicate a return to the pre-war relationship.

The increase in rates allowed by the Board of Railway Commissioners in 1920 took effect Sept. 13. The reductions made since then left the freight rates in effect in Sept. 1921 higher on the average than in Sept. 1920, although the passenger rates show the effect of having been re-

stored to the level at which they were prior to Sept. 13, 1920. As between the two months, the figures showing the operating revenues and operating expenses per mile of road operated show the comparison more clearly, perhaps, than any others. Despite a decrease in traffic, the rates were such in Sept. 1921 as to give a higher gross revenue per mile of road than in Sept. 1920, while the operating expenses, reflecting both the decreased traffic and the decreased labor and material costs, combined with the increased revenues to give the more favorable operating ratio noted above.

Reduction in Grain Export Rates to Vancouver.

While the Board of Railway Commissioners' recent general order 350, directing a general reduction in freight rates throughout Canada, to take effect Dec. 1, as dealt with fully in Canadian Railway and Marine World for December, on pg. 634, was not made applicable to international, or import and export rates, the export rates on grain from points in the Prairie Provinces to Vancouver have been voluntarily reduced by the Canadian transcontinental railways, the reduction taking effect Dec. 1. These rates were reduced by the same amount as were the domestic rates, i.e., they have been left 20% higher than those in effect prior to Sept. 13, 1920.

The following examples show the extent of the reductions made:—Between Edmonton and Calgary, and Vancouver, the rate prior to Dec. 1 was 34c. per 100 lb., new rate 31c.; from Vegreville to Vancouver, former rate 36½c., new rate 33½c.; from North Battleford to Vancouver, former rate 40½c., new rate 37c.; Warman to Vancouver, former rate 43c., new rate 39½c.; Kindersley to Vancouver, former rate 39c., new rate 36c.; Elrose to Vancouver, former rate 43c., new rate 39½c.

Locomotive Terminal at Moncton, N.B.

In the article in Canadian Railway and Marine World for Dec. 1921 the captions under the plans on pgs. 623 and 624 were unfortunately transposed, the plan on pg. 623, being designated as Fig. 1, General Layout, Locomotive Terminal, instead of Fig. 2, Layout C.N.R. Terminal, and vice versa, the mistake being obvious from the accompanying reading matter.

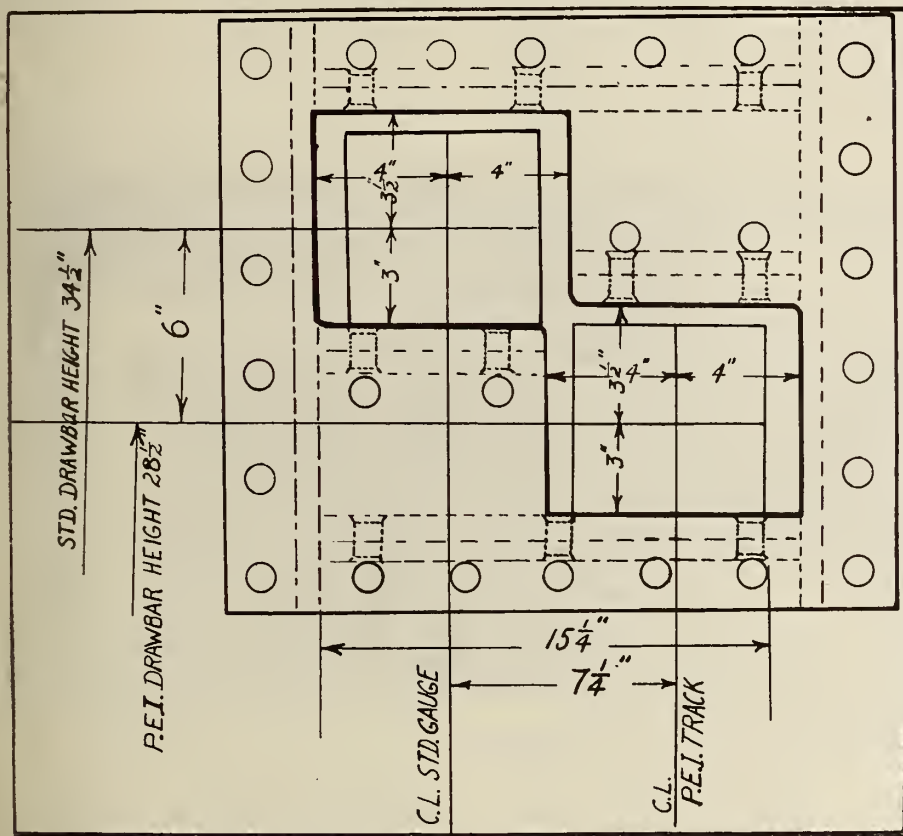
In regard to the equipment we are officially advised that the machines heretofore in use in the old locomotive house will be used for machine shop equipment and that the boilers are being transferred from the old boiler house. The heating and lighting equipment is all new, as is that in the stores building, with the exception of a few Bowser pumps, obtained from different parts of the line. The coaling plant, sand house equipment and water tank are all new.

Movable Coupler for Transfer Car, Prince Edward Island Ry.

As standard gauge is 4 ft. 8½ in., and the Prince Edward Island Ry. gauge is 3½ ft., the distance between the center line of the narrow gauge track and that of a standard gauge track made by adding a third rail between Charlottetown and Summerside and between Emerald Jct. and Port Borden is 7¼ in. When standard gauge freight cars were first taken from Cape Tormentine, N.B., by the car ferry steamship to Port Borden, P.E.I., some means were necessary for switching them in the yard there, some of the tracks in which are equipped with third rail for handling standard gauge equipment, it being obvious that the center line of the couplers on the P.E.I. Ry. cars would be 7¼ in. out of line with the center line of the standard gauge equipment couplers. In addition, the height from rail to center line of coupler is 6

tail pin instead of one. In operation, one coupler and tail pin only are used. If the car is being hauled by a standard gauge locomotive, with this end forward, the coupler is used in the opening at the upper left, as shown in the illustration, and when the car is being used with a narrow gauge locomotive, and more standard gauge cars behind it, the coupler is changed over to the lower right opening. By this arrangement a narrow gauge locomotive can handle a number of narrow gauge cars, followed by this car and as many more standard gauge cars as it can haul. Conversely, a standard gauge locomotive can handle some standard gauge cars, this car, with the standard gauge coupler end forward, and a number of narrow gauge cars.

It would naturally occur to a railway man that the car would not track very



Arrangement of Openings for Coupler Shank in End Plate, Transfer Car, Prince Edward Island Ry.

in. less on the narrow gauge equipment than on the standard gauge. The difficulty was overcome, and the switching of standard gauge cars with narrow gauge locomotives was made possible, by equipping a standard gauge flat car with a movable coupler at the end, to be used next to the locomotive in switching operations. The end sill of the flat car on which the movable coupler was installed was reinforced, and a large plate was bolted on. The accompanying illustration shows the end elevation. Openings, parallel to the center line of the car, as shown, are provided to receive a short shank coupler, while vertical holes, extending from the top of the casting down to the coupler shank openings, provide for the insertion of a tail pin. The construction resembles that used on the front end of locomotives, and on snow ploughs, with the exception that there are two openings for the coupler shank and

well when being handled behind narrow gauge equipment, on account of the center line of the coupler being so much out of line with the center line of the car. We are informed, however, that since the device has been in use in the yard at Port Borden and at other points where third rail is provided, it has proved to be a satisfactory arrangement and has exhibited no tendency to cause derailment.

Northwestern Elevator Co.—A press report states that this company has started building an extension to its plant at Fort William, Ont., that the addition will consist of 60 concrete tanks, each 22 ft. in diameter by 95 ft. high, increasing the capacity of the structure to 900,000 bush., that cleaning machinery with capacity of 8,000 bush. an hour will be installed, and that the total cost of the extension will be approximately \$700,000.

Billing Repair Card for Cars.

The American Railway Association, Mechanical Division, has issued the following circular:—The Arbitration Committee has had a number of questions recently, relative to billing repair cards returned with exceptions, where the repairing line has supplied additional information on the repair card. There are old arbitration decisions which prohibit the practice of supplying additional information on billing repair card and restrict the charge of the repairing road to the least expensive material or second hand material where the billing repair card did not originally show the kind of material applied. When these decisions were rendered, the billing repair card was also the original record of repairs, being prepared at car, one copy being attached to car, one copy used for file and the original used for billing.

Since the practice of attaching billing repair cards to cars has been discontinued (except in the case of certain private owned cars) and a form of original record of repairs has been adopted, as covered in Interchange Rule 7, the arbitration decisions referred to are abrogated.

In cases where, through oversight of clerks, the billing repair card is incomplete, correct reference may be supplied, provided the original record of repairs is clear as to repairs made and material used. The original record will be subject to review by the car owner in case of dispute.

Billing repair cards should show actual conditions and check with the original record of repairs in so far as they should check.

Clerks preparing billing repair cards should not assume any information required by the Rules of Interchange which is not clearly shown on the original record of repairs.

The G.T.R.'s Bridgeburg-Black Rock Dummy Service.

The Town of Bridgeburg, Ont., applied to the Board of Railway Commissioners some little time ago for an order directing the G.T.R. and the International Bridge Co. to reduce the tariff on what is called the "dummy service" across the bridge between Bridgeburg and Black Rock, N.Y. The bridge is 0.86 mile long. By the Board's order 29,512, passed April 1, 1920, the minimum charge for the transportation of passengers over the bridge was fixed at 7½c. a ride, and following the order the G.T.R. published a tariff of 75c. for 10-trip tickets between Bridgeburg and Black Rock. Shortly afterward the charge was increased to 90c., the railway claiming that the Interstate Commerce Commission's order in ex parte 74 allowed an increase of 20% in commutation fares within the U.S. and that under the Board of Railway Commissioners' general order 303 a similar increase could be made in international rates. The 90c. rate was disallowed by the Board, however, and the 75c. rate restored. The Town of Bridgeburg's application for a further decrease was dismissed by order 31,773, Nov. 12, 1921.

In opposing the application, the railway showed that in 1918 the dummy service caused a loss of \$4,837.71, and in 1919 of \$2,692.95. The operation is by car, some 55 ft. long, with an engine and boiler in one end of it, each crew

consisting of a driver, fireman and conductor, and 40 single trips a day are made. It was contended by counsel for the Town of Bridgeburg that this equipment might be replaced by a gasoline car, which would have the effect of greatly reducing the cost of operation, resulting in lower fares. Concerning this, Commissioner Boyce said in his judgment: "Such a reform (the replacing of the steam car by a gasoline car) would involve changes in operating rules and other serious considerations involving the necessary and vital provision for public safety, and at present the Board has not gone to the extent of making provision for such a service." Chief Commissioner Carvell said:—"I feel the service is costing more than it should, and that the railway should obtain and present to this Board the latest available statistics as to the operation of gasoline cars for short distances, such as are being operated between Brockville and Westport, Ont. We should also have information as to the cost of electrifying this particular piece of track, and the cost of operating the cars electrically. In my opinion, a very great saving could be made in the cost of operation by either

branch line, and short main line, passenger service is desirable from both the public and railway viewpoints, Chief Commissioner Carvell's recommendations as far as they refer to self propelled cars, are well worth noting.

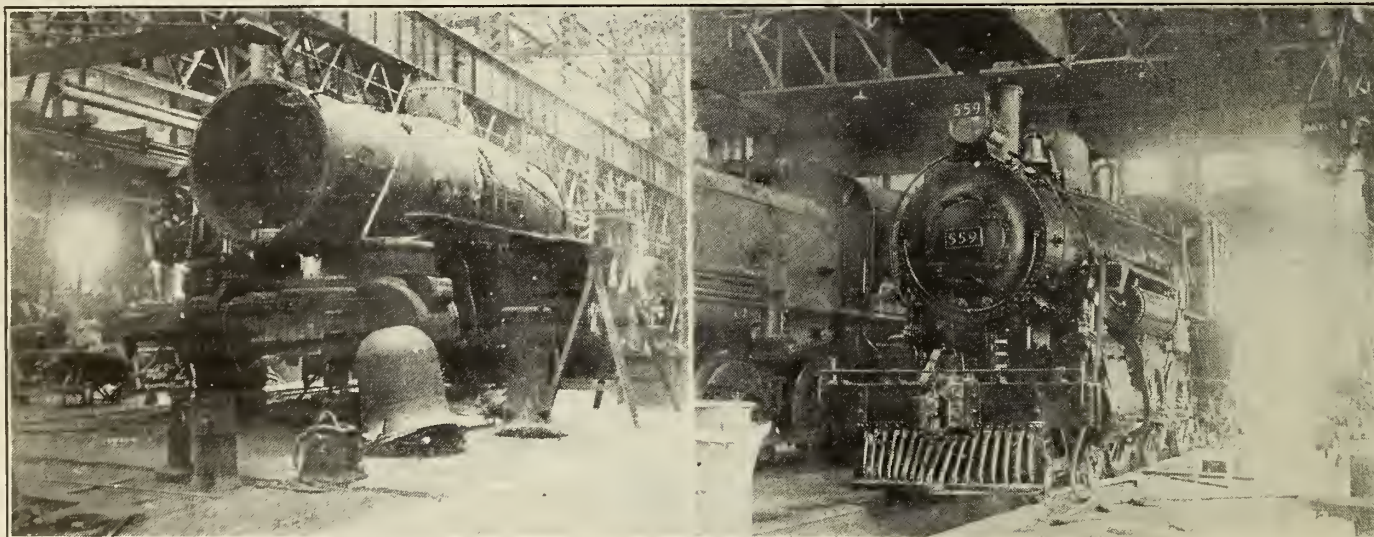
A C.P.R. Locomotive Conversion.

The compound locomotive is going out of use on Canadian and U.S. railways, being replaced by the modern power unit equipped with superheater and piston valves and other refinements of locomotive practice. The accompanying illustrations show a 10-wheel 4-6-0 compound locomotive, built in 1904, and using saturated steam, which was converted into a simple locomotive, equipped with superheater, at the C.P.R. Angus shops, Montreal, recently. Fig. 1 shows the original locomotive after stripping and de-wheeling, but before the removal of the original cylinder castings, the low pressure cylinder and slide-valve steam chest being evident. New piston valve cylinder castings were applied, necessitating slight modifications in the front ends of the frames; new front and back tube sheets, to take the superheater flues, were

Steam Railway Track Laid in 1921.

Official reports to Canadian Railway and Marine World show that ten Canadian railways laid 242.80 miles of new track during 1921, compared with 309.68 miles laid by five railways in 1920. Following are the particulars:—

	Miles	Miles
Canada & Gulf Terminal Railway—		
Matane to Hammerville, Que.	2.40	
Canada Central Railway—		
Peace River to Berwin, Alta.	23.00	
Canadian National Railways—		
Ameranth, Man., north	17.70	
Thunderhill extension, Sask.	13.90	
Melfort, Sask., northeast	23.70	
Luck Lake extension, Sask.	15.02	
Jackfish Lake extension, Sask.	15.06	
Peebles-Lampman, Sask., material yard . . .	0.50	
Eston, Sask., material yard	0.17	
Acadia valley, Alta., material yard . . .	0.64	
Onoway Branch, Alta.	11.90	
Vancouver Island line, B.C.	3.10	
		101.69
Canadian Pacific Railway—		
Carbon to Kirkpatrick, Alta.	16.73	
Altawan, Alta. West,	18.00	
		34.73
Near Weymouth, N. S., to Sissiboo Pulp Mill	2.50	



Locomotive Conversion at C.P.R. Angus Shops, Montreal.

Fig. 1. Original compound locomotive, after stripping and de-wheeling.

Fig. 2. The resulting efficient simple superheated locomotive.

of these methods as compared with present conditions."

There is no doubt that the operation of this service by steam car is too costly. As pointed out in Canadian Railway and Marine World for Dec. 1921, pg. 643, there is room for great economy in the operation of branch lines and in the provision of passenger service over short stretches of main line. Steam operation in these cases is a losing proposition. In our opinion, Commissioner Boyce unduly magnified the difficulties which would be met in the way of necessary revision of operating rules. There is no reason why the definition of a train, as contained in the Standard Code, cannot be as well applied to a gasoline car, a storage battery car, or an electric motor car, as to a locomotive. With the dependability of such equipment demonstrated, a 2-man crew should be sufficient to ensure compliance with rules concerning main line protection. There does not seem to be any reason for anticipating the necessity of radically revising operating rules to provide for such operation, and in view of the fact that economy in

put in, and a V-H superheater was installed. The Stephenson valve gear was retained, but modified in design. A new dry-pipe was used, and the firebox was equipped with arch tubes and brick arch. Fig. 2 shows the remodelled locomotive on completion of the job. There can be no doubt that the rebuilt locomotive, by its greater power and superior economy, will soon make good the cost of the work of modernizing.

Steel Rail Orders.

The Grand Trunk Ry. has, we are officially advised, ordered from Algoma Steel Corporation 13,829 gross tons of 100 lb. open hearth steel rails, A.R.A. type A section, in addition to the 15,243 tons ordered from Dominion Iron & Steel Co., as mentioned in our Dec. 1921 issue.

The Timiskaming & Northern Ontario Ry. has, we are officially advised, ordered 6,000 tons of 80 lb. A.S.C.E. open hearth steel rails from Algoma Steel Corporation, which are expected to be sufficient for its construction work during this year.

Esquimalt and Nanaimo Ry.—	
Great Central Lake Jet. to Stamp River, B. C.,	3.75
Kettle Valley Railway—	
Penticton South to Dog Lake, B.C.....	2.40
Pacific Great Eastern Railway—	
Australian Creek to Cottonwood, B. C.,	35.00
Fort George to Red Rock Creek, B. C.	18.00
	53.00
Quebec Central Railway—	
Scott to Diamond Jet., Que.....	19.33
	242.80

In addition to new track laid, the Alberta and Great Waterways Ry., reports the laying of 10 miles of track from mile 272 to 282, to replace 12 miles of old track abandoned owing to difficulties encountered in the maintenance of the roadbed down the Clearwater River Valley; the Canadian National Rys. reports the laying of 6.5 miles of second track completing a second track from Murison Jet., mile 302.5, to Drumheller, mile 314.7 both from Saskatoon. The work of constructing this track was begun in 1919, and continued in 1920 when about 6 miles of track laying had been done.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian National Rys.—H. B. AKIN, heretofore storekeeper, Joliette, Que., has been appointed acting District Storekeeper, Ontario Lines, vice E. D. Toye, assigned to special duties. Office, Leaside, Ont.

H. R. BULLEN, heretofore Travelling Passenger Agent, Los Angeles, Cal., has been appointed Assistant General Agent, Passenger Department, Canadian National-Grand Trunk Pacific Rys. and Grand Trunk Pacific Coast Steamship Co. Office, Los Angeles.

G. E. BUNTING, Australasian Manager, Canadian Government Merchant Marine, has also been appointed General Traffic Agent, C.N.R., with supervision in New Zealand and Australia of its traffic interests, freight and passenger, and not General Traffic Manager, as stated in our last issue.

A. B. CHOWN, heretofore General Agent, Passenger Department, Canadian National-Grand Trunk Rys., New York, N.Y., has been appointed Assistant General Western Passenger Agent, Canadian National Rys., and Assistant General Passenger Agent, Western Lines, Grand Trunk Ry. Office, 112 West Adams Street, Chicago, Ill.

P. W. CLARKIN, heretofore chief clerk, Division Freight Agent's office, Charlottetown, P.E.I., has been appointed acting Division Freight Agent, Island Division, during the absence on sick leave of A. McDonald. Office, Charlottetown.

A. H. DAVIS, heretofore ticket agent, Brandon station, Man., has been appointed ticket agent, Edmonton station, Alta.

C. W. HIGGINS, heretofore Advertising Agent, Western Lines, has also been appointed Advertising Agent, Grand Trunk Pacific Ry. vice W. C. Riddell, transferred to C.N.R. service at Toronto.

C. E. JENNEY, heretofore District Passenger Agent, Canadian National-Grand Trunk Pacific Rys., Vancouver, B.C., has been appointed General Agent, Passenger Department, Canadian National-Grand Trunk Rys., New York, N.Y., vice A. B. Chown, promoted. Office, 1270 Broadway.

R. KING, Superintendent, Calgary Division, Western District, Calgary, Alta., has had his jurisdiction extended to include both the C.N.R. and Grand Trunk Pacific Ry. terminals at Calgary. Heretofore, he has had charge of the C.N.R. terminals there, the G.T.P.R. terminals being under J. Irwin, Superintendent, Biggar Division, C.N.R., Edmonton, Alta.

E. R. McPHERSON, heretofore storekeeper, Halifax, N.S., has been appointed storekeeper, Moncton, N.B., vice W. B. Logan, promoted to acting District Storekeeper, Maritime District, as announced in Canadian Railway and Marine World for Nov. 1921.

F. MILTON has been appointed acting storekeeper, Halifax, N.S., vice E. R. McPherson, transferred to Moncton, N.B.

L. L. PRICE has been appointed stores inspector, Moncton, N.B.

E. RICHARD has been appointed storekeeper, Joliette, Que., vice H. B. Akin, appointed acting District Storekeeper, Ontario Lines.

W. C. RIDDELL, formerly Advertising Agent, Grand Trunk Pacific Ry., Win-

ipeg, has been appointed Advertising Agent, Quebec and Ontario lines, C.N.R., between Quebec City, Armstrong and Port Arthur, Ont. Office, Toronto.

F. L. SEATON, heretofore Travelling Auditor, Winnipeg, was stated in our Nov. 1921 issue as having been appointed acting Assistant Auditor of Traffic, Canadian Government Rys., at St. John, N.B. His office is at Moncton, not St. John.

R. J. SLOAN has been appointed ticket agent, Brandon station, Man., vice A. H. Davis, transferred to Edmonton, Alta.

A. E. SNELL has been appointed stores inspector, Leaside, Ont., vice H. Sampson, transferred.

Canadian Pacific Ry.—JOS. BAKER, heretofore Night Foreman, Moose Jaw, Sask., has been appointed Locomotive Foreman, Field, B.C., vice M. W. Boucher, transferred.

W. C. BOWLES, heretofore General Freight Agent, Western Lines, Winnipeg, has been appointed Assistant Freight Traffic Manager, Eastern Lines, vice H. E. Macdonell, appointed Special Traffic Representative. Office, Montreal. See also under R. E. Larmour.

J. P. BURNS, heretofore Assistant to R. G. Chamberlain, Chief of Investigation Department, Montreal, is reported to have been appointed Assistant Chief, with office at Winnipeg.

A. H. CADIEUX, heretofore Inspector, Investigation Department, is reported to have been appointed Assistant to R. G. Chamberlain, Chief of Investigation Department, with office at Windsor St. Station, Montreal.

J. CHISHOLM, heretofore Car Foreman, Macleod, Alta., has been appointed Car Foreman, Alyth, Alta.

W. H. DEACON, heretofore Travelling Passenger Agent, with headquarters at Vancouver, B.C., is reported to have been appointed General Agent, Passenger Department, at Portland, Oregon.

C. E. JEFFERSON, heretofore acting General Freight Agent, Eastern Lines, Montreal, has been appointed General Freight Agent, Western Lines, vice W. C. Bowles, promoted. Office, Winnipeg.

C. JOHNSON has been appointed Roadmaster, Sutherland Subdivision, Saskatoon Division, Saskatchewan District, succeeding J. McInnes.

J. JOHNSON, heretofore Assistant Foreman, Ottawa, Ont., has been appointed Locomotive Foreman, White River, Ont., vice H. Marchand, now employed as an hostler there.

M. KENNEDY has been appointed Night Foreman, Hochelaga, Que., vice J. Shore, transferred.

R. E. LARMOUR, who has been acting as Assistant Freight Traffic Manager, Eastern Lines, since June 1921, while H. E. Macdonnell, who has now been appointed Special Traffic Representative, was on leave of absence owing to illness, has resumed his duties as General Freight Agent, Eastern Lines. Office, Montreal.

J. L. McCLOSKEY is acting as Agent at Juneau, Alaska, as mentioned in our last issue. We are officially advised that no appointment of General Agent, to succeed H. F. Richardson, deceased, will be made at present.

H. E. MACDONNELL, heretofore Assistant Freight Traffic Manager, Eastern Lines, Montreal, who has been on

leave of absence, owing to ill health, since June 1921, has been appointed Special Traffic Representative, to perform such duties as may be assigned to him. Office, Montreal.

T. McNEIL, heretofore Agent, Liverpool, Eng., has been appointed Liverpool General Agent, and not General Agent, as stated in our last issue. Office, Royal Liver Building, Liverpool, Eng.

W. G. McPHERSON, heretofore Division Master Mechanic, Regina Division, Saskatchewan District, Regina, Sask., has been appointed Division Master Mechanic, Moose Jaw Division, Saskatchewan District, vice J. Gibson. Office, Moose Jaw, Sask.

T. MARTIN, heretofore Division Engineer, Revelstoke Division, British Columbia District, Revelstoke, B.C., has been appointed Division Engineer, Nelson Division, British Columbia District, vice J. F. Soans, transferred to Revelstoke, B.C. Office, Nelson, B.C.

E. PITTARD has been appointed Car Foreman, Macleod, Alta., vice J. Chisholm, transferred to Alyth, Alta.

J. SHORE, heretofore Night Foreman, Hochelaga, Que., has been appointed Assistant Foreman, Ottawa, Ont., vice P. Johnson, transferred.

J. F. SOANS, heretofore Division Engineer, Nelson Division, British Columbia District, Nelson, B.C., has been appointed Division Engineer, Revelstoke Division, British Columbia District, vice T. Martin, transferred to Nelson. Office, Revelstoke, B.C.

J. TELFORD, heretofore Roadmaster, Belleville Subdivision, Ontario District, Belleville, Ont., has been appointed Roadmaster, St. John and Fredericton Subdivisions, New Brunswick District. Office, McAdam Jct., N.B.

Esquimalt & Nanaimo Ry. — J. D. FRASER, heretofore acting Superintendent, has been appointed Superintendent. Office, Victoria, B.C.

Grand Trunk Ry. — A. B. CHOWN, heretofore General Agent, Passenger Department, Canadian National-Grand Trunk Rys., New York, N.Y., has been appointed Assistant General Passenger Agent, Western Lines, G.T.R., and Assistant General Western Passenger Agent, Canadian National Rys. Office, 112 West Adams St., Chicago, Ill.

J. A. CLANCEY, formerly Trainmaster, Battle Creek, Mich., has been appointed Superintendent of Transportation, Western Lines, vice O. F. Clark, appointed Car Accountant. Office, Chicago, Ill.

O. F. CLARK, heretofore Superintendent of Transportation, Western Lines, Chicago, Ill., has been appointed Car Accountant, Western Lines, vice G. B. Betts, transferred. Office, Chicago, Ill.

See also Canadian National Rys.

Grand Trunk Pacific Ry.—See Canadian National Rys.

Lacombe & Northwestern Ry.—H. G. DIMSDALE, heretofore Resident Engineer on Alberta & Great Waterways extension to Waterways, Alta., has been appointed Resident Engineer in charge of work on Lacombe & Northwestern Ry., vice P. L. Debney, assigned to other duties on the A. & G.W.R., both reporting to John Callaghan, General Manager, A. & G.W.R. and L. & N.W.R.

Michigan Central Rd.—F. W. COWLEY, heretofore passenger conductor,

whose appointment as Assistant Trainmaster was announced in our last issue, has his office at St. Thomas, Ont., and not London, Ont., as stated.

J. F. DEIMLING, heretofore Assistant Chief Engineer, has been appointed Chief Engineer, vice G. H. Webb, deceased. Office, Detroit, Mich.

G. H. HARRIS, heretofore Engineer of Track and Maintenance of Way, has been appointed Assistant Chief Engineer, vice J. F. Deimling, promoted, and his former position has been abolished. Office, Detroit, Mich.

Telegraph, Telephone and Cable Matters.

The Commercial Cable Co.'s cable s.s. John W. Mackay was launched at New-castle-upon-Tyne, Eng., Nov. 30. She is the first oil driven ship which the company has had built and is 360 ft. long and 4,100 gross tons. The keel of a sister ship has been laid down at the same yard.

Although the Pacific Cable Board has not yet received official intimation that the Australian Government has sanctioned the proposed duplication of the Pacific cable, a London, Eng., press dispatch says it is anticipated that Australia's assent will be obtained immediately, thereby securing the unanimity of all the governments concerned. The proposed duplication will probably cost over £1,000,000, but as the Pacific Cable Board has in hand a reserve and general renewal fund exceeding that amount, there will be no need to call on any of the partner governments for financial assistance.

The Commercial Cable Co.'s new cable steamship John W. Mackay was launched at Walker-on-Tyne, Eng., Nov. 30. She was specially designed for her work, and will be propelled by twin screws, driven by reciprocating steam engines. Her dimensions are,—length 360 ft., breadth 48 ft., depth 35 ft. Her overhanging bow carries 3 cable sheaves, and a stern sheaf is fitted aft. The cable will be carried in 4 cable tanks placed forward of the machinery, which will have a coiling capacity of over 50,000 cu. ft. The machinery required for working the cables, including picking up and paying out gears, electric turning over gear, dynamometers and patent sounding machine, will be of the latest design. The captain's accommodation is being arranged on the boat deck, where will also be the chart and navigating rooms. On the shelter deck will be the staterooms for the ship's navigating officers, and the officers engaged in the cable work. The officers' dining and smoking rooms will be on the upper deck, where also the engineers, petty officers, cable men and seamen will be berthed. The propelling machinery will consist of twin screw triple expansion engines, supplied with steam by three boilers under forced draft, and fitted to burn fuel oil. The auxiliary machinery, consisting of steam windlass, capstan, steam winches, steam boat hoist, steam steering gear, etc., will be of the latest design, and the ship will be well heated, ventilated and electrically lighted, and equipped for wireless telegraphy and submarine signalling.

Canadian National Telegraphs.

Canadian National Telegraphs has announced a reduction in the rate for cable messages to Bermuda and Turks Island from 42 to 36c. a word. The rate for de-

ferred cable messages has been reduced from 21 to 18c. a word.

Thomas M. Kane, chief operator, Canadian National Telegraphs, Kingston, Ont., died suddenly from apoplexy at his desk recently. He entered Great North Western Telegraph Co.'s service about 37 years ago, and remained when Canadian National Telegraphs assumed control.

Canadian National Telegraphs utilized 700,000 ft. of wire to put in special loops for election purposes, during the recent Dominion elections. The extra business caused by the election, necessitated the installation by the company of 325 of its loops throughout the Dominion. This also required the services of one operator for each loop, and in addition 275 special messengers. A direct wire service was arranged between Toronto and all cities in the Dominion on the company's circuit for the interchange of election returns, and more than 100,000 miles of wire were used in collecting and forwarding of returns, and approximately 1,500 employees were engaged in this service alone.

Canadian Pacific Railway Telegraphs.

E. W. Camp, son of W. J. Camp, Assistant Manager, C.P.R. telegraphs, was married to Miss A. M. Drysdale at Westmount, Que., Dec. 3.

An instance of fast telegraphy is mentioned in a press report, the C.P.R. Telegraphs having cabled a message from Kingston, Ont., at 10.10 a.m., to Liverpool, Eng., to which a reply was received 3½ hrs. later. Another case mentioned was the cabling of a speech made in Vancouver, to London, Eng., at 11 a.m., which appeared in the London Times afternoon edition. While the first mentioned case is a good example of quick work, the latter, while no doubt good work, had nothing exceptional about it, when the difference of time is taken into account, 11 a.m. in Vancouver being approximately 3 a.m. in London.

The recent Dominion elections resulted in the Canadian Pacific Telegraphs performing an extraordinarily heavy service in handling returns, the company having approximately 1,000 wire connections for the full returns. Telegraph and other communicating companies are heavily taxed on election days, as, in addition to the ordinary traffic, which is usually heavy, they are factors in gathering and forwarding the returns to a central point for completion. From such central point they are sent out over a network of wires covering the whole Dominion. In order to provide sufficient operators for the extra service, the day staff at all important centers also reported for duty during the evening up to midnight, and, in addition, many day operators in the railway service and day newspaper offices, were engaged. In order that the customers could keep track of the returns as they came in, a pamphlet was prepared, giving the names of the nominees, and providing spaces for the results in each constituency, the pamphlet being enclosed in a neat cover. The management received many letters of commendation on the excellent manner in which the returns were delivered.

The Michigan Central Rd. was planning to scrap 160 freight cars at St. Thomas, Ont., but on the mayor's suggestion gave the wood to the poor of the city, the city council providing for its delivery from the M.C. Rd. shops to the recipients' homes.

Among the Express Companies.

The Canadian Purchasing Agents Association, when meeting at Montreal recently, protested against the express companies' demand that prepayment on express charges on shipments from the U.S. be made in U.S. funds.

The National Dairy Council of Canada's application to the Board of Railway Commissioners, for cancellation of the 20% increase in express rates on cream, allowed by the Board's general order 327, Feb. 2, 1921, and to re-establish the special commodity rates on cream in existence prior to that order, was dismissed by the Board on Nov. 24, 1921, by order 31,820.

Canadian National Express Co.

The company has started on the Canadian National Rys. extension west of Turtleford, Sask., and has opened offices at Turtleford, Cleaves, Spruce Lake and St. Walburg. An agent has been appointed at St. Walburg, the other stations being star points.

Offices have been opened at Melrose, Port Elgin, Cape Tormentine, Baie Verte, N.B., Pomquet, Imperoyal, Harbour, Musquodoboit, Stewart and McKinnon Harbor, N.S., Ellerslie, P.E.I., Routhierville, Que., Delmas, Sask., and Beynon, Alta. The name of the office at Lovett, Alta., has been changed to Sterco and made a star point.

Fred. Norman, who was appointed Superintendent, Canadian National Ex. Co., Winnipeg, recently, was born at Picton, Ont., Feb. 24, 1874, and entered express service, May 1, 1892, since when he has been, to June 1893, messenger, Canadian Ex. Co., Ottawa and Rouses Point, Montreal and Fort Covington, and other points; June 1893 to June 1896, relief messenger and relief clerk, same company, Montreal and Portland, Quebec and Ottawa, Toronto and Kingston and other points; June 1896 to Feb. 1905, messenger, same company, Montreal and Toronto; Feb. 1905 to Oct. 1908, route agent, same company, Montreal Division; Oct. 1908 to July 1913, agent, same company, Winnipeg; July 15, 1913 to Sept. 1, 1921, Superintendent, Northwest Division, same company, Winnipeg.

Train Nomenclature.

Usually a railway train on which there is no sleeper, no diner, no smoker, no waiter, no ventilation, no porter, and no news butcher is termed an "accommodation train."—Judge.

Canadian Officials of U.S. Companies.

A Washington, D.C., press dispatch of Dec. 13, said that some C.P.R. officers, including Lord Shaughnessy, had asked permission from the Interstate Commerce Commission, under the Interstate Commerce Act, to hold their places as officers of several U.S. corporations subsidiary to the main system.

Canadian National Rys. executive officers arranged for a business meeting of such officers as could be conveniently brought to Toronto for the purpose, to be held there in December, but the date having been found unsuitable, for some of the officers, it was decided not to hold the meeting until a later date.

The C.P.R.'s general offices in Montreal were closed from Dec. 30 at 1 p.m. to Jan. 3 at 8.30 a.m.

Electric Railway Department

Trackless Trolley Omnibusses for Toronto Transportation Commission.

As stated in Canadian Railway and Marine World for December, the Toronto Transportation Commission has ordered four trackless trolley busses for use in the northern outskirts of the city. The type of bus ordered is shown in the accompanying illustration. With the exception of there being but one trolley pole instead of two, it is quite similar in construction to the trolley busses tested in Detroit recently, an illustration of one of which was given in our December issue. The busses ordered by the Commission have the following dimensions: Length overall, at bottom of body at

chassis frame20 ft. 7 in.
Height from top of floor to underside of ceiling6 ft. 2 in.
Width over posts outside7 ft. 4 in.
Height of top of floor above chassis frame.....2 in.
Height from first step to top of body floor..1 ft. 2 in.

The chassis is to be of standard Packard type E D design, with such changes as are necessary to accommodate electrical instead of gasoline equipment. Complete with motors, control apparatus and resistor, the chassis will weigh 7,190 lb., there being an almost equal distribution of weight on the front and rear axles. The wheels, equipped with single solid tires in front, and double solid tires at the rear, will be 34 in. diam., and wheel housings will be placed over the rear wheels, at a height allowing sufficient clearance from the wheels at the maximum deflection of the springs. The housings will be of pressed metal.

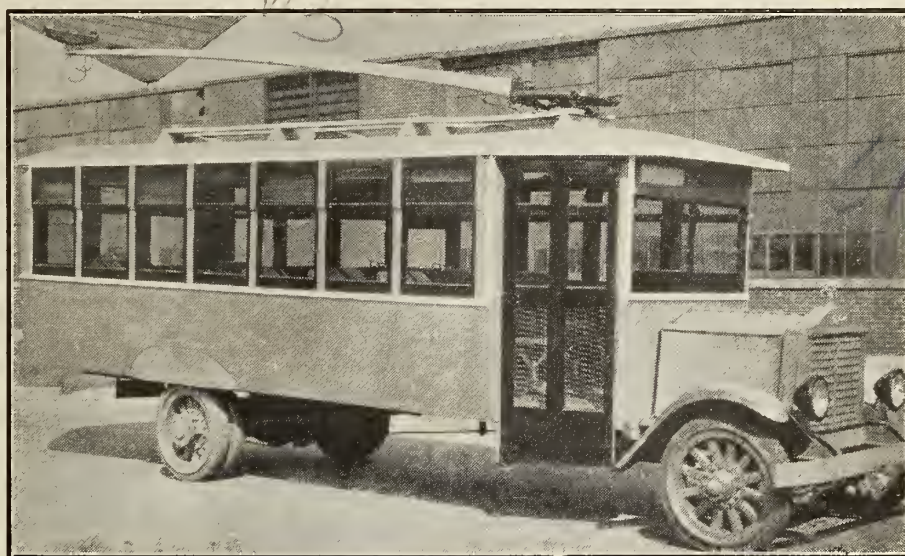
The chassis frame will constitute the underframe of the body of the bus. To the chassis frame proper will be added sufficient cantilever extension to receive the bus body, the side sills of which will be directly connected to each end of the chassis frame extensions. The body is to be of metal frame construction, the lower members to consist of structural steel angles, the intermediate, or belt rail, and upper members to consist of pressed steel sections. The lower sides, and rear end of car will be of plymetal, securely riveted to body frame members at all edges. The roof will be of waterproof veneer, shaped or moulded to curvature of roof, covered with canvas, laid in priming coat and then to have two coats of roof paint. The roof will be of sufficient strength to carry a man without danger of damage, and access to it will be obtained by steps at one side of the emergency door.

There will be one double outward folding door on the right, in front, glazed in the upper section with 3/16 in. crystal glass, and in the lower section with wire plate glass, so that the driver can see that the step is clear. This door will be operated by a hand lever at the left of the driver, the lever controlling pneumatically operated mechanism. An emergency door will be provided at the left side, near the rear, to be controlled by an electric lock, with spring contacts, placed in position behind a glass covering, in such a way that the breaking of the glass will automatically cause the lock to operate.

The interior, below the window sills, will be finished in plymetal, which will be painted to conform with the birch stained mahogany window sill mould, and

the card rack mouldings will be of birch, stained mahogany. The ceiling will be white enamelled. The flooring will be 3/16 in. yellow pine boards tongued and grooved, and the aisle flooring will be maple, corrugated so as to provide for the drainage of surface moisture. The back frames of the seats will be of wood, mortised and tenoned, and arranged to receive ventilated mattress type springs. Imitation leather upholstery will be used. The rear of the seat backs, where exposed to sight, will be covered with veneer painted to conform to the upholstery. The seat cushions will be of the mattress type, ventilated, and covered with the best quality imitation leather. The pedestals and seat end brackets will be of lynite, and the transverse seat brackets are to be provided with lynite grab handles. There will be seating capacity for 29 passengers, there being

Two lighting circuits will be installed, each lighting five standard 23 watt lamps. One circuit will light the two headlights, the sign light, the light for the step, and one of the interior lights. The other circuit will light the five remaining interior lights. The interior lights are to be arranged three on each side, the enclosed type of fixtures and shades to be used. The wiring for the lighting circuits is to be installed in conduit. Nichols lintern duplex tail lights will be installed at the rear. Heating will be by six Cutler-Hammer, 500 watt, 296 volt, single unit truss plank heaters, two units in series, the heater wiring also being installed in conduit. Ventilation will be by three lintern exhaust ventilators, located along the center line of the roof. A signal system will be installed, to consist of a low voltage buzzer with the necessary dry cells for operation. The dry cells



Trackless Trolley Omnibus, Toronto Transportation Commission.

a transverse seat across the rear of the bus, and one transverse seat, two longitudinal seats, and four transverse seats at each side of a central aisle. The driver's seat will be of the bucket type, the seat and back to be spring upholstered, stuffed with the best grade of curled hair, and covered with imitation leather.

The busses will be equipped with a vertical stanchion at the rear end, extending from floor to ceiling, while a similar stanchion will be located just inside the door at the front, to assist passengers in entering and leaving. A mirror, 6 x 22 in., will be located in the interior of the bus at the front, in such a position, and inclined at such an angle, that the driver may have a clear vision of the rear of the bus and also a vision of the road at the rear. Railings of steel tubing will be installed adjacent to the driver's seat, to separate the passengers from the driver. An illuminated route sign will be located in the upper right hand corner, lighted with one 23 watt lamp, and racks will be installed above the windows, to hold 11 in. advertising cards, the moulding framing of these to be stained to resemble mahogany, as above noted.

will be under the driver's seat, and push buttons, connected with the buzzer, will be located on each window post.

The vision shield is to be in one part, with a ratchet hinge at the top for holding the shield in different positions. At the right of the vision shield will be a stationary sash with crystal glass, this sash and the vision shield extending the entire width of the front end of the bus body. The lower portion of the front end will consist of a plymetal dash, upon which the necessary control instruments will be mounted. A rain shield of stained glass is to be provided the full width of the vision shield and will be held in place by aluminum end brackets.

The bus will be driven by two motors, mechanically connected in tandem through a universal joint. They will be mounted beneath the bus body with shafts longitudinally, and connected through a universal joint to the automobile type of differential drive in the rear axle. The control apparatus will be mounted under the hood. The motors, with nominal rating in accordance with American Institute of Electrical Engineers standards, will be 25 h.p., 37 amp.,

at 600 volts. The speed corresponding to this rating will be 1,235 r.p.m. The motors are to be of the standard safety car type, with sleeve bearings and a special shaft extended at both ends, so finished that the universal joints may be readily attached to the taper fit of either end. The motors will be interchangeable. No thrust is to be transmitted to the motors from the driving mechanism. The motors will be duplicates of those in the safety cars at present operating in Toronto.

The control will be of the automatic series parallel type, having four notches in the series position, and three in the parallel. The first notch in the series position will be independent of the accelerating device, so that very slow running will be had for emergency use in slow traffic. All other notches will be under the control of a time element current limit. The action of this acceleration limiting apparatus will provide a minimum time element for complete operation of the sequence switch when no current is flowing through the main motors. With current in the main motors, the speed of operation will be approximately inversely proportioned to this current. Three operating positions of the master controller will be provided for "starting," "full series," and "full parallel." The last two notches will be running ones. Operation of the control apparatus will be by a foot pedal for normal running. Reversal of running direction will be by a switch type reverser, controlled by a lever which will be interlocked with the main operating pedal.

The control apparatus will include one set of six magnetically operated switches with control resistor and sequence relay, one foot operated master control, one motor field reverser, one double pole, magnetically operated line switch with overload relay, one automatic time element sequence switch, one motor cut-out switch and one set of grid resistance. All of the control apparatus will be mounted beneath the usual engine hood, the resistors, control resistance, reverser and master controller being mounted on one side of the panel. It will be ventilated through louvres, and arranged for direct ventilation to the atmosphere during summer and for ventilation into the bus body during winter. All other control apparatus will be mounted on the opposite side of the insulating and heat-resisting switchboard panel, protected from the atmosphere, dirt and moisture.

The power supply for the control circuits will be obtained from the main supply circuit, and will be reduced to the proper operating voltage by a control resistor. By the use of this control resistor, all but two of the control circuits will be at low potential, tending to provide more reliable operation of the control apparatus on account of the less liability of insulation breakdown. Overload protection will be obtained by a two pole, single magnet, coil-operated line switch, mounted with an overload trip. This switch will also be used to close or open the main circuits each time the master controller is moved to "on" or "off" positions. This switch will be mounted adjacent to the contactors on the central carrier, and an operating lever will be brought through the dash for closing or tripping the switch, which arrangement will be very convenient to the operator.

The proper sequence of switches will

be obtained by a single drum master controller, which will be mounted under the hood and operated by a foot lever. A two-pole snap-switch, complete with fuses, will be supplied for opening the control circuits for inspecting or repairing, and will be mounted on the dash board.

A motor operated drum switch will be used to obtain a time element current limit acceleration of the control equipment. This switch will constitute a secondary master switch for limiting acceleration of the vehicle, and will be in turn controlled by the master controller. The speed of the drum of this sequence switch will be limited by the current in the main motor circuits. However, the drum will continue to move, although at slow speed until the full parallel position is reached, if the main motors do not accelerate. The sequence switch, therefore, will provide for acceleration on heavy grades or with heavy loads.

A three pole double throw switch, similar in construction to the reverser, will be furnished to cut out either of the two main motors. For collection of current, one no. 13 U.S. trolley base

curb, the wires being suspended 18 ft. above the street level by the usual span construction, involving tubular steel poles on both sides of the street.

These busses have been ordered from the Packard Ontario Motor Co., which will assemble the chasses in Toronto. The bodies are being built by Canadian Brill Co., and the electrical equipment is being supplied by Canadian Westinghouse Co. Delivery is expected to be made in January.

Proposed Purchase of Toronto Suburban Railway.

Toronto City Council at a special meeting, Dec. 8, approved an agreement made between the Hydro Electric Power Commission of Ontario and the city for acquiring the Toronto Suburban Ry. Co.'s property and assets under the provisions of the Hydro Radial Railway Act of 1914, and subsequent amendments. The proposition is that all the T.S.Ry. Co.'s lines shall be taken over, the city taking over outstanding bonds for \$2,628,000, paying in cash \$202,000 for the line within the city limits (the franchise for which has expired, and preparations are in progress for a valuation by arbitration under the franchise), and the provision of \$150,000 for betterments within the city. The sections of the line in the city would then become part of the city's system, and the lines outside would be handed over to the Hydro Electric Power Commission of Ontario for operation, the city to be responsible for any deficits on operation. The council authorized the submission to the ratepayers on Jan. 2, of the necessary bylaws to give effect to the agreement.

The Ontario Government has objected to this proposed purchase on very similar grounds to those taken in regard to the Niagara, St. Catharines & Toronto Ry., which are given very fully elsewhere in this issue. The Prime Minister, in writing the Hydro Electric Power Commission of Ontario's Secretary, also said in part:—"The Toronto Suburban Ry. has a total length of 68 miles, and serves a considerable number of municipalities. Under the existing legislation it is very doubtful, to say the least, whether a railway can be acquired and operated on behalf of one municipality when the railway extends through a number of other municipalities. It would seem that special legislation would be necessary to cover this point, as was recognized last session in the adoption of the Toronto & York Radial Ry. Act. In view of all the above facts it does not appear that any purpose will be served by approving of any agreement, which is not only in some of its terms at variance with the existing law, but which may be still further at variance with the law a few months hence."

No Joint Commission for Toronto.—On the suggestion of Mayor Church, the Toronto Board of Control recommended the submission to the electors on Jan. 2 of the following question:—"Are you in favor of the appointment of a public utilities commission of five members to operate and control all the light, power and transportation of the City of Toronto?" This recommendation was discussed at a special meeting of the city council Dec. 8, 1921, and was rejected by 13 to 6.

Canadian Electric Railway Association.

Honorary President, Thomas Ahearn, President, Ottawa Electric Railway.

Honorary Vice President, George Kidd, General Manager, British Columbia Electric Railway.

President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Vice President, Major F. D. Burpee, Manager, Ottawa Electric Railway.

Treasurer, A. Gaboury, Superintendent, Montreal Tramways Company.

Executive Committee, E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electric Co.; W. S. Hart, Managing Director, Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Read, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Auditor, H. E. Weyman, Manager, Lewis County Railway.

Secretary, L. E. Moreland, Chief Clerk, Hull Electric Co., Hull, Que.

Official Organ, Canadian Railway and Marine World, Toronto.

complete, with 16 ft. pole, swivel harp and 4 in. wheels will be supplied. This single pole will be equipped with two shoes, and an equalizing spring will serve to maintain contact with both the positive and negative wires despite irregularities and differences in elevation as between the two wires. As stated in our December issue, the trackless trolley bus first tried out in Detroit was equipped with 2-pole current collection apparatus the double pole also being the standard in English practice.

The approximate speeds will be, for the first notch, 5 m.p.h., second notch, 12 m.p.h., and third notch, 24 m.p.h.

The route for these busses will be along Merton St. from Yonge St. to Mount Pleasant Road, and along that to Eglinton Ave., a total distance of 1½ miles so that the trolley bus service will be practically an extension of the street car service in that portion of the city.

There will be two sets of wires for the supply of current, a positive and negative wire on both sides of the street, each about midway between the center and the

Proposed Purchase of Niagara, St. Catharines & Toronto Railway.

At a meeting of representatives of 17 Niagara Peninsular municipalities, at St. Catharines, Ont., Dec. 1, F. A. Gaby, Chief Engineer, Hydro Electric Power Commission of Ontario, reported that an option on the N.St.C. & T. Ry., which is now operated as part of the Canadian National Rys. System, had been obtained from the then Minister of Railways, Hon. J. D. Reid, for \$3,544,374.10, to be paid for by the Commission's 4½% 50-year bonds for \$2,466,374.10, and the assumption by the Commission of \$1,098,000 outstanding bonds due in 1929. The property to be acquired consists of lines connecting Niagara-on-the-Lake, Port Dalhousie, St. Catharines, Merriton, Thorold, Niagara Falls, Welland, Humberstone and Port Colborne, also local lines in St. Catharines, Merriton, Thorold and Niagara Falls. He estimated that \$774,456 would be required to put the railway in first class condition, and that an extension from Ontario and St. Pauls Streets, St. Catharines, to the junction of the main and local lines in Merriton, and an extension in Thorold to the industrial district at Thorold South, could be built for approximately \$344,999.90. For these two expenditures, aggregating \$1,119,455.90, 6% bonds would be issued, and the total expenditure involved in the purchase of the lines and in betterments and extensions would therefore be \$4,663,830, to cover which it would be necessary for the municipalities to guarantee bonds proportionate to their respective municipal assessments as follows:—Cities—St. Catharines, \$1,578,202; Niagara Falls, \$579,836; Welland, \$390,769. Towns—Niagara, \$107,509; Port Colborne, \$110,392; Merriton, \$122,287; Thorold, \$286,152. Villages—Humberstone, \$102,896; Port Dalhousie, \$82,963. Townships—Grantham, \$384,227; Thorold, \$272,232; Louth, \$32,665; Stamford, \$292,684; Pelham, \$79,239; Crowland, \$21,531; Humberstone, \$99,670; Niagara, \$120,576.

The meeting unanimously endorsed Mr. Gaby's report, and recommended to the councils of the interested municipalities that bylaws be submitted at the coming municipal elections, to provide for the taking over of the railway on behalf of the municipalities.

The Hydro Electric Power Commission of Ontario's Secretary wrote the Ontario Prime Minister on Dec. 2, requesting the passing of an order in council approving of the terms of the proposed agreement with the interested municipalities for the purchase of the N., St. C. & T. Ry., in accordance with the requirements of the Hydro Electric Railway Act. Mr. Drury replied as follows: "The proposed agreement contemplates the issue of bonds by the Commission. As you are no doubt aware, the Government now has under consideration new legislation relating to hydro electric radial railways and has already stated that it will not recommend the guaranteeing of any bonds of the Commission issued for the construction or acquisition of radial railways. The Government is of opinion that the acquisition of the N., St. C. & T. Ry. should not be proceeded with under existing legislation. It would not appear that any interest will be prejudiced if the matter is not dealt with at present, because the railway in question is already an electric radial railway owned by and operated for the public. There are other

objections to the proposed agreement, amongst them being that it provides that the debentures of the municipalities issued as collateral security for the bonds proposed to be issued by the Commission may be hypothecated, and that the Commission may acquire and operate other means of transportation than radial railways. As these matters are not in accordance with existing legislation, they should not be embodied in the agreement. The proposed acquisition of the railway in question has evidently been in contemplation for a considerable period, because the resolutions of the municipalities which you send me were passed at various dates between April 17, 1914, and March 21, 1920, whereas the request for the sanction of the Lieutenant-Governor in Council was not received until Dec. 3, 1921. I understand, moreover, that only part of the municipalities concerned proposed to vote upon the agreement at the next municipal election, and that others of them would not vote upon it until some later date. Under all the circumstances, it does not appear, that any purpose will be served by approving of agreements which are not only in some of their terms at variance with the existing law, but which may be still further at variance with the law as it will be enacted by the Legislature a few months hence."

Attorney General Raney issued a statement Dec. 20, saying that the letter from the Commission's Secretary asking for the passing of an order in council stated that the agreements were in statutory form and practically as submitted to the Government in June 1920. Mr. Raney said:—"This statement is not correct, because the agreement of 1920 contained no provision for the hypothecation by the Commission of the debentures of a municipality, and no provision authorizing the Commission to operate other means of transportation of passengers and freight." These are very important provisions and wholly unauthorized by statute. Moreover, the application came to the Government too late. It was practically impossible for the municipalities to take the necessary steps to submit the bylaws and agreements to the electors in accordance with the law at the coming municipal elections even if the Government had approved of the form of the agreement as soon as submitted and without taking any time for consideration."

On Dec. 21 Mr. Drury issued a statement in which he said:—"The Government refused to ratify by order in council the bylaws submitted to it because in several important respects they overstepped the Hydro Electric Railway Act. Further, the first letters asking for ratification were received by the Government on Saturday, Dec. 3. The first day on which they could have been dealt with was Monday, Dec. 5, so that even if the Government had been willing to have given an unconsidered ratification, which it was not, the bylaws could not have been passed by the municipal councils and received four weeks public notice, as provided by law before Jan. 2, the date of the municipal elections. Further, in accordance with the Government's promise, it is the intention to submit legislation at the coming session which will empower groups of municipalities to build, acquire and operate electric lines where they so desire under conditions

which will better safeguard the municipalities and be more likely to ensure the success and soundness of the undertaking. This being the case, any action taken by the municipalities at the present time, even if such action had not been rendered impossible by the delay of the Commission in submitting the matter to the Government, would in my opinion be premature and would defeat its own purpose."

The Ontario statutes contain the following provisions. Hydro Electric Act, 1914, sec. 4:—"A corporation, or two or more corporations, may, if authorized by the Lieutenant-Governor in council so to do, enter into an agreement with the Hydro Electric Power Commission of Ontario for the construction, equipment and operation of an electric railway to be operated by electrical power or energy supplied by the Commission."

In 1920 this was made to apply to the purchase of existing railways as follows: "The agreement may include in its terms the acquiring by purchase or lease of any steam railway, electric railway or street railway, or any part or parts thereof, or the obtaining of running rights over the same."

In 1916 the following stipulation as to bylaws submitted to the electors in connection with such agreements was inserted:—"The agreement shall not be submitted to the electors, nor shall any bylaw for that purpose be proceeded with by the council of the corporation until the terms of the agreement have been submitted and have received the sanction of the Lieutenant-Governor in council."

Representatives of most of the 17 municipalities in the Niagara Peninsula met at St. Catharines Dec. 22 and passed the following resolutions:—"That the meeting of municipal representatives interested in the acquiring of the N., St. C. & T. Ry., following the decision of the Premier and Cabinet of Ontario in refusing to sanction the electors of our municipalities voting at the forthcoming municipal elections and immediately thereafter, upon the bylaw and agreement to acquire such railway under the Hydro Electric Railway Act, resolves as follows: That having regard to the wish of municipal councils and their representatives expressed at various intervals during the past two years, and re-affirmed at meetings of Aug. 26 and Dec. 1, 1921, to submit to the electors the acquirement of such railway, and of which desire ample notice has been published from time to time in the press of Ontario, and has been given to the Hydro Electric Power Commission and through it to the Government, we view with extreme indignation and regret the attitude of the Premier and Government and its announced decision. That notwithstanding such decision this meeting re-affirms the desire of the municipal representatives of this district to have such bylaw and agreement submitted to immediate vote. That this meeting views with serious alarm the recent action of the Government in connection with the municipal enterprises of the hydro power and radial undertaking, and desires that it be firmly understood that the policy of the undertaking should not be directed by the Government nor the total enterprise taken over by it, but that the same should remain a strictly municipal undertaking and enterprise, and that in the future, as in the

past, the hydro must be kept entirely free from political influence. That action be taken at once by the executives of the Hydro Municipal Power and Radial Association to protect the interests of the municipalities. That this meeting re-affirms its utmost faith in Sir Adam Beck and the engineers and officials of the Hydro Power Commission, and in their policy and actions on behalf of the municipalities. That this meeting endorses the submission of the bylaw and agreement for acquirement of the railway in accordance with arrangements already made in that behalf, and that no action be taken to deprive the electors of the opportunity to exercise their franchise on the question at the forthcoming election and in accordance with the undoubted wish of the vast majority of the people of this district."

One-Man Car Operation in Fort William and Port Arthur.

Details in connection with the proposed operation of one-man cars on the electric railways in Fort William and Port Arthur, Ont., are being worked out by the Fort William and the Port Arthur Public Utilities Commission, acting either separately or jointly.

The Fort William committee has been authorized by the Board of Railway Commissioners to operate the cars over steam railway crossings in Fort William, and the Port Arthur Commission is applying to the Board for permission to operate such cars over the Canadian National Rys. diamond on the Fort William Road, and for a direction as to the payment of a watchman at the crossing.

The Port Arthur commission estimates that it will cost about \$400 each to convert the present cars for one-man operation, and has authorized negotiations with T. H. McCauley, formerly of Calgary, Alta., and later of St. John, N.B., for the use of his patent on them.

At a recent joint meeting M. C. Campbell, Port Arthur, and Alderman Chapple, Fort William, were appointed to act, with the managers of the two lines, to secure data on the one-man car system, and report at a future joint meeting.

The Levis County Railway's Position.

The Levis County Ry. Co. suffered a severe setback in Feb. 1921, when fire destroyed its car barns and rolling stock to the value of about \$300,000. For some time past the company had been giving a partial service on its lines, which is reported to have been discontinued about the end of Nov. 1921. A press report of Dec. 17, 1921, stated that an arrangement had been made whereby the Quebec Ry., Light & Power Co. had taken over the Levis County Ry.'s property for operation. W. J. Lynch, General Manager, Q. Ry., L. & P. Co., is reported to have said that no agreement had been entered into for the company to operate the Levis County Ry. lines. If the Levis company, operating on a 10c. fare, with tickets, could not earn operating expenses and interest on investment under its present efficient management, it could not expect to meet with any more satisfactory results if operated under similar conditions by the Q. Ry., L. & P. Co.

Electric Railway Projects, Construction, Betterments, Etc.

Fort William Municipal Ry.—Fort William, Ont., City Council decided, Dec. 15, a press report states, to invite tenders for cutting and clearing the right of way for a belt line to Chippewa Park, so that construction may be gone on with early in the spring. The ratepayers passed a bylaw in Sept. 1921, providing \$30,000 for the construction of this line. Nov. 1921, pg. 602.)

Hamilton St. Ry.—As stated in Canadian Railway and Marine World for Dec. 1921, H. W. Middlemist, Consulting Engineer, Ontario Railway and Municipal Board, made an inspection of the company's tracks on certain streets, which Hamilton City Council had asked the Board to order to be repaired. Mr. Middlemist subsequently reported to the Board that he had made his inspection on Nov. 16, in company with the City Engineer and G. G. Waller, General Superintendent of Railways, Dominion Power & Transmission Co. After giving a detailed description of the state of the tracks, one section of which is owned by the Hamilton & Dundas St. Ry. Co., another of the Dominion Power & Transmission Co.'s subsidiaries, Mr. Middlemist said:—"I do not consider that any of the track I saw could be called dangerous, but where the 73 lb. Dick-Kerr grooved rails are laid I think they should be replaced by new rails on a concrete base whenever the city authorities desire to pave the streets. On Barton St. and Aberdeen Ave. the 70 lb. 4 in. T rails are good, and are quite suitable for the present macadam streets, which are in a very poor condition." The matter is still under the Board's consideration.

Kitchener & Waterloo St. Ry.—We are officially advised that the Kitchener City Commissioners contemplate building in the spring about a mile of double track line from Albert St., Kitchener, Ont., to the city limits. (Nov., pg. 601.)

Montreal Tramways Co.—We are officially advised that the company during 1921 made four extensions of line, totaling 2.19 miles, as follows:—Sherbrooke St. extension, 0.14 mile; Bordeaux extension, 1.22 miles; Park Ave. extension, 0.72 mile; Cremazie Rd. and Bogg Ave., 0.11 mile.

New Brunswick Power Co., we are officially advised, relaid 1.5 miles of track in St. John, N.B., during 1921. All new material was used in about a mile of the work, and part new material for the balance. The company is planning to do considerable track relaying for 1922, but its extent will depend very much on the cost of materials and what paving work the St. John City Council will elect to do during the year.

Nipissing Central Ry.—We are officially advised that there is under survey a proposed extension from Liskeard to North Timiskaming, Ont., 15 miles. S. B. Clement, North Bay, Ont., is Chief Engineer.

Ontario Hydro Electric Rys., Essex Division.—Windsor, Ont., City Council has under consideration a proposition to widen Sandwich St., in connection with which it is desired to have the electric railway tracks removed from the north side to the middle of the street.

A press report says that the building of a second track on Ouellette Ave. and Wyandotte Ave., Windsor, Ont., about 8,000 ft. in all, has been completed, and

that cars are being operated on it.

Regina Municipal Ry.—A section of the line on Fourth Ave., Regina, Sask., extending from Scott St. to McDonald St., has not been operated, as the Board of Railway Commissioners had ordered the installation of a half interlocker plant at the crossing over the C.P.R. at the joint expense of the city and the C.P.R. Residents of Eastview and Eastern Annex asked recently that this piece of line be put in operation, and after consideration by a special committee the council has been requested to take the necessary steps. The cost of the interlocker plant to the city is estimated at about \$4,000. (Nov. 1921, pg. 601.)

Saskatoon Municipal Ry.—We are officially advised that there was built and put in operation during 1921 about 2,600 ft. of second track on the lines in Saskatoon, Sask.

Toronto Suburban Ry.—We are officially advised that during 1921 the company built a mile of line in the center of the street in Weston, Ont., to replace a similar length of track at the side of the street.

One-man Car Operation on British Columbia Electric Railway.

In connection with the proposed operation of one-man cars on the British Columbia Electric Ry. lines in Vancouver, Victoria and New Westminster, and other municipalities, the B.C. Legislature has added the following section to the British Columbia Railway Act recently:—"284a. No electric street railway or tramway company shall operate on any route any type of street car operated by one man only, commonly known as a 'one-man car,' without first having applied to and obtained the consent of the Minister. Where application is made to the Minister under this section in respect of the operation of one-man cars upon any route which traverses any portion of a municipality, the Minister, before deciding the matter of the application, shall notify the council of the municipality, and shall hear all representations which the council may desire to make with regard to the proposed operation of one-man cars, and shall thereafter decide the matter of the application, having special regard to the safety of the public."

A delegation representing Victoria, Vancouver and New Westminster waited on the Premier at Victoria, Dec. 15, to discuss the one-man car question. It is reported that the Premier, who is also Minister of Railways, informed the delegation that a fair trial should be given to one-man cars, and that if, later on, the public service and safety required it, the question could be re-opened. An order would be made granting permission to run the cars subject to the statutory regulations made by the Railways Department.

The first one-man car was put in operation on the company's Vancouver lines Dec. 8. It is stated that it is an old car rebuilt, fitted with a new type of fender, and equipped with air brake, and an equipment for opening and closing doors.

Victoria City Council has passed a resolution in favor of taking a vote on the operating of one-man cars, at the municipal elections.

Proposals Regarding Purchase of Ottawa Electric Railway.

Considerable attention is being given in Ottawa to the three questions which the city council has decided to submit to the electors on Jan. 2. They are:—"1. Are you in favor of the city giving the Ottawa Electric Ry. the required notice to take over the street railway at a price to be fixed by arbitration, as provided by the agreement between the city and the company? 2. Are you in favor of the present franchise of the Ottawa Electric Ry. being extended for a further period of 30 years? 3. Are you in favor of the city entering into an arrangement with the Ottawa Electric Ry. for service at cost?"

The advantages of municipal ownership of the Ottawa Electric Ry. were discussed at a meeting of the Wellington Ward Municipal Association, there, Dec. 15. Ex-Mayor H. Fisher is reported to have said the greatest objection to granting the company a new franchise is that it is impossible to draw up a contract which would compel the company to give service unless it would pay it to do so. Service, not the fare, is the first consideration. The present shareholders would sell their interests to outside financiers at any time if they could obtain their price.

Controller Ellis is reported to have said that the city could take over the railway on the expiration of the franchise in 1923 for less than \$4,000,000, and could continue to operate it on a 5c. fare. He alleged that the company had made from 15 to 19% on invested capital during the past 10 years, and that while the net revenue last year was \$500,000, it only paid the city \$16,000.

In connection with these two statements, the Ottawa Electric Ry. Co. has issued the following figures, showing the receipts and expenditure, with the disposition of the same for the calendar year 1920:—

Total revenue	\$1,786,065.85
Direct operating expenses \$1,257,689.91	
Depreciation reserve	120,000.00
Ordinary taxes	45,823.75
War taxes	45,500.00
Mileage payments to city	16,561.94
Insurance reserve	10,000.00
	<hr/> 1,477,575.60
Net profit	\$308,490.25
Interest on loans	\$26,239.80
Profit and loss account ..	670.45
Dividends ..	281,580.00
	<hr/> \$308,490.25

T. U. Fairlie, of the Hydro Electric Power Commission of Ontario's staff, valued the company's property necessary for the operation of the railway on behalf of the city at \$4,580,435, a figure with which the company says is incomplete. On this figure the profits mentioned above work out at less than 6½%.

A public meeting was held in Hopewell Ave. Public School, Dec. 16, at which the principal speaker was Major F. D. Burpee, the company's Manager, who discussed the service at cost plan which, he said, is favored by the company as a plain common sense plan based on the principle that the company's revenue, which is derived entirely from fares, shall be always sufficient to pay all costs of operation. It is estimated that about \$2,000,000 will have to be expended during the next five years to provide for necessary requirements, without taking into consideration any extensions. He also said:—"I am authorized by the company to say that, in the event of the electric railway plebiscites at the next municipal election showing that a majority of the electors desire another contract with the company for a period not exceeding 30 years, the company will be willing to accept an agreement calling for a 5c. fare. As economic conditions sometime during the life of the contract might make a 5c. fare unable to provide for the cost of operating the railway, the maintenance and upkeep of its plant in efficient conditions, proper provision for depreciation of wasting assets, and a fair and reasonable interest on the actual value of its property, the company would expect that a clause be included in the agreement giving the same consideration to this point as is contained in section 6, entitled Tolls, of the act passed by the Ontario Legislature in 1920, under which the City of Ottawa would acquire and operate the electric railway. This section is as follows:—"Tolls: The Commission shall so regulate and fix all tolls, tariffs of tolls, and fares for the carriage of passengers and freight that they will produce in each year a sum sufficient to provide for the cost of operating the railway and other works, for their maintenance and upkeep in an efficient condition, for making such renewals and replacements as are properly chargeable to revenue, and for the payment in due course of the principal and interest of all outstanding debentures, encumbrances and other fixed and floating liabilities." As a company does not have to provide a sinking fund to retire the bonds at the end of 30 years, it is in a better position than a municipality to maintain the 5c. fare. The annual charge against the revenue for principal or sinking fund would be about \$75,000."

Electric Railway Employees' Wages, Working Conditions, Etc.

British Columbia Electric Ry.—Two reports have been submitted by members of the board of conciliation which sat recently at Vancouver to consider wages and working conditions about which differences existed between the company and its employees. The majority report was signed by G. W. C. Dittmars, chairman, and A. G. McCandless, representing the company, and the minority report by R. P. Pettypiece, representing the men. The majority report states that the points at issue were the company's notice of a 15% reduction of wages; the wages and working conditions governing the operation of one-man cars; the company's desire to abolish extra payment to conductors and motormen for Sunday and holiday work, and the working conditions contained in the agreement of Nov. 5, 1919. The majority report states that the company was justified in asking for a 15% cut in wages, but they did not agree that the present is an opportune time to make so drastic a reduction, and recommended that a 10% reduction be made in all wages from Dec. 1, 1922; Sunday work to be paid for at time and a quarter, and holidays at time and a half; extra men to be guaranteed a minimum monthly earning of \$87.50; overtime at the rate of 10c. an hour instead of 25c., is to be paid for runs not completed within 10 hours of the commencement of the first shift. Some alterations are recommended in working conditions, and also the following:—"In the event of the com-

pany operating one-man cars on any part of its system, we recommend that the men so operating them be paid at schedule rates plus 10%. We make this recommendation for the reason that it has been shown to us that on these cars the men's duties will be more exacting and their responsibilities greater, and as it will likely call for some of the best men the company has, we feel that they should be recompensed accordingly."

R. P. Pettypiece in his minority report expresses the opinion that the utmost reduction that should be allowed is 5%. He estimates that this with the altered working conditions recommended would be equal to a total reduction of 12%.

The wages paid conductors and motormen since Oct. 1920 have been, on city lines, 65c., reached in a year and a half; and on interurban lines 67c.

It was announced on Dec. 13 that the company had decided to accept the majority report. Up to Dec. 15 the men had not signified acceptance or rejection.

Hull Electric Co.—As stated in Canadian Railway and Marine World for Dec. 1921, G. Gordon Gale, Vice President and General Manager, advised the company's employees Nov. 1 that a 10% reduction in wages would be made from Dec. 1, which the men were asked to accept. They declined and applied for the appointment of a board of conciliation, naming F. Bancroft, of the Toronto Star staff, as their representative. The company subsequently named Geo. Kelley as its representative and the Minister of Labor appointed W. F. O'Connor, K.C., of Ottawa, as chairman.

International Traction Co.—We are officially advised that on Oct. 1, 1920, the wages of conductors and motormen were advanced from a sliding scale of from 40c. to 45c. an hour from 45c. to 50c. an hour, to be in force for a year. Thirty days prior to the expiration of the agreement the company notified the men of its desire to make a reduction in wages by returning to the scale in force prior to Oct. 1, 1920, the new agreement to contain a proviso that either party, on giving 30 days notice might again open up the question. The men objected to the inclusion of this proviso, and made application to the Labor Department for the appointment of a board of conciliation. The company nominated J. L. O'Flynn as its representative; the men nominated E. O. McMullen to represent them, and Rev. Father Jas. Brennan was chosen as Chairman. Before the board met to discuss the matter the company agreed to eliminate the 30 day clause from the agreement, and all the board was called upon to do was to meet and confirm the agreement. In the report to the Department the members said they were very happy to be able to state that the best of feeling existed throughout between the men and the company. The wage rate per hour fixed in the agreement, which is to run for a year, and to be automatically renewed from year to year unless either party gives 30 days notice prior to any Sept. 30, is as follows: First six months, 40c.; second six months, 41c.; third six months, 42c.; fourth six months, 43c.; thereafter, 45c. Interlocker signal men are to be paid \$90 a month, and \$5 a month to present employees, extra, on account of their long service. Nine hours is to constitute a day's work.

Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry., has been elected a director of La Pas Oil Corporation.

Proposed Purchase of Toronto Eastern Railway

Toronto City Council, at a special meeting, Dec. 8, authorized the submission of the following question to a vote of the ratepayers on Jan. 2:—"Are you in favor of carrying out the agreement with the Hydro Electric Power Commission of Ontario for the construction of the radial railway to Bowmanville without the guarantee by the Ontario Government of the bonds of the Commission?"

The bylaws for the purchase of the Toronto Eastern Ry., on which only a little construction has been done, from the Canadian National Rys., and for its completion under the provisions of the Hydro Electric Railways Act, were adopted by the municipalities interested at the municipal elections at the end of 1919, and beginning of 1920. The total amount involved for the purchase of the line and its completion mentioned in the bylaws was \$8,360,794, of which Toronto's share would be \$4,328,665.

Scarboro Township decided Dec. 9 to resubmit the bylaw to the ratepayers. The amount involved in this municipality as mentioned in the bylaw carried in 1920 was \$892,686. Whitby Town Council decided Dec. 12 to leave the question of having a revote on the bylaw to the consideration of the council to be elected Jan. 2. The amount of debentures to be assumed under the Whitby bylaw was \$277,955.

On Dec. 19 the Ontario Attorney General received the following letter from Scarboro Township's Municipal Clerk:—"Re Toronto Radial Act, 1921. I am writing you on behalf of the municipal corporation of Scarboro Township in respect to the matter set out below. Under the act above mentioned, the Hydro Electric Power Commission of Ontario, the City of Toronto and the Toronto & York Radial Ry. were, amongst other things, authorized to enter into an agreement dealing with the Toronto & York Radial Ry.'s Scarboro Division, but subject to the approval of the Lieutenant-Governor in council. Scarboro Township was not at any time consulted in respect to the drafting of the act, nor the proposed agreement, neither has it at any time been consulted in reference to the agreement, though, of course, any such agreement must of necessity affect very materially the interests of the township. The township does not take the position that it is antagonistic to the agreement in so far as it affects the township, but it does take the position that where its interests are concerned it should be at least consulted, and on behalf of the township I have written to Sir Adam Beck, the Mayor of Toronto, and York Radial Ry. Co., pointing out the facts, and I enclose herewith copies of the respective letters. On behalf of the township, I respectfully request that in case the agreement be submitted for approval of the Lieutenant-Governor in council, the statement above made be given consideration, as important interests of the township may be materially affected."

The Attorney General thereupon wrote the Hydro Electric Power Commission of Ontario's Secretary as follows:—"In the Prime Minister's absence, I enclose copy of a letter received this morning from the solicitor for Scarboro Township in this matter. The Government has had under consideration your letter of Dec. 6 asking for approval of this agreement,

and, subject to an amendment, considered necessary to keep the agreement within the law, had determined to give the necessary approval, the assumption being that the agreement was acceptable to the township as well as to the Commission. In view of the solicitor's letter, I think it is better to defer action in order that an agreement may be submitted which will be mutually satisfactory in its terms."

Motor Omnibus Traffic Notes.

Three of the Union Bus Co.'s drivers were fined \$10 each in the St. John, N.B., police court, recently, for driving on the New Brunswick Power Co.'s electric railway. The Bus Co. gave notice of appeal.

A new motor bus service between Hamilton, Grimsby and Beamsville, Ont., was put into operation Dec. 1. A bus leaves Hamilton post office and Beamsville town hall at 6 a.m. every week day, and makes the trip in an hour and a half. The service thereafter is every two hours in each direction, the last busses leaving at 10 p.m. The Sunday service is the same except that the 6 a.m. and 10 p.m. busses are not run in either direction. Connections are made at Beamsville with a bus service to St. Catharines.

Hon. F. C. Biggs, Minister of Public Works and Highways for Ontario, is reported to have stated that the Ontario Government has under consideration a proposal to regulate all bus services operated in the province. The objective of such legislation would be the improvement of the various services for the public benefit, the regulating of the services in such a way as to allow profitable operation, the compelling of good service, and the saving of wear and tear on provincial highways by eliminating unnecessary duplication of services.

The Union Bus Co., which was formed in St. John, N.B., largely by New Brunswick Power Co.'s employees who were let out of its service when it declined to recognize the union and has since been operating a bus service in opposition to the electric railway, went out of business at midnight, Dec. 8. F. A. Campbell, President, is reported to have stated that the company had ceased operations for the winter only, during which the cars would be stored, and that operations would be resumed in the spring. Ira Ferris, President of the Electrical and Steel Car Worker's Union, is reported to have stated that the bus company had closed up shop as the service was not paying; people were ceasing to patronize the busses and the fines against the company for breaches of the bylaws were becoming so heavy that it was impossible for it to continue operations. The company had paid \$15,000 on account of \$19,000, the price of the busses, and only owed \$125 outside the balance due thereon. Of the amount paid for the busses only \$500 had been received from sources outside the union funds. Between 30 and 40 men have been thrown out of employment by the failure. The busses are reported to have been taken possession of by the holder of a lien note.

The British Columbia Legislature has refused the City of Vancouver's application for permission to operate motor busses on the ground that it is to the city's best interests to have only one transportation system. Some members stated that two transportation systems would be a calamity, and other members

said that competition in city transportation would lead to the chaotic conditions that have existed in Seattle. W. J. Bowser, leader of the opposition, charged the government party with playing the British Columbia Electric Ry.'s game by proposing to give it a perpetual monopoly, but Attorney General Farris replied that the private bills committee lost interest in the city's petition when the rumor became current that the city did not really wish to enter into competition, but merely to hold its power over the B. C.E.R. Co. as a club. Another member asked the house to consider the effect on the credit of the province if the city were allowed to step in over the company's head. The city's petition was prompted by the demand of the West Broadway residents for a street car line, which the company has refused. The company has offered a motor bus service in connection with its street railway system, provided the city will pave the street, an expenditure the city is not likely to incur at present.

Joint Welding and Bonding, Toronto Transportation Commission.

In the article in Canadian Railway and Marine World for Dec. 1921, pg. 656, describing the track construction and rehabilitation work being done by the Toronto Transportation Commission, it was stated as follows: "In making the track joints, the joint plates are set up tight with all four bolts, and then welded by the Lincoln carbon arc process top and bottom. Two of the bolts are then taken out. O-B bonds are used in making the joints."

From the above it might be inferred that the bonds are used in all joints. Where the Lincoln carbon arc process is used in making the joints on tangent track, the bonds are not used, but in intersection work and on tangent track, where the joints are not welded, O-B bonds are used with metal terminals, welded with metallic electrode. On a number of joints on tangent track, a combination of the carbon arc process and the metallic arc process of welding was used, the lower seams being welded with the carbon arc and the upper with the metallic arc. Such joints were not bonded.

Newfoundland Hydro Electric Development.—H. D. Reid, President, Reid Newfoundland Co., who returned to Newfoundland from England, early in December, accompanied by hydro electric engineers from Sir W. G. Armstrong, Whitworth & Co., stated in an interview that he had been in England chiefly to get English capitalists interested in the development of hydro electric power in Newfoundland. It has been estimated that the total water powers available are about 235,000 h.p. He believes that there is every possibility of the plans being carried out, but much depends on the view that the Newfoundland Government may take of the whole scheme. The English hydro electric engineers made preliminary investigations in the spring, and are now making the final arrangements. A company is being formed in Newfoundland, to be financed in England, and the engineering work will be carried out by Sir W. G. Armstrong, Whitworth & Co., Newcastle-upon-Tyne, Eng. The project, it is stated, will represent a capitalization of about \$15,000,000.

Electric Railway Notes.

Toronto Ry. Co. is being sued by the city for \$52,232.78, for carting away snow from the track allowances, which it is claimed the company should have taken away last winter.

The Hydro Electric Power Commission of Ontario has arranged with the Toronto Ry. Co. to use the company's auxiliary steam plant to supply extra power for the Commission's customers.

British Columbia Electric Ry. employees held their ninth annual dinner at Vancouver, Dec. 2. Among the speakers were George Kidd, General Manager, and W. G. Murrin, Assistant General Manager.

Brantford & Hamilton Electric Ry. and Hamilton Radial Electric Ry. bylaws regulating travel on their cars, have been recommended by the Board of Railway Commissioners for the Dominion Government's approval.

The Port Arthur, Ont., City Council and Port Arthur Utilities Commission are reported to have agreed that all public utilities shall be placed on the assessment roll and be made liable to taxes the same as privately operated enterprises.

The London & Port Stanley Ry. is reported to have definitely entered the terminal transportation business in London, Ont., a start having been made with the delivery of coal to the gas works. It is estimated that a revenue of \$10,000 a year will be earned by this one service.

The London & Lake Erie Ry. & Transportation Co., the affairs of which are being wound up, has sold to the City of London, Ont., a strip of land 2,150 ft. long and running to 182 ft. wide. The purchase of this piece of property will enable the city to begin work on an extension of Richmond St.

The London, Ont., Street Ry. Co.'s franchise expires in 1925, and it is reported that arrangements have been made for the early appointment of a Commission to study the whole question. The suggestion is to appoint four aldermen, and four citizens unconnected with the city council, with the mayor as chairman.

The New Brunswick Power Co. has advised the Board of Railway Commissioners that the proposed overhead crossing at Douglas Ave., St. John, N.B., in which the C.P.R. is interested, is not, in its opinion, required, and has refused to make any contribution towards its cost.

Edmonton, Alta., City Commissioners are reported to have, after a conference with the heads of departments, arranged a scale of salaries for 1922. The Superintendent of the Edmonton Radial Ry.'s salary for 1921 is stated to have been \$2,700, but the new figure is not mentioned.

A Levis, Que., press dispatch says:—The Levis County Ry.'s service is still closed and autobusses offer the only service to citizens from point to point. The company for the last year has lacked encouragement on the part of the municipalities interested and has been unable to resume its regular service."

Winnipeg City Council's public safety committee is reported to have decided Dec. 9 to ask the Winnipeg Electric Ry. to pay taxes and pavement charges claimed to be due. The amount stated was \$917,291, made up of \$804,982.39 taxes and pavement charges, and \$112,308.61

penalties on unpaid taxes for several years past.

Ernest C. Partridge, formerly a London & Port Stanley Ry. conductor, was found guilty at the Middlesex County Sessions, Dec. 12, of stealing and manipulating fares. It was shown that he was engaged, through a private detective agency, to act as a conductor, and as a detective. He is reported to have admitted supplying tickets to Dr. Honsinger, a St. Thomas dentist, for whose apprehension a warrant is out, in return for which he received some money, several bottles of whiskey and some dental work.

A verdict for \$55,000 damages, awarded at the Hamilton, Ont., assizes against the Hamilton St. Ry. Co. in respect of the death of Thomas Irwin, in Jan. 1920, from injuries received through the fall on him of one of the company's iron standards on a street. The verdict included \$30,000 to the widow, and \$12,500 to each of two sons. An appeal against the award came before Mr. Justice Riddell, in the Second Divisional Court at Toronto, Dec. 12, when he suggested the damages be reduced to \$10,000 for the widow and \$5,000 for each of the sons. The case was adjourned to enable counsel to reach a settlement.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Railway and allied companies.—

	Sept. 1921	Sept. 1920	3 mos. to Sept. 30, 1921	3 mos. to Sept. 30, 1920
Gross	\$845,185	\$806,797	\$2,529,494	\$2,405,807
Expenses	634,637	598,523	1,899,608	1,783,721
Net	210,548	208,269	629,886	625,086

Cape Breton Electric Co.—

	Oct. 1921	Oct. 1920	12 mos. to Oct. 31, 1921	12 mos. to Oct. 31, 1920
Gross	\$62,182	\$63,255	\$699,205	\$626,163
Expenses and taxes	52,346	49,589	580,157	533,180
Net	9,836	13,666	119,048	92,983
Interest charges	5,656	5,729	68,865	66,894
Balance	4,180	7,937	50,183	26,089

The Manitoba Power Co. has been granted supplementary letters patent under the Dominion Companies Act, cancelling the clause in its letters patent reading "The capital stock of the company shall be \$5,000,000, divided into 50,000 shares of \$100 each," and substituting therefor the following:—"The capital stock of the company shall consist of 100,000 common shares without nominal or par value, which shall be issued and allotted for the sum of \$10 each, provided that the said company shall carry on its business with a capital stock of \$1,000,000."

Montreal Tramways Co. has declared a further deferred dividend of 2½% for the quarter ended June 30, 1919. It is stated that this will leave only one quarterly dividend of 2½% in arrear. The company has paid off 15% of dividend arrears since Jan. 20, 1920, and it is expected that the remaining dividend in arrear will be paid off early in the year. Regular current dividends are also being paid.

An offering of \$1,750,000 of the company's first and refunding mortgage 5% gold bonds was made in New York Nov. 27. It was stated that this was the first electric railway bond issue to be offered there for several years and it was reported to have been oversubscribed within 48 hours. The issue price was 83½, equivalent to a 6½% basis.

Mainly About Electric Railway People.

Maurice C. Gilman, who has been appointed Sales Manager, Electric Utility, Winnipeg Electric Ry. Co., is in charge of sales of electric current, co-operating with the Superintendent of the Contract Department, both reporting to the Vice President. His duties include fixing of rates, creating new business for the electric utility, inducing of industries to settle in Winnipeg and dealing with consumers who have industrial loads to place. He is an electrical engineer and before going to Winnipeg was employed with Montreal Light, Heat & Power Co., as Special Agent and Research Engineer, and prior to that was for about 8 years Power Sales Engineer, Assistant to Chief Engineer, and Sales Manager, consecutively, Toronto Electric Light Co. He was at one time with the Public Service Corporation, Newark, N.J., and subsequently with the Brooklyn Edison Co., Brooklyn, N.Y. He is a member of the Canadian Electrical Association and was for several years chairman of the commercial section, and is also a member of the commercial section of the National Electric Light Association, New York.

Philip Pocock, Vice Chairman, London Railway Commission, was re-elected a member of the London, Ont., Public Utilities Commission, at the annual election on Dec. 5, 1921.

E. A. Robert, President, Montreal Tramways Co., visited New York recently, presumably in connection with matters connected with the company's financing.

London & Lake Erie Railway & Transportation Co.'s Liquidation.—A special general meeting of shareholders, held at London, Ont., recently, passed resolutions approving of the sale of a portion of the right of way in London to the city for \$5,000; of the sale of the terminal site and a portion of its right of way in London, with buildings thereon, to M. White, for \$6,500; of the sale to the Province of Ontario of certain portions of its right of way, subject to a reservation, for \$4,500; and of the sale of certain rolling stock and equipment to the Canadian National Rys. for \$18,000; also other resolutions authorizing the directors to dispose of the remainder of the property and assets. We are advised that the sale to the Canadian National Rys. for the Niagara, St. Catharines & Toronto Ry., consisted of 6 passenger cars, and 1 work car, with their equipment and accessories, and was completed over a year ago. The resolution passed by the shareholders was a mere formality, to comply with statutory provisions.

Moscow Street Car Conditions.—Only 142 electric street railway trains of two cars each are in condition to operate in Moscow, consequently only 22% of the population can be accommodated. The Russian Government has extended to the general public recently the privilege, hitherto granted only to government employees and workers, of riding in the cars, but they can only use the cars between 10 a.m. and 4 p.m., and pay 1,000 roubles for a "stretch," which is about half a mile. A recent report stated that the fares collected amounted to about 1,500,000,000 roubles a month, and that there was a monthly deficit of about 2,000,000,000 roubles.

The Place of the Motor Bus in Urban Transportation.

By A. W. McLimont, Vice President and General Manager, Winnipeg Electric Railway.

The place of the motor bus in urban transportation, although relatively a new subject in the electric railway industry, deals with a phase of the transportation problem which has been rapidly assuming important proportions and I believe that as leaders in the electric railway business we may now profitably give this matter our serious consideration.

The ideas which I would like to impress upon those who are interested in urban transportation are prefaced upon these principles: First, it is the paramount business of traction companies, clothed with monopolistic privileges, such as exclusive franchise rights, to provide the communities served, with transportation. Second, the transportation furnished must be adequate and economical. These principles I regard as fundamental. If the motor bus is to have any place in urban transportation, its use must be in alignment with these two principles.

We have been using motor busses in Winnipeg since 1918 and will likely employ them more and more in the future. We use them as feeders to our street railway system. The busses are considered as street cars, under our franchise, and transfers are issued and accepted from cars to busses and vice versa. But I do not believe that motor busses can ever, or at least for many years, successfully supplant street cars in Winnipeg, though to a small extent they may do this, in fact already have done so. Perhaps the best way to explain what I think the place of the motor bus is will be to explain how we came to use them in Winnipeg.

Our first busses were installed in 1918, shortly after I came to Winnipeg, on the Westminster Avenue-Lipton St. route, to replace jitney service which was abolished by an agreement with the city at that time. This route is a mile long, and serves a residential district which is not reached by our street car lines. In the absence of street car service, jitneys had come to furnish transportation to this district, in other words, to do the work which our franchise had delegated to us. Now, in failing to provide service the company had unconsciously forgotten its chief duty as a transportation system. True enough, it would not be profitable, in fact war conditions made it impossible, to consider laying tracks and making an extension into this territory. But that was not sufficient reason for failing to provide service.

Careful investigation would have revealed, as it finally did, that even though extensions of our tracks were, for the time, out of question it still was economically possible to furnish service by installing busses. Instead of expending \$65,000 or thereabouts for laying tracks and building overhead, and another \$40,000 for four cars, we bought four 16-passenger busses at a cost of approximately \$10,000. Not only was the initial capital outlay cut down from \$105,000 to \$10,000, but we were able to furnish service on very short notice after the acceptance of the agreement abolishing the jitneys. It is unnecessary, I take it, to explain why we were anxious to be relieved of jitney competition for, of course, the jitneys did not confine their service

to the Westminster Ave.-Lipton St. route, but rather found there their principal justification for existing.

A second route operated by us is known as the Stockyards route. At the time we decided to operate this bus route we were confronted with this situation: The city had decided to pave a street upon which we had an old, dead-end, single track extending in the direction of the stockyards. This section of track was little over half a mile long and was located on the side of the street. The city bylaws required this track to be moved to the middle of the street, when the paving was done, and, of course, the track being old, meant that it would practically have to be reconstructed. As I have already indicated, the track did not extend to the stockyards. To provide car service to the stockyards would have required building an extension of nearly half a mile, including special work for a steam railway crossing. All told this work would have meant a capital outlay of around \$75,000. Two new cars would have increased this to \$95,000. The traffic to be handled could all be conveniently carried by two 20-passenger busses. After a conference with the municipal authorities we decided to tear up the old track, thereby releasing a good deal of rail for use elsewhere, and bought two new busses at a cost of \$10,000. These busses operate on the new pavement, and the present service extends to the stockyards, while formerly it was necessary to walk half a mile from the end of the car line in order to get there.

We have still another route upon which busses are operated. Here the primary consideration was to avoid building an

extension which would require either cross-overs or subways for two railway crossings—one of which was a 3-track and the other a 2-track crossing.

In all the cases which I have cited it will be noticed that the bus has been used to give service where formerly none was provided by street cars and under conditions which made it economically impossible to provide street car service. In the one instance bus service also replaced the street car. I have no doubt that most city transportation systems can advantageously make use of motor busses along the lines which have been described. How extensively this may be done is a question which can only be answered in light of local conditions.

We are favored with very cheap power at Winnipeg, hydraulically generated on the Winnipeg river, and this allows us to operate our street cars very cheaply. Our motive power costs less than 3c. a car mile, while gasoline for busses costs about 6c. a mile. Cheap electricity, together with the very heavy traffic which we have on the main arteries of travel, especially during peaks, make it impossible for motor busses to compete successfully with the street cars on the main lines. Then too, the extreme climatic conditions which we have in most Canadian cities would further favor the street car in preference to the motor bus, for people have little patience waiting for cars when weather conditions are severe.

I have had a few costs compiled showing how, in light of our experience at Winnipeg, motor busses have a very real place in urban transportation when used as feeders, but cannot take the place of street cars on the main routes.

Classification	Main Route (North limits—Deer lodge)		Feeder Route Westminster-Lipton	
	Street car	Motor bus	Street car	Motor bus
General data				
Length of route, miles one way	7.09	7.09	1.03	1.03
Total car or bus miles per year	2,737,000	8,211,000	128,196	128,196
Per route mile data				
Number of cars or busses operated on peak	12	36	3	3
Total number of cars or busses required	13	39	4	4
Investment in rolling stock	\$156,000	\$195,000	\$40,000	\$10,000
Investment in track and overhead	65,000	.....	65,000	.....
Total investment	\$221,000	\$195,000	\$105,000	\$10,000
Car or bus miles per year	386,000	1,158,000	124,000	124,000
Operating costs per car or bus mile				
Motormen, conductors, drivers	13.5c.	6.8c.	7.5c.	7.5c.
Motive power	2.5c.	6.0c.	2.5c.	6.0c.
Other operation expenses	3.3c.	1.8c.	3.3c.	1.8c.
Maintenance of roadway	2.0c.	.....	2.0c.	.....
Maintenance of rolling stock	3.5c.	7.2c.	3.5c.	7.2c.
General and undistributed expenses	3.0c.	1.0c.	3.0c.	3.0c.
Taxes	2.6c.	1.0c.	1.4c.	1.0c.
Depreciation	1.7c.	3.4c.	2.8c.	2.0c.
Interest on investments	4.6c.	1.3c.	6.8c.	0.7c.
Total costs per car or bus mile	36.7c.	28.5c.	32.8c.	29.2c.
Total operating costs per year				
Per route mile	\$141,650	\$330,000	\$40,670	\$36,200
Per entire route	\$1,004,500	\$2,340,000	\$42,050	\$37,400

On main route costs are for two-man street cars, but on feeder route they are for one-man cars.
On main route costs are for 20-passenger busses, but on feeder route they are for 16-passenger busses.
One minute headway is maintained during peaks on main route.—Aera.

Chatham, Wallaceburg & Lake Erie Railway's Future.

The Chatham, Wallaceburg & Lake Erie Ry. is an electric line extending from Wallaceburg via Chatham to Erie Beach, Ont., 33 miles. It was acquired

some years ago by Sir William Mackenzie and associates, but has not been a profitable undertaking, and the question as to what would become of it has been discussed on several occasions. In March the Chatham City Council promoted a bill before the Ontario Legislature to provide for a survey of the line being

made with a view to its being taken over by the Hydro Electric Power Commission of Ontario. This bill was withdrawn on the passing of an order in council authorizing the Commission to have its engineers report on the railway's condition, etc.

Attention was again directed to the future of the line recently owing to a trip made by a party of C.P.R. officials, who are reported to have made a detailed inspection. A local report is that the C.P.R. officials are considering how far the Chatham, Wallaceburg section of the line could be utilized as a part of a projected extension of the C.P.R. from Catham to Sarnia, Ont. (May, 1921, pg. 268.)

Electric Railway Passenger Fares.

Hamilton St. Ry.—After discussion in committee and in council for a lengthened period, Hamilton, Ont., City Council on Dec. 8, by a vote of 14 to 5, decided to permit the company to charge a straight 5c. fare for ordinary passengers. Heretofore the fares have been 5c. cash, or 6 tickets for 25c., limited tickets 8 for 25c., good from 6.30 to 8 a.m., 11.50 a.m. to 1.30 p.m., and 5 to 6.30 p.m.; children between 5 and 12 years, 3c. cash or 10 tickets for 25c.; children under five years free. The bylaw provides for a straight 5c. fare at the council's pleasure, children's fares to remain as before. The new fare went into effect Dec. 15, the company continuing to accept tickets sold previously. The arrangement is only temporary, pending negotiations for a revision of the franchise agreement. The ratepayers will on Jan. 2 vote on the question:—"Are you in favor of the council granting to the Hamilton St. Ry. Co. permission to charge a fare of 5c. where tickets are now used, the fares for children to remain unchanged?" Should this question be answered in the negative the bylaw will be repealed.

Toronto Transportation Commission.—The question of scholars' tickets has been under discussion for some time between the Commission and the Public and Separate School Boards. After lengthened negotiations an arrangement was reached and put into effect Dec. 9. We are officially advised that pupils who reside in the city who come within the provisions of the Adolescent Act, viz., 16 years and under, are to be carried between 8 a.m. and 4.30 p.m. on school days at the same rate as children, viz., 7 tickets for 25c. Tickets are being sold in the public and separate schools at stated times by a representative of the Commission to scholars who are designated by the principals or teachers as entitled to the privilege. In the case of the private schools, the tickets are bought by the school authorities and sold by them to pupils entitled to the privilege. A similar arrangement also exists at the Technical School and the High School of Commerce. The principle of the whole arrangement is, we are advised, that the conductors on the cars do not sell special scholars' tickets, but that they are sold elsewhere, where there is some proper person to specify whether the pupils to whom they are sold are entitled to buy and use them.

Winnipeg Electric Ry.—The Manitoba Public Utilities Commissioner has been consulted recently by the Reeve of Assiniboia Municipality in regard to a reduction in zone fares between Deer Lodge and Winnipeg City limits. He suggested

changing the present three zones, with a 5c. fare in each, to two zones with a 5c. fare in each.

Another matter affecting fares likely to come before the Commissioner is the use of workmen's tickets in East and West Kildonan Municipalities. At present workmen's tickets may be bought by those travelling from Winnipeg to Morse Place or the John Black Memorial Church, but they cannot be used from those points into the city. It is desired to make them available in both directions.

Electric Railway Track Laid in 1921.

According to returns received by Canadian Railway and Marine World, 7,757 miles of new track were built by four Canadian electric railways in 1921, compared with 9,712 miles in 1920, the figures for 1921 being given below.

	Miles.	Miles.
Brantford Municipal Ry.		
St. Pauls Ave. extension	1.49	
South Market St. extension.....	.41	
		1.900
Montreal Tramways Co.		
Sherbrooke St. extension	0.14	
Bordeaux extension	1.22	
Park Ave. extension .....	.72	
Cremazie Road-Bagg Ave. ....	.11	
		2.190
Quebec Ry., Light & Power Co.		
Bourgeois Ward extension		0.880
Toronto Transportation Commission		
Coxwell Ave., Queen St. to Danforth Ave.	1.040	
Greenwood Ave., connecting Toronto Ry. and Toronto Civic Ry. lines	0.041	
Danforth Ave., connecting Toronto Ry. and Toronto Civic Ry. lines	0.023	
Teraulay St., College St. to Bloor St.	0.625	
Albert & James Sts. loop	0.115	
Bloor St., Runnymede Road to Jane St.	0.416	
Bathurst St., Dupont St. to St. Clair Ave.	0.527	
		2.787
Total		7.757

The figures given above are for new route mileage added. For example, the Toronto Transportation Commission built an extension on Coxwell Ave. from Queen St. to Danforth Ave., 1.04 miles. This is double track, so that 2.08 miles of single track were laid, but only 1.04 miles are reckoned as added to the system. The actual new track laid by the Commission in new locations was as follows, the figures representing single track:—

	Feet.
Straight track—	
Coxwell Ave.	7,900
Greenwood Ave.	440
Danforth Ave.	240
Teraulay St., College St. to Bloor St....	6,600
Albert and James Sts. loop	610
Wychwood Ave.	480
Bloor St., Runnymede Rd. to Jane St.	4,396
St. Clair, at Caledonia, passing track....	150
Bathurst St., Dupont St. to St. Clair....	5,564
New routes in intersections	8,944
	35,324
Car houses—	
Bloor St. West	150
St. Clair Ave., special work	4,743
St. Clair Ave., straight track	6,835
Danforth Ave., special work	7,150
Danforth Ave., straight track	10,713
Russell, special work	1,059
	30,650
Sidings, etc.—	
Coxwell Ave., material yard	600
Russell car house, dump track	650
Hillcrest material yard	2,025
Merton St., material yard	1,160
	4,435
Total 70,409 ft., or 13.335 miles.	

In addition to the work mentioned above, the Commission has rebuilt a con-

siderable mileage, full particulars of which were given in Canadian Railway and Marine World for Nov. 1921, pg. 599

The New Brunswick Power Co. relaid 1.5 miles of double track line in St. John N.B. The Toronto Suburban Ry. rebuilt 1 mile in Weston transferring the track from the side to the center of the street; the Hydro Electric Rys. Essex Division built about 0.8 of a mile of second track on two of its lines in Windsor, Ont., and Winnipeg Electric Ry. built 0.125 of a mile of track across Maryland Bridge.

Answers to Questions on Electric Railway Topics

The following answers have been sent, by Canadian electric railway officials, to questions addressed to the American Electric Railway Association's question box:—

Workmen's Compensation Insurance.—Is your compensation insurance carried by an outside company, or do you carry it yourself? What are the relative advantages of these plans?

British Columbia Electric Ry., Vancouver, B.C.—All compensation to employees is covered by a provincial statute styled "Workmen's Compensation Act," administered by a board of commissioners appointed by the Government. The company is assessed for the compensation paid out by the board. The company carries its own insurance to cover compensation to others than employees. The company has found it less expensive to carry its own risk in either case.

Underground Pipe Drainage.—Is it your practice to employ the drainage method in connection with all underground pipe, cable and other metal structures?

John Whitsell, Manager, Winnipeg Electric Ry., Winnipeg.—We employ no drainage whatever on underground pipes, but we provide for draining all underground cables, under supervision of the Public Utilities Commission, and keep records of this cable drainage, all in accordance with the Manitoba Electrolysis Act, which prescribes all regulations.

Payment of Wages.—In paying an employe weekly wages, which of the following methods have been found best, and why? (a) To pay employe his money at the window loose, i.e., not in an envelope; (b) To pay employe his money put up in an envelope; (c) To pay employe by cheque.

F. D. Burpee, Manager, Ottawa Electric Ry.—About six months ago we adopted the cheque system, and it has been found very satisfactory, not only to the company, but also to the employes. We avoid the risks of conveying large amounts of currency from the bank to the pay office. The cheques are distributed in very much less time to the employes. The employe can cash the cheque at any bank in the city, or most of the stores. The endorsed cheque returned from the bank is the best evidence we could have that the employe has received his pay.

Types of Account Books.—As a permanent record should the three principal books of a company, viz., the journal, ledger and cash books, be bound volumes, or would loose leaf books of some make be considered equally permanent and safe for reference in future years?

F. D. Burpee, Manager, Ottawa Electric Ry.—We use bound journal and cash book, and loose leaf ledger.

Marine Department

Dominion Government Dredger No. 16.

The Marine and Fisheries Department has had built by Canadian Vickers Ltd., Montreal, a twin screw hopper and barge loading dredger, which will be known as Canadian Government Dredger No. 16, for service on the St. Lawrence River, particularly along the north shore, below Quebec, where the river bed consists of red sand, stones, gravel and clay. The dredger was partly built and was launched during the war, but, owing to pressure of other work, operations had to be suspended and it was laid up, pending an opportunity to complete the contract.

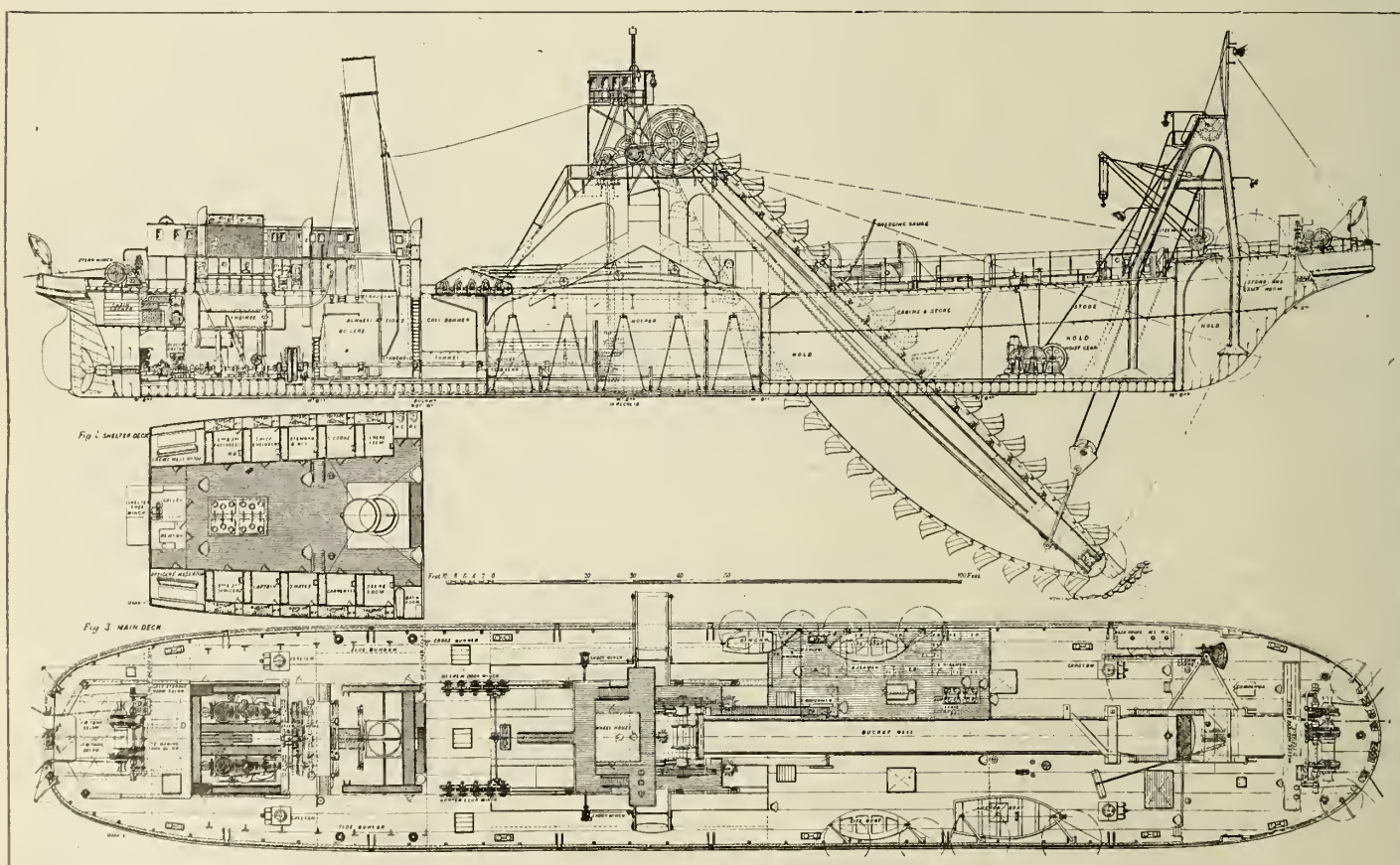
The dredger is one of the largest of its kind in the world, the principal dimensions being,—length overall 292 ft.,

The hull is built of steel, and the dredger throughout is built and equipped under Lloyd's special survey to Class 100A1, and also to Government inspection.

The propelling machinery consists of 2 sets of triple expansion, surface condensing engines, with cylinders h.p. 17 in., i.p. 27 in., and l.p. 43 in. diameter, and 27 in. stroke. Arrangements are made so that either of the main engines can drive the dredging gear. There are two boilers 15½ ft. diameter by 11½ ft. long of the single ended marine type, supplying steam at a pressure of 180 lb. per sq. in., and built to Lloyd's and Canadian Steamboat Inspection. A complete

The main frame amidships is a piece of extra strong structural steel work, supporting the dredging gear, bucket ladder and navigating platform, and on it are also the mud shoots and doors for directing the flow of soil overboard to either side, or to the ship's own hopper to either side fore and aft. The mud shoot doors are operated by special steam driven winch for the large main doors, and by small hand winch or rope tackle for the smaller doors.

The bucket ladder, with its string of buckets, is suspended from the main frame at the top end, and free to hinge about the same. The lower end is raised and lowered to the necessary dredging



Canadian Government Twin Screw Hopper and Barge Loading Dredger No. 16.

breadth moulded 48 ft., and depth moulded 20½ ft. It is of the self propelling, center bucket ladder, self loading, or barge loading, type. It will be capable of dredging and discharging into barges on either side, at the rate of 1,500 tons of soft material an hour, or a proportionately less amount of gravel, stiff clay and other hard material. It will also be capable of digging a channel to a maximum depth of 57 ft. below the water surface, and also of cutting its own flotation through shoals and discharging into its own hopper or on barges.

Two complete sets of 43 buckets each are provided, one set for soft material, each of 54 cu. ft. capacity, and the other set for stiff clay and hard material, each of 30 cu. ft. capacity. The speed of the buckets will be 18 a minute for the larger, and 12 a minute for the smaller.

outfit of engine and boiler room auxiliaries has been installed, and a commodious workshop, with power driven lathe, drills and other useful appliances, is fitted up in the engine room.

The dredging machinery, one of the leading features of this type of ship, is of special design and make, and consists of a train of spur wheels and pinions, forming reduction gear, with friction wheels for driving top tumbler on bucket ladder. The transmission gear consists of a clutch gear coupled to crank shaft of each main engine, arranged for two speeds of 12 small or 18 large buckets a minute, from thence by shafting and bevel wheel gearing to main gear already described. All gear wheels are of cast steel, with double helical teeth and shafting of fluid pressed steel, the whole being of extra massive construction.

depth, by a steam driven hoisting gear, with winding drum and wire rope led to top of forward frame on forecastle deck. The steam gear is in the forward hold, with control levers on upper deck.

The hopper well is of 1,500 tons capacity, and is stiffened by internal cross divisions and longitudinal girders. The hopper doors are of hardwood 5 in. thick, lined on the inside with ¾ in. steel plate, and operated by two powerful steam driven winches with chain leads, all of special design and make.

The mooring arrangements are very complete, consisting of bow and stern winches, steam driven and of ample power, together with bow and stern fairleads, all of special design and rugged construction, and capable of moving the ship when at dredging station, either forward and aft, or to port and starboard

direction, as required. In addition, the forward bow winch will also serve as a windlass to operate the two bower anchors used for ordinary navigation purposes. Four powerful warping capstans complete the mooring equipment.

A combined steam and hand steering gear is installed in engine casing, of the chain barrel type, with control rods to wheel house on navigating bridge.

Accommodation is provided for a crew of about 40, the officers and engineers

Floating Drydock for North Vancouver.

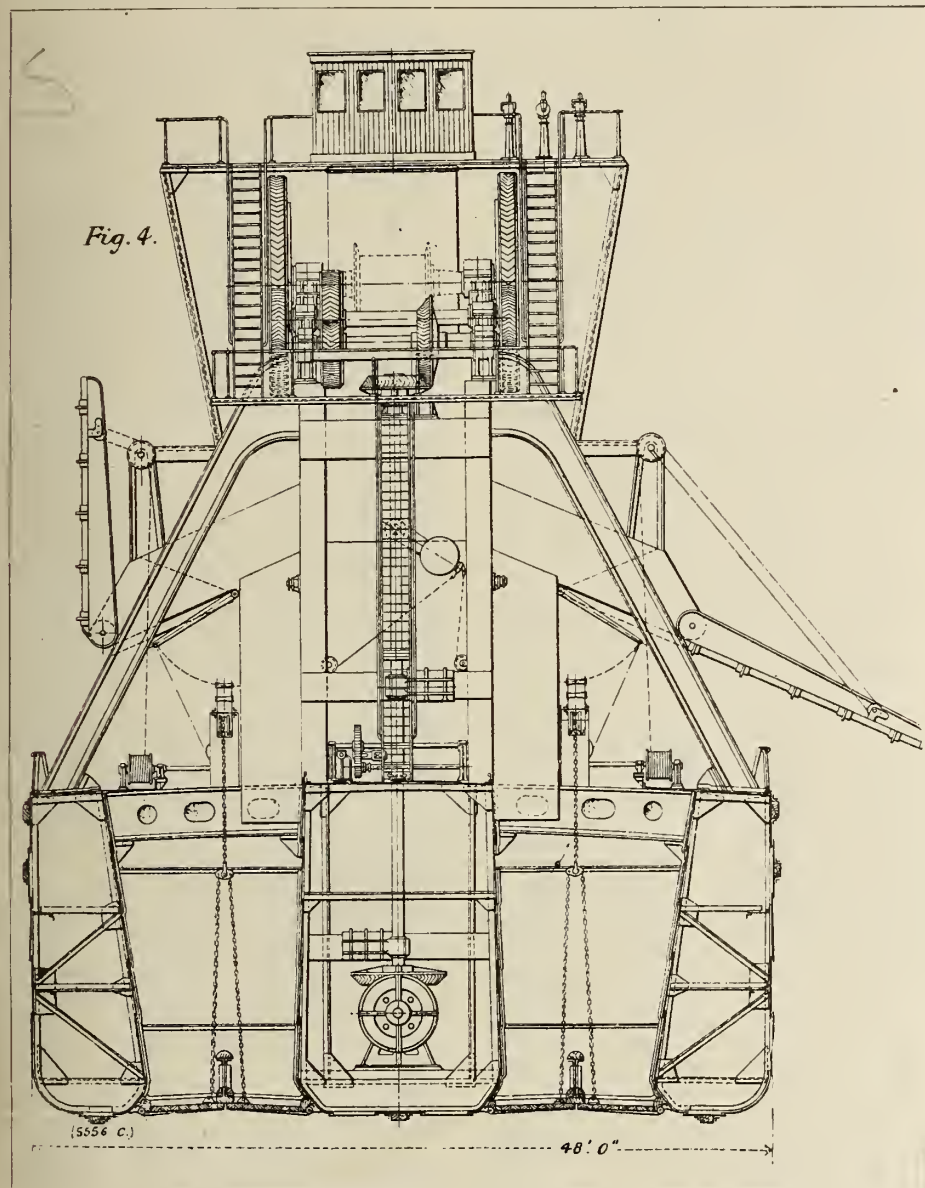
We are officially advised that the Dominion Government, on Dec. 2, entered into an agreement with the Burrard Drydock Co. Ltd., for the payment of a subsidy at the rate of 4½% on \$2,500,000 for 35 years, in aid of the construction of a sectional floating self-docking drydock, with a lifting capacity of 15,000

dock, and to enter into an agreement with the Dominion Government under the Drydocks Subsidies Act. C. Wallace, Wallace Shipbuilding & Drydock Co., North Vancouver; J. J. Coughlan, J. Coughlan & Sons, Vancouver, and R. S. Lennie, are among the directors.

An agreement was entered into between the Dominion Government and J. Coughlan & Sons Ltd., Vancouver, Oct. 27, 1920, for the construction of a stationary drydock of the second class at Vancouver, on similar terms, but the contractors did not see sufficient work ahead of them to warrant the expenditure, but considered that there would doubtless be ample work by effecting a combination with the Wallace Shipbuilding & Drydock Co., for the purpose of building a drydock, with the present result.

In addition to the construction of the drydock, there will be a considerable amount of dredging, and a reinforced concrete pier 700 ft. long by 50 ft. wide will also be built.

A. D. Swan, M.Inst.C.E., M.I.Mech.E., has been retained by the company as engineer for the work, and is preparing contract plans and specifications. It is expected that construction will be started at an early date.



Cross section, Canadian Government Dredger No. 16.

being berthed in state rooms on bridge deck, with commodious mess rooms. The seamen, firemen, etc., are berthed on the lower deck amidships, with mess room separate.

The accommodation, and the ship generally, is heated throughout with steam, and lighted by electricity, and the sanitary and ventilation arrangements are complete and efficient.

The dredger was designed by Wm. Simons & Co., Renfrew, Scotland.

The Pacific Export Lumber Co. is stated to have chartered the British Canadian Steamship Co.'s s.s. Margaret Coughlan, at the rate of \$15, for carrying lumber from British Columbia and Puget Sound ports to the Orient.

tons, at North Vancouver, B.C. It is provided that the work is to be commenced within 6 months and completed within 2 years from the signing of the agreement. The drydock is to be of the following general dimensions,—length over keel blocks, 500 ft.; length over walls, 435 ft.; width over all, 132 ft.; width between side walls, 100 ft.; draft of drydock afloat and fully loaded 15 ft. The work will be done under the general supervision of the Dominion Public Works Department's District Engineer at New Westminster.

The Burrard Drydock Co. Ltd. was incorporated under the Dominion Companies Act, in Oct. 1920, with \$1,000,000 authorized capital, and office at North Vancouver, B.C., to build a floating dry-

The s.s. Lady Evelyn, until recently owned and operated by the Gulf of St. Lawrence Shipping & Trading Co., has been sold by the Anderson Co. of Canada to the Howe Sound Navigation Co. for operation between Squamish and Vancouver, B.C., in connection with the Pacific Great Eastern Ry. The Lady Evelyn was built at Birkenhead, Eng., in 1901, when she was named Deerhound. She was owned by the West Cornwall Steamship Co. and operated in the passenger, mail and freight trade between Penzance, Cornwall and the Scilly Isles. She was bought by the Dominion Post Office Department in 1907, for use as a mail tender at Rimouski, Que., and was sold by the Department to the Gulf of St. Lawrence Shipping & Trading Co. about two years ago. She is a steel twin screw steamship, and has the following dimensions,—length 189 ft., breadth 26.1 ft., depth of hold 9.5 ft., draft 8½ ft.; tonnage 483 gross, 39 register. She is fitted with triple expansion engines, with cylinders 16, 24 and 38 in. diam. by 24 in. stroke, and supplied with steam by two return tubular boilers at 160 lb. The hull is divided by 5 watertight bulkheads and she has 2 decks, the promenade one being 139 ft. long. She is fitted with electric light throughout, and has steam steering gear and capstans fore and aft.

Great Lakes Levels.—The U.S. Lake Survey reports the stages of the Great Lakes, in feet above mean sea level, for Nov. 1921, as follows:—Superior, 602.20; Michigan and Huron, 579.64; St. Clair, 574.55; Erie, 571.80; Ontario, 244.65. Compared with the average November levels for the past 10 years, Superior was 0.39 ft. below; Michigan and Huron, 0.67 ft. below; Erie, 0.12 ft. below; Ontario, 0.80 ft. below.

Government Construction Material for Sale.—The Purchasing Commission of Canada, Ottawa, has prepared lists of Government construction equipment for sale at Rimouski and Quebec, Que., and Bowmanville and Toronto, Ont., consisting of surplus contractors' construction equipment, including gasoline and steam tugs and launches, scows, suction dredges, derricks and miscellaneous supplies.

The Grounding of the s.s. Glenlivet and Raising of Barge Thomas Quayle.

Canadian Railway and Marine World for Dec. 1921 stated that the Great Lakes Transportation Co.'s s.s. Glenlivet collided with the U.S. barge, Thomas Quayle, in tow of the s.s. George King, near Toledo, Nov. 1, the barge being sunk and the Glenlivet forced aground against the crib lights by the force of the collision. We have since been advised that the details given were not correct. The facts are that the barge Thomas Quayle, coal laden, in tow of the s.s. George King, while coming out from Toledo, in the face of a stiff breeze, sheared over against the lighthouse crib, which is five miles from the mouth of the harbor. Her port bow hit hard on the pier and then swung around with the current and she sank in 22 ft. of water, completely blocking the west channel. The s.s. Glenlivet, inbound to Toledo, tried to pass the barge and went aground. Tugs were secured and the Glenlivet was released and entered Toledo by the outbound channel. We are informed that the s.s. Glenlivet did not touch the barge and that there were no lights on the wreck. Immediately after the Glenlivet was released a gas buoy was placed near the wreck.

The contract for raising the barge Thomas Quayle was awarded by the Engineer in charge for the U.S. Government to John E. Russell, harbor contractor, etc., Toronto. The wrecked barge lay about 5 miles out of Toledo harbor in Lake Erie, in a very exposed position in 22 ft. of water. It was found necessary to transfer the cargo to another barge. Coverings were then put over all the hatches and openings, leaving a cofferdam in the forward hatch for pump suction. The hole in the port bow was 6 x 12 ft., and in addition there was considerable bottom damage which had to be repaired. Three attempts were made with the pumps before the barge was raised. In the third attempt the gang left Toledo harbor at 10 a.m. for the wreck and had the barge back in Toledo harbor at 6 p.m. the same day, using 5 pumps and two 6 in. siphons. Steam was furnished for the whole wrecking outfit by the contractor's own steam tug J. L. Russell, and the work was completed within 28 days from the time the outfit left Toronto, and in the whole of that time the contractor had only 8 working days.

Mainly About Marine People.

Sir Montagu Allan, Montreal, formerly of Allan Line Steamship Co., is stated to be the largest individual shareholder, with 2,625 shares, in the Merchant's Bank of Canada, of which he is President, and which on account of losses it has incurred, is proposed to be absorbed by the Bank of Montreal. Other shareholders associated with marine interests are Bryce Allan, Beverly, Mass., also formerly of Allan Line Steamship Co., with 1,050 shares; estate of Thos. Long, formerly a director of Northern Navigation Co., and Collingwood Shipbuilding Co., 1,000 shares; estate of Sir Frederic Orr-Lewis, formerly President, Canadian Vickers Ltd., 1,756 shares; and Lady Orr-Lewis, 1,800 shares.

C. E. Dalton, heretofore Steamship Inspector, Boilers and Machinery, St. John, N.B., has been appointed Steamship In-

spector (General), there.

Capt. Jos. Dix, who died at Kingston, Ont., Dec. 13, aged 80, sailed his own ships on the Great Lakes and St. Lawrence River for over 50 years.

Capt. Jas. Hyslop, of the Cairn Line s.s. Cairnross, who fell down a ladder into the hold of his ship, at Portland, Me., Dec. 13, and was almost instantly killed, was well known in Montreal.

N. Lachance has been appointed examiner of masters and mates for the port of Quebec.

W. G. Ross, ex-President, Montreal Harbor Commission, has resigned from the Black Lake Asbestos & Chrome Co.'s directorate, and A. E. Francis of McLean, Kennedy & Co., shipping agents, Montreal, has been elected to succeed him.

C. D. Secord, Special Representative, and D. C. MacKenzie, Auditor, Canada Steamship Lines, Toronto, are directors of Canadian Oil Field, Ltd., which has been incorporated under the Ontario Companies Act, and is offering stock for sale.

The International Petroleum Co.'s s.s. G. Harrison Smith, which was built in the U.S., and registered in Canada, as mentioned in our last issue, is a combination ore and oil carrier, and is the first of four similar ships to be built for the company. She is designed to carry a full cargo of either ore or oil in separate compartments, the ore being carried in a narrow elevated hold 360 ft. long by 30 ft. wide. The hull is divided, by watertight bulkheads, into three compartments, each of which has three hatches extending the full width of the ore hold. The space for oil, which is alongside and below the ore space, is divided by a longitudinal bulkhead, extending from the keel to ore hold. The fore and aft compartments are for fuel oil and the center compartment for cargo oil. The wing spaces, acting as expansion trunks on account of their depth, afford the greatest possible flexibility for carrying liquid cargoes of varying density, and adjusting the trim under all conditions.

United States Merchant Marine Losses. The U.S. Coast Guard Service report for the year ended June 30, 1921, shows that 222 U.S. merchant ships, aggregating 122,397 tons, were lost during the year through foundering, strandings, collisions and other causes, and that in addition 555 other U.S. merchant ships were involved in casualties, resulting in damage to the extent of \$300 or more. There were 777 casualties, in which 206 persons lost their lives, 7 of whom were passengers. The value of property lost was \$34,923,031, of which \$28,662,733 represented the value of the ships. Of the ships lost, 49 foundered, 63 stranded, and 19 were lost in collisions. There were 75 ships lost on the Pacific coast, 16 on the Great Lakes, 35 on rivers, and 61 at sea or in foreign waters.

German Ships Sold in Great Britain.—A London, Eng., press dispatch says that with the recent sale of 16 large German steamships to British buyers, Lord Inchcape has disposed of all the 465 former German ships allocated to him by the Government for sale, except one ship. Four prize steamships, including Field Marshal, 6,100 tons, have also been sold. At the prices obtained, these latest sales are considered very satisfactory in view of the state of the market.

Grain Shipments Through Port McNicoll.

Following are particulars of grain shipped through Port McNicoll, Ont., by the C.P.R. from Sept. 1 to Nov. 30, 1921, and 1920, respectively:—

	1921	1920
Bushels shipped	25,907,651	7,355,901
Bushels shipped per day	284,699	80,834
Total cars shipped	13,631	4,773
Cars shipped per day	150	53

Panama Canal Tolls.—The U.S. President has signed an order, exempting from payment of tolls, ships which make the transit of the canal from Cristobal to Balboa and return, for the sole purpose of having repairs made at the Balboa drydock and shops. Charges will, however, be made for pilotage, lockage and towage, when used. Under the law governing tolls it was necessary to collect tolls on ships which made the transit solely for repairs, and in some instances where a ship had made the transit from the Pacific to the Atlantic, and met with an accident at the Atlantic end, necessitating its return through the canal to Balboa, it was necessary to collect tolls again for the extra transit, which acted as a burden on shipping and a handicap to the drydocking and repair facilities provided at the canal.

Wreck Commissioners' and Nautical Assessors' Status and Jurisdiction. We are officially advised that this matter, comment on which was made in Canadian Railway and Marine World for Dec. 1921, following the judgment of Mr. Justice Morrison of the British Columbia Supreme Court, in the appeal of the master of the s.s. Canadian Exporter, against the suspension of his certificate, is engaging the Justice Department's attention at Ottawa. In this connection it may be mentioned that the Dominion Marine Association has taken the ground that the master of a ship concerned in an investigation should be given a full opportunity to defend himself, as contemplated by the statute.

Navigation Coal Co. Ltd. has been incorporated under the Dominion Companies Act, with capital stock of 500 shares without nominal or par value, provided it shall carry on business with a capital of \$2,500, with office at Montreal, to act as importer and exporter of general merchandise, to transport passengers, mail and general freight, towing, wrecking and salvaging, and general carrier by land and water and in connection therewith to own and operate ships, elevators, coal bins, etc. The incorporators are: F. B. Common, F. G. Bush, H. W. Jackson, G. R. Drennan, A. G. Yeoman and W. P. Creagh, Montreal.

The Suez Canal Co. has announced that from Jan. 1 the maximum draft for ships passing through the canal will be increased by 1 ft. to 31 ft.

Docking at Queenstown.—A London, Eng., press dispatch of Dec. 12, announced the immediate cancellation of the British Admiralty's order of Sept. 10, 1920, providing that no ship carrying passengers eastward should enter the port of Queenstown, Ireland.

Storage & Truckportation Ltd. has been incorporated under the Ontario Companies Act, with \$20,000 authorized capital, and office at Ottawa, to carry on business as warehousing, transporting and forwarding agent in all its branches. The provisional directors are: J. M. Taylor, F. H. Day and M. H. G. Taylor.

General Shipbuilding Matters Throughout Canada.

B.C. Marine Engineers & Shipbuilders Ltd., Vancouver, B.C., has overhauled and repaired the Hudson's Bay Co.'s motorship *Lady Kindersley*, which sustained some damage on her recent trip to the Arctic. The cost of repairs is reported to have approximated \$15,000.

Canadian Vickers Ltd., Montreal.—We were advised Dec. 12, 1921, that no date had been fixed for the laying of the keel of the icebreaking steamship for the St. Lawrence River, the contract for which was placed by the Marine Department at the end of Nov. 1921. The building of this ship will employ on an average between 500 and 600 men, and it is expected that she will be ready for delivery during November this year. A description of this ship was given in *Canadian Railway and Marine World* for Dec. 1921, pg. 670.

Collingwood Shipbuilding Co., Collingwood, Ont., was assessed by the City of Toronto for \$252,000, in connection with its use of the Dominion Shipbuilding & Repair Co.'s plant in Toronto, for finishing, on a cost plus basis, the two steel cargo steamships for Canadian Government Merchant Marine, which were only partly built when the latter company became bankrupt. The City Court of Revision has cancelled the assessment.

Davie Shipbuilding & Repairing Co., Lauzon, Que.—The Canada Steamship Lines barges *Hamilton* and *Thunder Bay*, which have been practically rebuilt at the Davie yards, as mentioned in our last issue, were formerly tow barges, but have had engines and boilers installed. The *Hamilton* has been reduced in length by 48 ft., and in depth by 5½ ft., her dimensions now being,—length 250 ft., breadth 40 ft., depth to top of trunk 20½ ft. The *Thunder Bay* has been reduced in length 60 ft., her dimensions now being, length 242 ft., breadth 40 ft., depth 25 ft. The work on both ships has been completed and they have been handed over to their owners for service between Montreal and the Great Lakes.

Northern Boatbuilding Co., Edmonton, Alta., is building an auxiliary powered schooner for Denis Inniktok, an Eskimo hunter at Shingle Point, near the mouth of the Mackenzie River. It will be 40 ft. long, schooner rigged, with two masts carrying main, fore and jib sails. It will be equipped with a 12 h.p. engine for auxiliary power, and all up to date appliances. This is the fourth boat of a similar type which the company has built for Eskimos in the Arctic regions who seem to have mastered the intricacies of a gasoline engine, and show considerable ability in the use of the compass, weather glass, etc. The new methods show a considerable advance on the kayaks, generally built of walrus hide. When completed, the boat will be forwarded to McMurray and towed from there by one of the Northern Trading Co.'s ships to the Arctic.

Port Arthur Shipbuilding Co., Port Arthur, Ont., has recently repaired the Algoma Central Steamship Co.'s s.s. *W. C. Franz*, which collided with a wreck in Lake St. Clair and suffered considerable damage to her hull.

Port Arthur Shipbuilding Co., Port Arthur, Ont., is stated in a Port Arthur press dispatch of Dec. 22 to have received an order from Mathews Steamship Co., Toronto, for a steel bulk freight steam-

ship for Great Lakes service, to be 550 ft. long over all, 58 ft. beam, and 31 ft. deep; with 3 Scotch boilers, each 13½ ft. diam. and 11 ft. 2 in. long, and each boiler to contain 3 interchangeable furnaces, to work under 185 lb. steam pressure, the engine to be triple expansion, 25½ x 41 x 56 in. by 42 in. stroke. It is also stated that she will be built under J. H. Smith's supervision to the American Bureau of Shipping's classification A100.

The Port Arthur Shipbuilding Co. will install new boilers during the winter in the Mathews Steamship Co.'s s.s. *Huron*.

Quebec Shipbuilding & Repairing Co. Ltd. has been incorporated under the Quebec Companies Act, with \$500,000 authorized capital, and office at Quebec, Que., to carry on a general shipbuilding, repairing, chartering and navigating business; to own and operate ships, dry-docks, shipyards, etc. The incorporators are: G. Leclerc, O. Lemay, P. Lesage, A. Miville and F. Choquette, Quebec, Que.

Reid Newfoundland Co., St. John's, Nfld., has thoroughly overhauled and repaired, the *Belle Island Shipping Co's* s.s. *Mary*.

Victoria (B.C.) Shipowners Ltd., Victoria, B.C.—We were officially advised Dec. 14 that no decision had been arrived at by the Marine Department in regard to the tenders which were invited for the completion of the second barquentine *Sir Henry Drayton*, which this company was building at the Cholberg Shipyards, under special contract with the Dominion Government, at the time of its failure, and which has, with the remaining two unfinished, and one finished, been taken over by the Government.

Wallace Shipbuilding and Drydock Co. North Vancouver, B.C. After completing her trials, when she achieved an average speed of 17 knots an hour, the s.s. *Princess Louise* was delivered to the C.P.R. for its British Columbia Coast Service, Dec. 2. The contract with the builders did not include the upholstering and fitting which is being done at Victoria. On her trial a number of guests met in the dining saloon and in accepting the steamship from the builders, Capt. J. W. Troup, Manager, C.P.R., British Columbia Coast Service, spoke of the difficulties he had experienced in attempting to place the order for the building of the ship in Great Britain, on account of strikes and labor conditions in general. The builders of the ship quoted the lowest price of those tendering for actual construction within a given time.

This company is reported to have been given a contract for overhauling the Dominion Government s.s. *Newington*. It is also reported that the company will overhaul the U.S. lighthouse tender *Cedar*, which is stationed at Ketchikan, Alaska.

St. John Drydock & Shipbuilding Co. sold recently to Aemilius Jarvis & Co., Toronto, \$392,825.68 first mortgage 5½% serial gold bonds at 95.13, maturing from Jan. 5, 1922, to Jan. 5, 1956, the principal and interest being payable by the Dominion Government by semi-annual subsidy, which is assigned to a trust company. They were offered to the public to yield 5.75%.

Prairie Grain Shipments Through Vancouver.

After years of controversy, with on the one hand ingrained conviction that Canadian grain would never leave from the Pacific coast, and on the other a sanguine assurance that ultimately this would come to pass, Vancouver is coming into its own as a port of outlet for part of the crop of the prairie provinces. Though the first shipment was made a few years ago, development since that time, and the volume of grain in prospect for export from the Pacific, leave no doubt as to the future status of Vancouver as a grain shipping port.

The movement of the first big shipment of Canadian wheat to Europe by way of the Pacific was watched with considerable interest, and attention from many quarters was directed to its reception at the English port. There was general apprehension that it would suffer passing through the tropical region of the Panama zone, but, when it was unloaded in England, grain experts stated that grain had never been received there in better condition. Pacific coast exporters breathed easily, and saw a future opened up for the Pacific coast in sharing with the east the business of carrying the grain product of the west to Europe. Other shipments followed immediately upon the first, and by the end of 1920 16,000 tons of grain, mostly wheat, had left Vancouver for Europe via the Panama Canal.

In 1921 shipments from the Pacific coast to Europe began just as soon as the movement of the threshed crops from the prairies got under way and the export business has been busy since that time. Grain dealers at the coast estimate that during the current season, approximately ten times as much grain will pass through Vancouver for Europe as left last season. This will amount, according to estimate, to at least 160,000 tons. There will be about 40 cargoes.

Another departure in the export of grain in 1921 was the shipment of sacked wheat from Vancouver to Japan. Hitherto Japan has been contented with the softer U.S. grains, but that the Canadian product is now held in high favor is evidenced in the extensive demand, November consignments to the Orient from Vancouver totalling 7,000 tons. In the same month a shipment of 2,000 tons left England, whilst shipments commenced in 1920 to San Francisco mills are continuing.

The success of initial export shipments of Canadian grain from Vancouver to many parts of the world leaves no shadow of doubt as to the great future of the port, lying so convenient to the western granaries, as an outlet for a portion of their annual crop, and the success of shipment through the Panama Canal to Europe is fraught with significance to the Dominion grain export movement. Every year a certain amount of congestion occurs with the enormous product of the prairie provinces flooding the terminal elevators and export shipping points at the same time. The heavy increases in annual production which will probably continue in greater proportion in the future, will tax the eastern ports of outlet to a yet greater extent, and the success of Vancouver shipments will considerably relieve the situation as well as substantially augment the importance of the British Columbia port.—From *Agricultural and Industrial Progress in Canada*.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

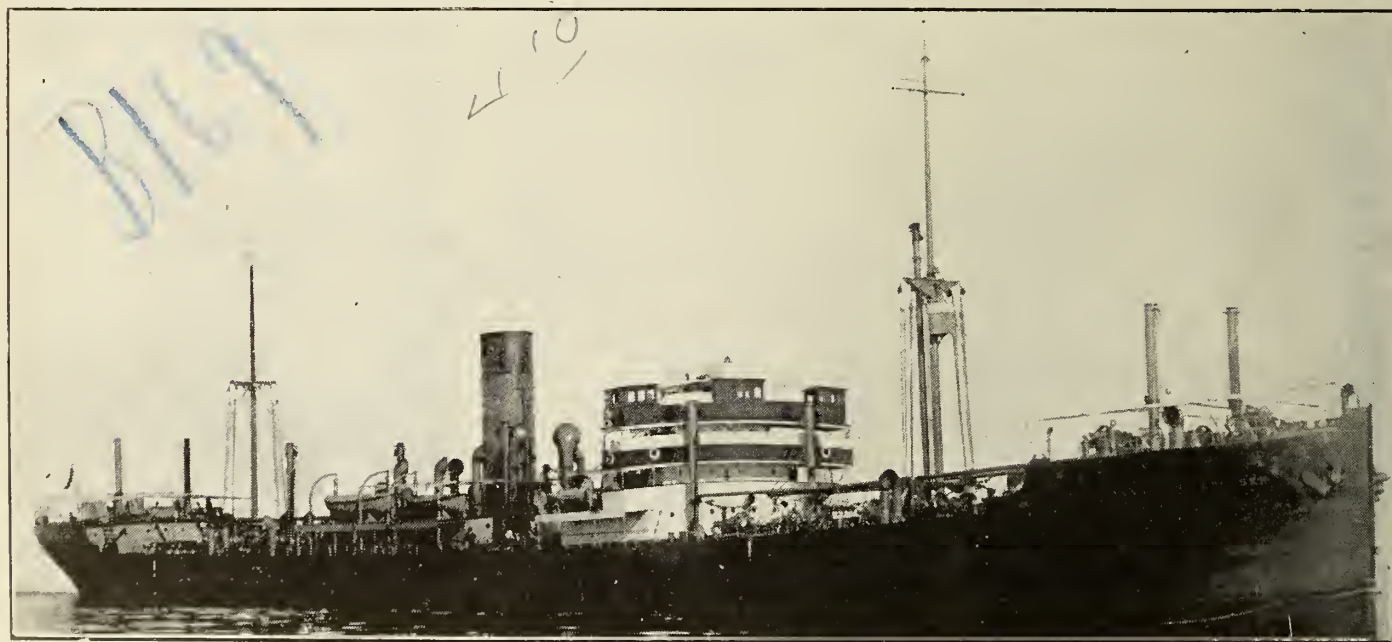
Officers of Steamships.—The following appointments of masters and chief engineers have been made in addition to those given in previous issues:—Canadian Aviator, chief engineer, W. R. Jones; Canadian Coaster, Capt. S. B. Corkum, vice Capt. B. S. Potts; Canadian Explorer, chief engineer, E. Sutherland; Canadian Fisher, chief engineer, L. O. Lamoreux; Canadian Hunter, chief engineer, W. Fotheringham.

The barkentine *Simon F. Tolmie*, one of the wooden ships built at Victoria, B.C., under special aid from the Dominion Government, and which was handed over to Canadian Government Merchant Marine for operation on the failure of Victoria (B.C.) Shipowners Ltd., was found drifting and out of control in the Strait of Juan de Fuca, at the end of November. She was picked up by the

bunkers. From Sydney she went to Rockland, Me., to make standardization runs over the Rockland measured mile, it being the only one in the vicinity suitable for the trials of a large ship loaded to over 29 ft. On the full speed trials she developed an average speed of 12.3 knots. She also had to run fully loaded at full speed for 6 hours at sea without a stop, in the course of which the machinery was required to be run cool and satisfactory without the application of water. After the completion of this run off Halifax, she discharged her cargo of coal there, and was then changed to burn oil instead. She was partly loaded at Halifax, with a general cargo of Canadian manufactured goods for New Zealand and Australia, and proceeded to New York, where she took on additional cargo, consisting of petroleum, and sailed from that

Marine Public Works Contracts.

The Public Works Department has given contracts as follows:—Repairs to wharf at Port Hood, N.S., Oct. 31, 1921, to T. D. Morrison, D'Escousse, N.S., at schedule of prices; reconstruction of eastern breakwater at Collingwood, Ont., Nov. 16, 1921, to W. Bermingham, Kingston, Ont., at schedule of prices; repairs to wharf at Providence, Ont., Nov. 16, 1921, to McNamara Bros. and Thornton, Sault Ste. Marie, Ont., at schedule of prices; extension to shore end of western wharf, Grosse Isle quarantine station, Que., Nov. 17, 1921, to Jos. Gosselin Ltd., Quebec, Que., at schedule of prices; construction of third section Steveston jetty at mouth of Fraser River, B.C., Nov. 24, 1921, to J. S. Connell Ltd., Vancouver, B.C., at schedule of prices; extension to western wharf at Notre Dame des Sept Douleurs, Que., Nov. 26, 1921, to N. Le Tourneau & J. A. Fortier, Montmagny, Que., at schedule of prices; repairs to town wharf, Parry Sound, Ont., Nov. 30,



Canadian Government Merchant Marine Steel Cargo Steamship Canadian Cruiser, approximately 10,500 d.w. tons.

Pacific Salvage Co.'s s.s. *Algerine*, and towed into Victoria.

The s.s. *Canadian Farmer*, which grounded at the entrance to Nanaimo Harbor, towards the end of November, was released a few hours later, without damage.

The s.s. *Canadian Rover*, bound for Ocean Falls, B.C., was reported aground at Duncan Bay, about 10 miles north of Cape Mudge, Dec. 6, with the U.S. coast-guard cutter *Snohomish* standing by.

Halifax Shipyards Ltd., Halifax, N.S., as stated in Canadian Railway and Marine World for Dec. 1921, delivered the s.s. *Canadian Cruiser*, Marine Department contract 38, builder's yard no. 3, approximately 10,500 d.w. tons, to the Marine Department Oct. 22, 1921, subject to satisfactory loaded speed trials being run. The ship was ordered to be built to burn coal, and arrangements were subsequently made for the installation of oil burning apparatus, but the speed trials were to be run using coal. After delivery to the Department, she loaded about 1,600 tons of fuel oil at Halifax, and then proceeded to Sydney, where she loaded 8,221 tons of coal and 347 tons of

port, on Dec. 7, for New Zealand, and thence to Australia.

Halifax Shipyards advised us Dec. 16 that it expected to complete the steel cargo s.s. *Canadian Constructor*, Marine Department contract 39, builder's yard no. 4, approximately 10,500 d.w. tons, for Canadian Government Merchant Marine, by the end of the month.

The Navigation Coal Co. Ltd., which has been incorporated under the Dominion Companies Act, with 500 shares of no nominal or par value, provided that it shall carry on business with a paid up capital of \$2,500, and office at 137 McGill St., Montreal, has been formed to handle the Canadian business of A. C. Elliott & Co., shipping agents, and the Cory Mann-George Corporation, wholesale coal dealers, New York, who ship coal from Atlantic ports to New Brunswick, Nova Scotia and St. Lawrence ports, selling coal in cargo lots to large industrial concerns. W. E. Henry, Managing Director, Montreal, represented a number of U.S. coal mining concerns in France during the war.

1921, to R. G. Weddell, Trenton, Ont., and R. G. Saunders, Toronto, at schedule of prices; reconstruction of wharf at Cowichan Bay, B.C., Nov. 30, 1921, to Fraser River Pile Driving Co., New Westminster, B.C., at schedule of prices; dredging slips at foot of Queen and Princess Sts., Kingston, Ont., at \$1 a cu. yd., and dredging channel to Government wharf and basin and removal of old piles and crib pier, Collings Bay, Ont., Dec. 15, 1921, at 50c. a cu. yd., to Frontenac Dredging Co., Kingston, Ont.

The loss of the C.P.R. s.s. *Princess Sophia* was before a U.S. court at Seattle, Wash., again recently on the C.P.R.'s appeal as to the limitation of its liability for damages. The ship was lost on the Vanderbilt Reef in the Lynn Canal, in Oct. 1918, and claims for approximately \$5,000,000 have been made by passengers and others, for loss of property, life, etc. The latest judgment, against which an appeal has been refused, limits the liability as to passengers, baggage and cargo, to the value of the ship, the passengers' fares and the cargo tariffs charged.

The United States Merchant Marine and Ocean Freight Trade.

A conference was held at Washington, D.C., Dec. 1, between the Shipping Board's committee on interstate conferences and representatives of the leading U.S. railways, to discuss the position of the U.S. Merchant Marine and the railways with regard to freight traffic handled by the railways to the seaboard for ocean shipment, with a view to prevailing upon the railways to abrogate their contracts with foreign steamship companies, and to hand over such traffic to U.S. ships. It is said that about 28 railway companies have contracts, or understandings, with other than U.S. steamship companies, for the interchange of passengers and freight, some of which have been in force for nearly 30 years. Most of these contracts are stated to be of an ordinary type, while several of them call upon the railway companies to aid in the reduction of local taxes, to supply fuel below cost, free wharfage and other privileges.

The Chairman, F. I. Thompson, Alabama, stated that any exclusive or preferential contract or agreement between a U.S. railway company and a foreign shipping company was a menace to U.S. ships, resulting in a diversion of U.S. traffic to other ships operating in competition. He pointed out that the Merchant Marine Act of 1920, Sec. 28, clearly defines the intention of Congress, viz., that U.S. railways be preferential feeders of tonnage for U.S. ships. The committee's object is to secure such corrective and co-operative measures as will ensure that the rail carriers shall be used for the extension of U.S. commerce in ships operated under U.S. registry. Six of the railways represented favored the cancelling of such contracts or agreements, two announced that their contracts had expired and had not been renewed, and one desired to discuss the matter further on account of its peculiar situation, and desired the U.S. Shipping Board to guarantee it an equally advantageous arrangement in return for cancellation.

D. O. Wood, General Foreign Freight Agent, Canadian National-Grand Trunk Rys., Montreal, who represented the G.T.R., is reported to have stated that rather than that the agreement between the G.T.R. and the White Star-Dominion Line should be cancelled, he believed the steamship line would transfer its terminal from Portland, Me., to a Canadian port.

A. Fries, Vice President in charge of traffic, Baltimore & Ohio Rd., stated that his company has three agreements with foreign lines. One agreement, with the North German Lloyd, expired at the commencement of the war, and has not been renewed. Present agreements are with the Donaldson Line, Furness, Withy & Co., and the Scandinavian-American Line, and he stated that the first two companies are agreeable to the cancellation of the contracts. With regard to his company's contract with the Scandinavian-American Line, he could not speak, as he had been unable to get in touch with the principals. He claimed that his company in no way discriminated against any steamship company using the port of Baltimore and his company's docking facilities. He agreed to recommend the cancellation of such contracts, and in the event of steamship companies refusing to submit, he would call upon the Board for its sup-

port in enforcing their abrogation.

W. P. Kenney, Vice President and Director of Traffic, Great Northern Ry., stated that it had a contract with the Nippon Yusen Kaisha, entered into originally by Jas. J. Hill. This Japanese line acts as the agent of the road in the Orient, and thus gives the Great Northern practically all of its inbound tonnage. When the Chairman told Mr. Kenney that the Great Northern was in direct competition with the U.S. Government in its efforts to build up a merchant marine, the latter pointed out that up to a short time ago there had been no other service available than the one provided by the Japanese line. He also said that the U.S. Shipping Board could not enter into such a contract, and would be as likely to turn its business over to the Canadian Pacific as to the Great Northern. The Chairman stated that the U.S. Shipping Board boats could take care of

the bulk of the traffic would go through the Panama Canal, and inland from the east coast of the U.S. He said that the C.M.&St.P.R. did not want to lose the business arising out of its relation with the Japanese line, until it had something with which to replace it. If the arrangement were discontinued, the C.M.&St.P. would lose the inbound traffic, and would stand a great chance of losing the export traffic, 80% of which originates east of Chicago, as he doubted whether the railways and the U.S. Shipping Board could control it if foreign steamship companies wanted to handle it through Canada. He would give no assurance as to the working agreement being dropped, and asked for time to discuss the matter.

F. I. Thompson, the Chairman, issued a statement subsequently indicating his belief that the Great Northern would abrogate its contract with the Japanese line.

The line adopted by the Board is well within its competency, and the reorganization of the Board's operations is proceeding on the basis of, as far as possible, confining the shipment of ocean traffic, originating in the U.S., to U.S. ships.

The Board's Bureau of Traffic will handle all traffic matters and will determine the trade routes which should be developed, scrutinize all conferences and agreements in foreign and domestic trades and investigate all complaints of discrimination in rates or unfair prices, following closely the activities of the Interstate Commerce Commission, due to the effect of rail rates on shipping.

The Bureau of Operations will study the relative cost of operation of U.S. and foreign ships, particularly with regard to labor costs, industrial relations with regard to marine and dock labor, and will study port, pier and terminal facilities.

The Bureau of Construction will study the relative cost of shipbuilding at home and abroad, particularly the cost of building ships of the most efficient types, pass upon transfers of U.S. ships to foreign ownership or registry, and the designs of ships to be built under the provisions of the construction loan fund provided by the Jones Act, but which has not yet come into existence.

This matter, along with others of an international character, such as the question of the free passage of U.S. ships through the Panama Canal, were kept in abeyance during the Disarmament Conference at Washington, but are now being resumed with a view to their solution from a U.S. viewpoint.

An amendment to the Railroad Refunding Bill was proposed in the U.S. Senate recently, by Senator J. E. Ransdell of Louisiana, providing that no portion of the fund arising from the sale of bonds, notes and securities, under the terms of the bill, shall be used to settle with transportation systems which have preferential agreements with foreign steamship lines so long as such contracts continue in effect.

Max Eisenberg was fined \$20 and costs at Moose Jaw, Sask., recently, for selling a Canadian National Ry.'s harvester's ticket.

Dominion Marine Association.

President, A. A. Wright, President, Tidewater Shipbuilders, and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

First Vice President, T. R. Enderby, Operating Manager, Canada Steamship Lines, Montreal.

Second Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Executive Committee, The President, First Vice President, Second Vice President, and W. E. Burke, Canada Steamship Lines, Montreal; Yvon Dupre, Sincennes-McNaughton Line, Montreal; W. B. Ellsworth, Imperial Oil Ltd., Toronto; L. L. Henderson, Montreal; G. J. Madden, George Hall Coal Co. of Canada, Montreal; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; Col. G. F. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transports, Montreal.

Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

all the Great Northern business, but Mr. Kenney said that the Japanese line gives the Great Northern business in return; business which the U.S. Shipping Board could not get until it had worked up a large trade in the Orient. Asked whether he did not know of the agitation against contracts with foreign shipping lines at the time that the contract with the Japanese line was renewed, Mr. Kenney said he had, but he pointed out that if the contract had not been renewed, it would likely have been made with the C.P.R. He promised to take up the matter with the G.N.R.'s President and to report to the Shipping Board.

R. M. Calkins, Vice President, Traffic, Chicago, Milwaukee & St. Paul Ry., stated that it had commercial relations, growing out of a contract which had lapsed, but which was tacitly continued in operation, with the Osaka Shosen Kaisha, another Japanese line. He said that the Japanese people naturally want to patronize their own ships, and that if the traffic carried in Japanese ships was barred by the western U.S. rail carriers,

Canadian Pacific Railway Ocean Steamship Services.

W. Webber, General Agent, Atlantic ports, Canadian Pacific Steamships, with his staff, left Montreal, Nov. 28, for St. John, N.B., for the winter season.

The Montreal-Southampton-Antwerp service will be maintained by the steamships *Melita* and *Minnedosa*, in addition to one sailing at the beginning of the season by the s.s. *Scandinavian*.

The s.s. *Empress of Britain* will make two winter trips to the West Indies, sailing from New York Jan. 21 and Feb. 21. She is to arrive at Quebec from Liverpool, May 19, and sail for Liverpool, May 26.

The Montreal-Glasgow service will be given by the steamships *Metagama*, *Corsican* and *Tunisian*. The *Metagama*, at present on the Liverpool route, will open the Montreal-Glasgow service, arriving in Montreal, Apr. 29.

The s.s. *Empress of Scotland* is scheduled to arrive at Quebec, from Liverpool, Eng. Apr. 29, and to sail on her first trip to Havre and Southampton, May 4, and the *Empress of France* is to arrive at Quebec, May 10, and sail on her new route, May 16, continuing on the Quebec-Havre-Southampton route throughout the year.

The s.s. *Montcalm* is scheduled to sail from Liverpool, Eng., Jan. 18 on her maiden voyage to St. John, N.B. She has a speed of 17 knots an hour and is equipped with a geared turbine. Her dimensions are,—length 566 ft.; breadth 70 ft.; depth 51½ ft.; and she has accommodation for 520 cabin and 1,550 third class passengers.

For 1922, the C.P.R. is planning a number of changes in its ocean services, which are operated by Canadian Pacific Steamships, Ltd. All of its new steamships will be completed and ready for operation during the year, after having been delayed in construction, owing to strikes and other labor difficulties in Great Britain, in some cases for over a year.

The s.s. *Monteagle*, when she arrived at Vancouver at the end of November, brought from Japan 61 carloads of miniature Japanese Christmas oranges. This is considered a large shipment and was the first for this season. About 50 of the carloads were for Alberta, Saskatchewan and Manitoba, the balance being for British Columbia. Another shipment of oranges, consisting of 50,000 bundles, arrived at Vancouver a few days later, by the s.s. *Empress of Asia*.

Eleven members of the C.P.R. s.s. *Monteagle's* crew were presented with medals, at Vancouver, B.C., recently, by the Lieutenant-Governor, on behalf of the Liverpool Shipwreck and Humane Society, for saving lives at sea under dangerous conditions, from the French steamship *Hsintien*, in the China Seas, in April 1921. The rescue was accomplished under circumstances which called for exceptional presence of mind, and skilful and courageous seamanship.

The steamships *Empress of France*, formerly the Allan Line s.s. *Alsation*, and the *Empress of Scotland* formerly the Hamburg-American Line s.s. *Kaiserin Auguste Victoria*, will be operated between Quebec, Havre, France, and Southampton, Eng. Pending the reopening of St. Lawrence navigation, they have been chartered to Frank Clark for

winter tourist trips from New York to the Mediterranean, and are scheduled to sail from New York on Feb. 11 and Feb. 4 respectively.

The German s.s. *Tirpitz*, which was bought by the C.P.R. recently from the Reparations Commission, and renamed *Empress of China*, has, it is reported, been further renamed *Empress of Australia*. It is expected that she will be placed in service during the summer, between Vancouver, Victoria and Oriental ports. She is at present at Hamburg, Germany, where she was built, being converted to an oil burner, the oil burning equipment being similar to that already installed in the company's s.s. *Empress of Britain*.

Capt. Jas. Gillies has been appointed master of the s.s. *Empress of France*, vice Capt. E. Cook, deceased. He has had a long service with the Allan Line, and remained with the C.P.R. when it acquired that line. Capt. Cook was taken ill on his last trip to Quebec, and recovered sufficiently to take his ship on the return trip to Liverpool, but died the day after landing. During the war he commanded the s.s. *Alsation*, since renamed *Empress of France*, while she was doing convoy work. He spent 37 years at sea, 29 of which were in Canadian service, with the Allan Line and the C. P.R.

The service which was given last year, between Montreal and Genoa, in conjunction with the Navigazione Generale Italiana, with the C.P.R. s.s. *Montreal*, formerly the German *Koenig Friedrich August*, and the Navigazione Generale Italiana's s.s. *Caserta*, has been suspended owing to insufficient patronage. It may be resumed in the summer, but much will depend on general trade conditions in Europe, at that time. Although nothing definite has been decided, it is reported that the s.s. *Montreal* may be transferred to the Antwerp route, and that the *Caserta* may be transferred to the Italian company's New York service.

The s.s. *Montclare* was launched at Clydebank, Scotland, Dec. 17, being christened by Lady Brown, wife of Sir George McLaren Brown, European General Manager, C.P.R., London, Eng. The *Montclare* is a geared turbine steel steamship with two funnels, and has the following dimensions, — length 566 ft., breadth 70 ft., depth 51 ft., and is approximately 16,000 gross tons, with a speed of 17 knots an hour. She has accommodation for 620 cabin and 1,550 third class passengers. She is a sister ship of the company's s.s. *Montrose*, a description of which was given in Canadian Railway and Marine World for Feb. 1921.

The Montreal-Liverpool service will be maintained by the new steamships *Montcalm*, *Montrose* and *Montclare*. The *Montcalm* will make her maiden trip to Canada during January, when she will arrive at St. John, N.B., and sail thence, for Liverpool, Feb. 1, remaining on that route until the reopening of St. Lawrence navigation. She is scheduled to arrive at Montreal, Apr. 30. The *Montrose* will sail from Liverpool on her maiden trip to Montreal, May 5, and the *Montclare* will be due in Montreal on her maiden trip from Liverpool, July 2. In addition to these new steamships on the Montreal-Liverpool route, there will be

two sailings by the steamships *Minnedosa* and *Scandinavian*, the former to arrive at Montreal May 7, and the latter June 3.

Press dispatches from London, Eng., have been appearing in the daily press lately, bearing the heading "Liverpool Regrets C.P.O.S. Desertion," and stating that "the announcement that C.P.R. steamships are to be diverted from docking at Liverpool to Southampton henceforth, has been received at Liverpool with regret, although it has been recognized for some time that this was inevitable." This of course is incorrect, as no arrangements have been made for such a change. As indicated elsewhere on this page, the C.P.R. steamships, *Empress of France* and *Empress of Scotland* are to be operated between Quebec, Havre and Southampton, and apart from these and the usual Southampton calls made by the C.P.R. steamships running to European continental ports, there is no change. The s.s. *Empress of France*, formerly the Allan Line s.s. *Alsation*, usually made Liverpool her English port, while the *Empress of Scotland*, formerly the German s.s. *Kaiserin Auguste Victoria*, has never called there, and is not yet being operated by the company. Apart from there being no desertion of Liverpool by C.P.R. ships, there will be more likely an addition to the number of its ships using that port.

The s.s. *Empress of Canada's* final trials were to take place Dec. 28, and it was expected that she would sail on her maiden voyage, between Jan. 15 and Feb. 1, from Liverpool, direct for Hong Kong. She has been built especially for the passenger and mail service between Vancouver, Japan, China and Manila, and will be the largest ship for this purpose on the Pacific Ocean. Her dimensions are,—length over all 653 ft., breadth 77¾ ft., depth to bridge deck 53½ ft. She was designed with a straight stem and cruiser stern, with 3 funnels and 2 pole masts. She has passenger accommodation for about 500 first class, 100 second class, 240 third class, and 930 Asiatic steerage passengers, as well as for a crew of about 550. She is equipped with geared turbines, driving twin screws. She was launched at Glasgow, Scotland, Aug. 17, 1920, and it was intended that she should have been ready for sea in Feb. or March 1921, when a round-the-world cruise was arranged for her maiden trip. Labor troubles and strikes, however, delayed all shipbuilding through Great Britain, and it was at one time feared that she would have to be sent to one of the continental shipyards to be finished. This was obviated by the settlement of the strikes a few weeks ago. A full description of her was given in Canadian Railway and Marine World for Sept. 1920, and an illustration was given in Nov. 1920.

Alberta Coal for Pacific Coast. — An Edmonton, Alta., press report says that the Alberta Government is negotiating in regard to new markets for Alberta coal, and that the Vancouver Harbor Commissioners are considering the construction of an extensive dock on which to store the coal for bunkering steamships and other purposes, and that a similar scheme is proposed for Prince Rupert.

Winter Moorings of Canadian Steamships.

Following is a list of Canadian steamships and the ports at which they are berthed for the winter, of which Canadian Railway and Marine World has been officially advised:—

Algoma Central Steamship Co., Sault Ste. Marie, Ont.—Agawa, W. C. Franz, at Midland, Ont.; Home Smith, J. Frater Taylor, at Port McNicoll, Ont.

Canada Atlantic Transit Co., Montreal.—Arthur Orr, Kearsage, at Chicago, Ill.

Canada Steamship Lines, Montreal.—Glenmount, Winona, at Collingwood, Ont.; Pandora, at Charlotte, N.Y.; Collingwood, Martian, W. D. Matthews, at Goderich, Ont.; Atikokan, at Halifax, N.S.; White Star, at Hamilton, Ont.; Arabian, Belleville, David G. Thomson, Edmonton, H. F. Bronson, India, John C. Mann, Kenora, Mapleboro, Mapleglen, Maplegorge, Maplegreen, Mapleheath, Maplehill, Melville S. Bacon, Montreal, R. G. A. Weaver, Ramona, Thunder Bay, Vinmount, at Kingston, Ont.; A. E. McKinstry, Glenellah, Narragansett, at Levis, Que.; Beaverton, Canadian, E. B. Osler, Emperor, J. H. G. Hagarty, Maplehurst, Midland King, Midland Prince, Sarnian, Valcartier, W. Grant Morden, Westmount, at Midland, Ont.; George T. Davie, Hamilton, at Montreal; Advance, Brighton, Cataract, City of Hamilton, City of Ottawa, Cobourg, Hilda, J. R. Edwards, Jeremiah Godfrey, Joyland, Maplebrook, Maplegrange, Mapleton, Minne E. Orton, Nadine, Oatland, Simla, at Port Dalhousie, Ont.; Maplebranch, at Sarnia, Ont.; Cape Diamond, Cape St. Francis, Longueuil, Rapids King, Saguenay, Tadousac, Turbinia, at Sorel, Que.; Cape Eternity, Cape Trinity, Montreal, Quebec, Rapids Prince, Rapids Queen, Three Rivers, at Three Rivers, Que.; Cayuga, Chippawa, Corona, Kingston,

Macassa, Modjeska, Toronto, at Toronto.

Canadian Pacific Car & Passenger Transfer Co., Prescott, Ont.—Charles Lyon, at Prescott, Ont.

Canadian Pacific Ry. Great Lakes Steamship Service.—Alberta, Assiniboia, Athabasca, Keewatin, Manitoba, at Port McNicoll, Ont.

Canadian Towing & Wrecking Co., Port Arthur, Ont.—A. F. Bowman, Co-teau (barge), Empire (barge), James Whalen, at Port Arthur, Ont.

Chicago, Duluth & Georgian Bay Transit Co., Chicago, Ill.—North American, South American, at Saugatuck, Mich.

Clarke Steamship Co., Quebec, Que.—Labrador, North Shore, Tremblay, at Quebec, Que.

Crystal Stream Steamship Co., St. John, N.B.—D. J. Purdy, Majestic, at Indiantown, St. John, N.B.

Donnelly Salvage & Wrecking Co., Kingston, Ont.—Cornwall, Frontenac, William Johnston, at Kingston, Ont.

Georgian Bay Tourist Co., Midland, Ont.—Midland City, at Midland, Ont.

George Hall Coal Co. of Canada, Montreal. Bignogan, Ignifer, John F. Morrow, John Rugee, Lehigh, Royan, at Canadian Vickers' dock, Montreal; A. D. Compton, Florence, Frank B. Ewen, Fred Mercur, Jas. W. Follette, Katie H., Rockferry, Senator Derbyshire, Wellington No. 1, at Montreal; J. B. Ketchum II, Margaret A. Hackett, Zapotec, at Ogdensburg, N.Y.

Glen Transportation Co., Midland, Ont., operated under management of A. E. Mathews, Toronto.—Cicoa, Glenafton, at Midland, Ont.; Glencadam, at Collingwood, Ont.; Glenclova, at sea.

Honey Harbour Navigation Co., Midland, Ont.—City of Dover, Tenno, Waterbus, at Midland, Ont.

Hudson's Bay Co., Winnipeg. — Fort McMurray, at McMurray, Alta.; Liard, at Fort Simpson, N.W.T.; Mackenzie River, at Fort Smith, N.W.T.; Inenew, Fort York, at Moose Factory, Ont.; Fort Churchill, at York Factory, Ont.

Imperial Oil Ltd., Toronto.—Talaralite, at Ioco, B.C.; Barge 41, Glen Allan, Imperial, Imperoyal, Iocolite, Iocoma, Royalite, Sarnolite, at Sarnia, Ont.; Mina Brea, at Baltimore, Md.

International Transit Co., Sault Ste. Marie, Ont. — Algoma, at Sault Ste. Marie, Ont.

Keystone Transports Ltd., Montreal.—Keybell, Keynor, Keyport, Keyvive, Keywest, at Kingston, Ont.

Kingston Navigation Co., Kingston, Ont.—Brockville, St. Lawrence, at Kingston, Ont.

Lake Erie Navigation Co., Walkerville, Ont.—Marquette and Bessemer No. 1, at Conneaut Harbor, Ohio.

Magnetawan River & Lake Steamboat Line, Burks Falls, Ont.—Armour, Glenada, at Burks Falls, Ont.

Marquette & Bessemer Dock & Navigation Co., Walkerville, Ont.—Marquette and Bessemer No. 2, at Conneaut Harbor, Ohio.

Mathews Steamship Co., Toronto. — Easton, at Collingwood, Ont.; Clinton, Malton, at Cornwall, Ont.; Bayton, Yorkton, at Goderich, Ont.; Huronton, at Port Arthur, Ont.; Laketon, Riverton, at Port Colborne, Ont.

Montreal & Cornwall Navigation Co., Cornwall, Ont.—Britannic, at Cornwall, Ont.

Muskoka Lakes Navigation & Hotel Co., Gravenhurst, Ont.—Ahmic, Cherokee, Islander, Medora, Nipissing, Oriole, Sagamo, at Gravenhurst, Ont.

Ships Registered in Canada During September and October, 1921.

In compiling the following lists of ships registered, steamboats and motorboats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, n.h.p., etc.	Owner or Managing Owner
150462	Albertolite*	Halifax, N.S.	Vancouver, Wash. ....1921	463.2	60.2	29.2	8461	5960	334 Sc.	Imperial Oil Ltd., Sarnia, Ont.
150249	Bay Queen	Halifax, N.S.	Levis, Que. ....1917	84.0	19.2	10.3	99	42	24 Sc.	Mayflower Shipping Co., Halifax, N.S.
141675	Bayton(1)	Toronto	Cleveland, Ohio ....1904	416.0	50.0	28.0	4176	3000	292 Sc.	Mathews Steamship Co., Toronto.
150366	Canadian Challenger*	Montreal	Lauzon, Levis, Que. ....1921	400.1	52.2	28.3	5439	3331	266 Sc.	Minister of Marine, Ottawa.
150463	Canadian Cruiser*	Halifax, N.S.	Halifax, N.S. ....1921	430.0	56.2	26.8	7178	4413	326 Sc.	Minister of Marine, Ottawa.
150354	Canadian Logger*	Montreal	Midland, Ont. ....1921	251.0	43.6	23.5	2429	1472	147 Sc.	Minister of Marine, Ottawa.
150448	Canadian Transporter*	Victoria, B.C.	Vancouver, B.C. ....1921	400.0	52.4	28.7	5458	3352	266 Sc.	Minister of Marine, Ottawa.
150553	Chehalis	Victoria, B.C.	Cosmopolis, Wash. ....1890	73.6	16.0	7.6	69	39	20 Sc.	L. B. Noel, Victoria, B.C.
150523	Distributor III	Winnipeg	Fort Smith, Alta. ....1920	151.0	35.3	6.1	876	517	15 Pa.	Alberta & Arctic Transportation Co., Toronto.
144402	Empress of China(2)*	Vancouver, B.C.	Geestemunde, Germany 1908	589.9	68.3	38.6	17099	9849	1416 Sc.	C.P.R. Co., Montreal.
141674	G. Harrison Smith*	Toronto	Sparrows Point Md. ....1921	550.6	72.3	44.1	15371	9326	462 Sc.	International Petroleum Co., Toronto.
130227	J. D. Ainslie	Owen Sound, Ont.	Gore Bay, Ont. ....1921	71.0	15.0	7.6	48	31	13 Sc.	W. Ainslie, Jr., Gore Bay, Ont.
150592	Niluht	Vancouver, B.C.	Lund, B.C. ....1921	61.5	16.4	8.2	65	34	10 Sc.	F. G. Thulin, Lund, B.C., and C. A. Thulin, Campbell River, B.C.
150585	Vancolite*	Vancouver, B.C.	Kearney, N. J. ....1921	500.3	68.0	30.5	10831	7530	350 Sc.	Imperial Oil Ltd., Sarnia, Ont.
131402	Wabana	Halifax, N.S.	Sunderland, Eng. ....1911	375.0	52.0	28.3	4804	2676	480 Sc.	Wabana Steamship Co., Halifax, N.S.

(1) Formerly Frances Widlar. (2) Formerly Prinz Friedrich Wilhelm. *Equipped with wireless.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owner or Managing Owner
150406	A. Moulton	Lunenburg, N.S.	Schr.	Conquerall Rank, N.S. ....1920	113.6	26.0	10.6	173	150	J. T. Moulton, Burgeo, Nfld.
150449	B.C.M. No. 2	Vancouver, B.C.	Scow	Howe Sound, B.C. ....1913	79.3	26.0	6.3	110	110	B.C. Marine Engineers & Shipbuilders, Vancouver, B.C.
150586	I.B. No. 1	Vancouver, B.C.	"	Vancouver, B.C. ....1909	85.6	28.0	7.0	140	140	Mrs. I. M. Bailey, Vancouver, B.C.
150587	I.B. No. 3	Vancouver, B.C.	"	Vancouver, B.C. ....1909	86.0	28.0	6.9	141	141	Mrs. I. M. Bailey, Vancouver, B.C.
150583	P.C. Co. 25	Vancouver, B.C.	"	Seattle, Wash. ....1903	92.5	28.0	7.9	171	171	Pacific Construction Co., Vancouver.
150584	P.C. Co. 26	Vancouver, B.C.	"	Seattle, Wash. ....1903	92.5	28.0	7.9	171	171	Pacific Construction Co., Vancouver.

Nevada Shipping Co., Halifax, N.S.—Nevada, at Kingston, Ont.

Newcastle Steamboat Co., Newcastle, N.B.—Max Aiken, at Chatham, N.B.

Northern Navigation Co., Sarnia, Ont.—Hamonic, Huronic, Noronic, Thousand Islander, at Sarnia, Ont.

North Bay & French River Navigation Co., North Bay, Ont.—Northern Belle, at North Bay, Ont.

Ontario Car Ferry Co., Montreal. — Ontario No. 1, at Cobourg, Ont.

Ontario Transportation & Pulp Co., Thorold, Ont.—Linden, Mary H. Boyce, at Thorold, Ont.

Ottawa Transportation Co., Ottawa, Ont.—Dolphin, Florence, Geo. A. Harris, Hall, Ottawan, Scotsman, Sir Hector, at Hull, Que.

Pembroke Transportation Co., Pembroke, Ont.—Oiseau, at Pembroke.

Playfair Interests. — The six steamships which have been bought from the French Government by James Playfair, Midland, Ont., and his associates, as mentioned in Canadian Railway and Marine World for Dec. 1921, have not all arrived on this side yet. At the time of writing, the name of the owning company has not been decided, but it is probable that they will be operated next season, under the management of A. E. Mathews, Toronto, as are those of the Glen Transportation Co. The Glenarm, Glendowan and Glanfarn will be berthed for the winter, at Midland, Ont., the Gleeney and Glengarnock, at St. John's, Nfld., and the Glendochart at Londonderry, Ireland. The Glendochart will be brought out next spring.

Prescott & Ogdensburg Ferry Co., Prescott, Ont.—Ferdinand, Miss Vandenberg, at Prescott, Ont.

Quebec Salvage & Wrecking Co., Levis, Que.—Lord Strathcona, at Quebec, Que.

Rockport Navigation Co., Kingston, Ont.—Mississquoi, Waubie, at Kingston, Ont.

Sincennes-McNaughton Line, Montreal. — All tugs and barges at Sorel, Que.

J. F. Sowards, Kingston, Ont.—Jed, Jeska, M. A. Lydon, Shanly, Winner Wing, at Kingston, Ont.

Sparrow Lake Steamer Line, Sparrow Lake, Ont.—Glympse, at Port Stanton, Ont.

Timagami Fur Co., Timagami, Ont.—Keego, at Timagami, Ont.

Toronto, Hamilton & Buffalo Navigation Co., Hamilton, Ont.—Maitland No. 1, at Ashtabula Harbor, Ohio.

Turret Steamship Co., Halifax, N.S.—Turret Cape, at Kingston, Ont.

Webster Steamship Co., Montreal. — Colin W., Eric W., Howard W., Richard W., Montreal; Stuart W., at Quebec, Que. Windsor & Pelee Island Steamship Co., Pelee Island, Ont.—Pelee, at Kingsville, Ont.

Wolfe Island Township, Ont. — Wolfe Islander, at Kingston, Ont.

Atlantic and Pacific Oceans.

The White Star-Dominion Line has reduced its passenger rates for winter cruises to the West Indies on its s.s. Megantic by approximately 15%.

A steamship sailed from a Welsh port early in December, for Vancouver, carrying the first consignment of 25,000 tons of Welsh tin plates for use in the British Columbia packing industry.

The St. Lawrence navigation season for 1921 was closed Dec. 8, with the sailing

from Montreal of the Montezuma Transportation Co.'s s.s. G. R. Crowe, which arrived there Dec. 6, being the latest date on which any ocean going steamship has arrived at Montreal in any year.

London, Eng. press dispatch Dec. 2:—The Times foreshadows a sharp cut in freight rates from the United Kingdom to British Columbia, which should provide special opportunity for the development of British export trade toward Canada. The flat rate will shortly become 25 shillings a ton, which will be equivalent to a charge of a penny for 30 miles. The Times adds that it should not be assumed that the cheap rate will be continued indefinitely, as shipping managers maintain that the new rate will be unprofitable. It is therefore presumed that the cut will be solely due to the slump in shipping, in order to keep ships employed.

The s.s. Virginian, owned formerly by the Allan Line Steamship Co., and later, by the C.P.R., sold recently to Swedish interests, and renamed Drottningholm, is being overhauled at Gothenburg, Sweden, and fitted with De Laval steam turbines. She was the first ocean going steamship to be equipped with steam turbines, and was followed by her sister ship Victorian. In neither case was the equipment considered a great success, as the turbines were too slow to give economical results. With the new equipment, it is expected that she will do an extra 2½ knots, with 10% less power than formerly, with the propellers increased in diameter by about 3 ft., and decreased in speed by one-third. The coal required under the new conditions will be about 145 tons a day instead of 200 as formerly.

The White Star-Dominion Line reports that its passenger traffic across the Atlantic during the St. Lawrence navigation season of 1921, was well up to the average of pre-war years, and that, generally, satisfactory business was done. The total number of passengers carried by the company's steamships was 22,660 viz: 13,414 westbound, and 9,246 eastbound, in 19 sailings. The last sailing took place from Montreal, when the s.s. Canada left port, Nov. 19, the winter service being given from Portland, Me., the ships making calls at Halifax, N.S., with the steamships Canada and Vedic. For the 1922 season, the steamships Canada, Megantic and Regina will be used, the last named making her maiden voyage to Montreal early in May. It is reported that the company may place its new steamship Doric in the St. Lawrence service later in the year.

Martime Provinces and Newfoundland.

The Newfoundland schooner June, 485 tons, is reported to have been burned at Port Mahone, Minorca, in the Mediterranean Sea.

Preparations are reported to have been made for the repair of the Nelson wharf, St. John, N.B., during the winter, at an approximate cost of \$15,100.

The s.s. Mary Smith, owned by A. Smith, Dartmouth, N.S., was seized by the Customs Department at Halifax, N.S., Nov. 26, on a charge of smuggling liquor into Canada.

The schooner Donald J. Cook, owned in Lunenburg, N.S., was abandoned at sea, Dec. 19, while on fire, the crew being rescued by the s.s. San Eduardo, bound for Puerto Mexico.

The schooner Rosalie Belliveau, 230 tons gross, built in 1909, was sold at St. John's, Nfld., by auction, Dec. 9, for \$1,200, to P. F. Cowan. It is stated that two years ago she was valued at \$50,000.

The Newfoundland schooner Ruby W. was discovered in mid-ocean, Dec. 8, by the Danish s.s. Gudrun Maersk, by which the crew were rescued and the wreck set on fire and destroyed. The Ruby W. was of 287 tons register, and sailed from Pernambuco Nov. 5 for St. John's.

The Nova Scotia schooner Vicola is reported to have foundered at sea with her crew of 9 men, while en route from North Sydney to St. John's, Nfld., with coal from the Nova Scotia Steel & Coal Co. She sailed from North Sydney, Nov. 23, and was never reported.

The Hudson's Bay Co.'s s.s. Nascopie arrived at St. John's, Nfld., at the end of November, after having completed her second trip to Arctic regions, in one season, a record not previously achieved. On the second trip she carried over 700 reindeer from Norway to Baffin Land.

The U.S. schooner King Daniel was seized by the Dominion Customs officials near Musquash, N.B., recently. She sailed from St. John, N.B., Nov., 18 with a cargo of liquor in bond for Nassau, Bahamas, and it is alleged broke the law in unloading it at a port other than it had been consigned to.

The s.s. Bassam, which was wrecked at St. Pierre, Miquelon, last summer, and which was afterwards sold by its owner, the U.S. Shipping Board, was sold by auction Dec. 9 by the Sheriff at Amherst, N.S., to A. Pugsley, River Hebert, N.S., for \$5,200, as a result of actions brought by her crew for wages, and by others for

Ships Added to and Deducted From the Canadian Register During September and October, 1921.

Added.	Steam.—Tonnage—			Sailing.—Tonnage—		
	No.	Gross	Net	No.	Gross	Net
Built in British Possessions	25	22,264	13,561	7	750	733
Transferred from U.K. ports	2	21,903	12,525	1	75	75
Purchased from foreigners	8	34,830	22,923	2	342	342
Registered anew	1	34	31	.....	.....	.....
Other ships	1	4,176	3,000	.....	.....	.....
Totals.....	37	83,207	52,040	10	1,173	1,150
Deducted.	Steam.—Tonnage—			Sailing.—Tonnage—		
	No.	Gross	Net	No.	Gross	Net
Wrecked or otherwise lost	9	6,221	4,312	13	2,762	2,446
Broken up or unfit for use	14	620	402	14	550	539
Transferred to U.K. ports	1	5,755	4,173	.....	.....	.....
Transferred to British Possessions .....	.....	.....	.....	2	348	289
Sold to foreigners	1	1,468	1,184	1	616	616
Other ships .....	.....	.....	.....	1	838	762
Totals.....	25	14,064	9,071	31	5,114	4,652

supplies. She was at Parrsboro, N.S., where repair work was being undertaken, but this was suspended some time ago, as there were no funds available for continuing it.

The Newfoundland s.s. *Ferm*, went ashore on the western head, St. Shott's, Nfld., towards the end of November and became a total loss. She sailed from Sydney with coal for the Reid Newfoundland Co., and went ashore during a dense fog. She was built at Slidell, La., in 1918, had a wooden hull and was screw driven by engine of 78 h.p. Her dimensions were,—length 248 ft.; breadth 43.1 ft.; depth 18.1 ft.; tonnage 1,579 gross, 972 net. She was owned formerly by Newfoundland Shipbuilding Co., Harbor Grace, one of the companies formed during the war by C. Hannevig. About two years ago, when bound from Savannah, Ga., to Rotterdam, Holland, she was damaged by ice off Newfoundland and later went ashore in Bonavista Bay. She was refloated and towed to St. John's, where her cargo was discharged and she was sold by auction to Sir Michael Cashin for the *Ferm* Steamship Co., and she has been under charter to the Reid Newfoundland Co. for coaling purposes for some time.

The Halifax & Canso Steamship Co., of which G. S. Campbell & Co., Halifax, N.S., are managers, has bought the s.s. *Fogota* in England, and is transferring her to the Canadian register under the name *Chedabucto*. She was owned by J. Crosby & Co., St. John's, Nfld., and has been operated in the Newfoundland coastal trade for some years. She is taking the place of the company's s.s. *Scotia*, which was destroyed by fire Aug. 26, 1921. She was built at Dundee, Scotland, in 1910, and has a steel hull of the following dimensions,—length 145.2 ft., breadth 24.5 ft., depth 9.7 and 10.6 ft.; tonnage, 411 gross, 238 net, 420/438 deadweight. She is classed 100A at Lloyds and has one deck and a shelter deck and two holds. She is equipped with electric light throughout, and has accommodation for 40 first class passengers, and approximately 2,800 barrels. Her propelling machinery consists of compound engines, with cylinders 18 and 40 in. diam. by 27 in. stroke, supplied with steam by a single ended boiler at 130 lb. a sq. in. working pressure.

Province of Quebec.

During the 1921 St. Lawrence navigation season, 981 ocean ships docked at Quebec, compared with 564 in 1920. This was an increase of almost 100% in tonnage over 1920.

The British s.s. *Gyp*, from London, Eng., to Chicoutimi, Que., light, grounded at St. Etienne Bay, in the Saguenay River, at the end of November. She was released by the Quebec Salvage & Wrecking Co.'s s.s. *Lord Strathcona*, and taken to Quebec for examination.

The U.S. s.s. *Parks Foster* was libelled at Montreal recently, on a claim of \$25,000, by Manchester Liners' s.s. *Manchester* Civilian, for damage caused when the two ships collided at no. 16 shed in Montreal harbor at the end of November. The *Parks Foster* was released on a bond and the matter will be dealt with by the local Admiralty Court.

A shipment of 200,000 eels was made from Quebec to New York recently. They were transported via Lake Champlain and the Hudson River in three specially

built barges, so arranged that water could flow in and out at all times, so that the fish might be kept alive. The value of the shipment is given as \$100,000. Hitherto, the annual exportation of eels from Canada was valued at \$85,000.

The s.s. *North Land*, which, it is reported, is being dismantled at Sorel, has been more or less than a white elephant for the past two years. She was owned formerly by the Northern Steamship Co., Buffalo, N.Y., and with her sister ship *North West*, was built exclusively for the passenger trade between Chicago, Duluth and Buffalo, and operated in connection with the Northern Pacific Ry. In 1919 she was cut in two at Buffalo, and sent through the canals to Quebec, to the Davie Shipbuilding & Repairing Co., to which company it was stated she had been sold. The fore section arrived at Sorel Dec. 6, 1919, and the after section at Coteau Landing Dec. 12. Some trouble seems to have arisen, as no steps were taken to join the two sections together again. Enquiries during 1920 elicited the information that she had been transferred to Northern Steamship Co. interests, as represented by the Paragon Shipping Corporation, New York. The stern section was subsequently taken to Montreal pending the owner's decision as to whether the two sections would be joined, or the ship sold in her existing condition. Since then apparently nothing in the way of joining the two sections has been done, and it is now stated that she is being dismantled at Sorel, and that four of the 10 boilers have been sold to the George Hall Coal Co., for use in some of its steam barges, and that two others may be used in the steam trawler *St. Julien*.

Ontario and the Great Lakes.

The Georgian Bay Tourist Co.'s s.s. *Midland City* will have more staterooms added during the winter at Midland, Ont.

The lighthouse on Shanganash Island near Port Arthur was destroyed by fire Nov. 30. The damage is estimated at \$2,000.

The Marine Department will, it is reported, erect an up to date life saving station at Main Ducks Island, Lake Ontario, in the spring.

The Fort William City Council has arranged with the Dominion Towing &

Wrecking Co. for the use of its steam tug *Strathbogie* for fire fighting purposes. The rate charged will be \$200 for the first hour, and \$100 for each additional hour.

Navigation from the head of the Great Lakes closed officially at midnight Dec. 12, when the extended insurance period expired. On that day, 14 steamships cleared from Fort William, carrying 4,327,000 bush. of grain, consigned chiefly to Erie and Buffalo, N.Y.

Work on sections 1 and 2, Welland Ship Canal, was reported to have been closed down for the winter Dec. 16. The destruction of the concrete plant at Port Weller, by fire, Dec. 3, is stated to have caused an earlier closing of the work than was originally planned. Work is continuing for the present on sections 3, 4 and 5.

A Fort William press dispatch states that 20 steamships left that port, Nov. 30, carrying 5,316,000 bush. of grain, valued at over \$7,000,000. Increased insurance rates went into effect at midnight Nov. 30 for any ships leaving port after that time. Eleven of these ships were bound for Buffalo, N.Y., with 3,171,000 bush. of grain, the balance being bound for Canadian ports.

A gas and bell buoy has been established to mark the wreck of the barge *Richard Burns*, sunk in the St. Clair Flats canal, about three miles below the lower light. The wrecked tug *Pauline Heckler*, sunk off the Corsica shoals lightship, near the line of the Point Edward range lights, has been marked by a red and black striped gas buoy showing a flashing white light for 5 sec. every 10 sec.

The s.s. *Louis Philippe*, owned by Canada Steamship Lines, has been acquired for ferry service between Sarnia and Port Huron, Mich. She arrived at Sarnia Dec. 3, but, according to present advices, will not be placed in service until the spring. She was built at Lauzon, Que., in 1914, and is screw driven by engine of 58 h.p. Her dimensions are,—length 162 ft., breadth 37 ft., depth 11 ft., tonnage 600 gross, 251 net.

The s.s. *City of New York*, owned in Cobourg, Ont., foundered near Stoney Point, Lake Ontario, Nov. 27, while bound from Oswego, N.Y., to Trenton, with coal, 8 persons losing their lives. Five of these had escaped from the sinking ship

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during November, 1921:

Articles		Canadian		
		Canal	U.S. Canal	Total
Lumber	Eastbound	3,472	10,651	14,123
Flour	"	1,069,300	818,040	1,887,340
Wheat	"	1,508,250	51,824,309	53,332,559
Grain, other than wheat.....	"	2,345,164	11,195,647	13,540,811
Copper	"	4,021	6,351	10,372
Iron Ore	"	Short tons	383,302	383,302
Pig Iron	"	Short tons	.....	.....
Stone	"	Short tons	1,100	1,100
General Merchandise	"	Short tons	7,398	19,388
Passengers	"	Number	2	178
Coal, soft	Westbound	Short tons	8,635	465,806
Coal, hard	"	Short tons	159,002	159,002
Iron Ore	"	Short tons	9,820	9,820
Manufactured Iron and Steel..	"	Short tons	5,533	7,825
Salt	"	Short tons	737	8,087
Oil	"	Short tons	5,687	5,687
Stone	"	Short tons	7,000	7,000
General Merchandise	"	Short tons	41,353	32,874
Passengers	"	Number	152	54
Summary				
Vessel Passages	Number	462	733	1,195
Registered Tonnage	Net	597,488	2,014,636	2,612,124
Freight—Eastbound	Short tons	217,997	2,301,393	2,519,390
Westbound	Short tons	53,017	693,072	746,089
Total Freight	Short tons	271,014	2,994,465	3,265,479

in a small boat, their subsequent deaths being due to exposure. The City of New York was screw driven, by engine of 19 h.p. Her dimensions were,—length 136 ft., breadth, 27.6 ft.; depth, 11.6 ft.; tonnage, 292 gross, 199 net.

A. A. Schantz, President, Detroit & Cleveland Navigation Co., is reported to have stated in an address to the Detroit Board of Commerce, Dec. 5, that the business of the larger Great Lakes steamship lines operating out of U.S. ports is decreasing at such a rate that in five years few ships will be running. This condition, he said, was due to the Lafollette seaman's law passed by the U.S. Congress some time ago. He claimed that this act should not be repealed, but that it should be modified. He stated that under its provisions in five years time no excursion or commercial ships will leave Detroit unless the law is amended. Its requirements are so drastic in the matter of the size of crews and other particulars that companies are unable to live up to them.

The steam tug Arbutus, while en route from Ashland, Wis., to Port Arthur, at the end of November, sprang a leak and sank. She was built at Wallaceburg Ont., in 1887, and was screw driven by engine of 4 h.p. Her dimensions were,—length 63 ft., breadth 14.8 ft., depth 7 ft.; tonnage, 49 gross, 34 net. She was at one time owned by S. Wright, Port Arthur, and some time ago he alleged that she was stolen. Shortly after she was captured, in U.S. waters by a U.S. revenue boat, for being engaged in the liquor running business, and was confiscated and sold.

Manitoba, Saskatchewan, Alberta and Northwest Territories.

The Alberta & Arctic Transportation Co. has registered its s.s. Distributor III, which was built at Fort Smith during 1920. She is paddle wheel driven by engine of 15 h.p. and her dimensions are,—length 151 ft., breadth 35.3 ft., depth 6.1 ft.; tonnage, 876 gross, 517 net.

British Columbia and Pacific Coast.

The Dominion Government has reduced the charges for the use of the Esquimalt

drydock, to enable British Columbia yards to meet competition of U.S. companies with private drydocks.

Between Jan. 1 and Aug. 31, 1921, 3,500 tons of wheat from British Columbia ports passed through the Panama Canal for European ports. Among other recent shipments from Vancouver was also 100 tons of mutton, stated to have been the first shipment of chilled meat from Canada to Europe through the Panama Canal.

Steamships connected with twelve different lines are operating between British Columbia ports and North and South American Atlantic ports, and United Kingdom and European ports, via the Panama Canal. It is stated that approximately two-thirds of the grain at Calgary, Alta., elevators in the early part of December was for shipment through Vancouver. During 1921 about 50,000 tons of prairie grains were shipped from Vancouver, compared with 16,000 tons during the previous year.

The Vancouver Board of Trade, following a protest made by C. H. Nicholson, Manager, Grand Trunk Pacific Coast Steamship Co., is drawing the Marine Department's attention to what is claimed to be a handicap to Canadian steamships, owing to the change in rules governing the inspection of passenger steamships calling at U.S. ports. It is stated that hitherto there has been a reciprocal arrangement between the two countries, whereby certificates of inspection, granted in either country, were accepted by each, but that this arrangement has been voided by a U.S. law not enforced previously. It is claimed that under this law the G.T.P.C.S. Co.'s s.s. Prince Rupert's passenger capacity was reduced last June when application was made for a new U. S. certificate.

Tenders for the construction of a steel ferry steamboat for operation on Burrard Inlet are under consideration by North Vancouver City Council. It is stated that the lowest tender received is from the Coaster Construction Co., Montrose, Scotland, being approximately \$250,000. Other tenders are reported, from J. Coughlan & Sons, for a steamboat \$300,000, and for a ship with Diesel-electric drive \$328,000; from Wallace Shipbuilding & Drydock Co., for a steamboat

\$285,000, for a ship with Diesel-electric drive \$388,000, and for direct Diesel drive \$409,000. It is said that the lowest tenderer objected to the specifications, which were prepared by the Wallace Shipbuilding & Drydock Co., and that such objections were based on a desire to build a ship that would be able to make the Atlantic voyage, while local firms would build for use exclusively on sheltered waters.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

77. Nov. 19.—207, British Columbia, Strait of Georgia, Fraser River entrance, changes in position and character of range lights.

78. Nov. 25.—208, New Brunswick, Bay of Fundy, St. John harbor, fog bell established. 209, New Brunswick, Bay of Fundy, St. John harbor, light and fog bell established by St. John Drydock & Shipbuilding Co. 210, New Brunswick, Bay of Fundy, Petitcodiac River, Hopewell Cape, correct position of lighthouse.

79. Nov. 29.—211, Nova Scotia, Bay of Fundy, Minas Basin, Avon River, wreck, buoy placed. 212, Newfoundland, south coast, Rencontre West, New Harbour Island, light established.

80. Dec. 1.—213, Ontario, Lake Erie, Port Stanley, intensity of breakwater light increased. 214, Ontario, Lake Huron, Georgian Bay, western islands to Waubashene, new edition of chart. 215, United States, Lake St. Clair, wreck, gas and bell buoy established. 216, United States, St. Clair River, Port Huron south-bound channel, change in position of buoys. 217, United States, lower end of Lake Huron, wreck, buoy placed.

The s.s. Le Quesnoy, which was built by Dominion Shipbuilding & Repair Co., Toronto, in 1919, and owned by Nova Scotia Transportation Co., Toronto, is reported to have been sold to German buyers for \$60,000. She is a steel single deck steamship, screw driven by engine of 147 h.p., and of the following dimensions,—length 251 ft.; breadth 43.7 ft.; depth 26 ft.; tonnage, 2,742 gross, 1,670 net. She was operated for some time between European ports, but has been laid up at Hartlepool, Eng., since Aug. 1920.

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Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Canadian Brill Co., Ltd., which is incorporated under the Dominion Companies Act, has been licensed by the Ontario Government to do business in Ontario, and to use within the province capital to the extent of \$40,000. J. S. Lovell, Toronto, is its attorney.

Orton & Steinbrenner Co., manufacturers of locomotive cranes, clam-shell and orange-peel buckets, Chicago, Ill., has appointed F. C. Richmond Machinery Co., 117 West Second Street, Salt Lake City, Utah, to represent it.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities. M. P. Fennell, Jr., 57 Common St., Montreal.

Belleville Railway Men's Educational Club. Meets each Tuesday, 7.30 p.m. F. A. Pinkston, Belleville, Ont.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—L. E. Moreland, Hull Electric Co., Hull, Que.

Canadian Freight Association (Eastern lines)—G. C. Ransom, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Navigators Federation, Great Lakes Division.—Capt. R. D. Simpson, Owen Sound, Ont. Canadian Navigators Federation, Pacific Division.—Andrew Goodlad, 1101 Rogers Building, Vancouver, B.C.

Canadian Passenger Association—Eastern Lines, G. H. Webster, 54 Beaver Hall Hill, Montreal; Western Lines, E. J. Stone, 306 Union Station, Winnipeg.

Canadian Railway Board of Adjustment No.1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club—W. A. Booth, 53 Rushbrooke St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Ticket Agents' Association, E. de la Hooke, London, Ont.

Canadian Traffic League—R. J. Fitzgerald, 4 Queen St. West, Toronto.

Dominion Marine Association—F. King, Council, Kingston, Ont.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, 89 Chatham Ave., Buffalo, N.Y.

Niagara Frontier Summer Rate Committee—James Morrison, Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, General Secretary, 263 St. James Street; Western Operating Committee, E. J. Stone, 306 Union Station, Winnipeg.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacramento Street, Montreal.

Transportation Club of Toronto—W. J. Hotrum, 595 Runnymede Road, Toronto.

Transportation Club of Vancouver—C. E. Blaney, Travelling Passenger Agent, Canadian Pacific Steamships Ltd., Vancouver, B.C.

Transportation Conventions in 1922.

Jan. 24 to 26.—American Wood Preservers' Association, Chicago, Ill.; G. M. Hunt, Forest Products Laboratory, Madison, Wis.

March 14 to 16.—American Railway Engineering Association, Chicago, Ill.; E. H. Fritch, 481 South Dearborn St., Chicago, Ill.

March 21 to 23.—American Railway Association, Telegraph and Telephone Division, Colorado Springs, Col.; W. A. Fairbanks, 75 Church St., New York, N.Y.

May 2 to 5.—Air Brake Association; F. M. Nellis, 165 Broadway, New York, N.Y.

May 17 to 19.—Association of Railway Claim Agents, Montreal; H. D. Morris, Northern Pacific Ry., St. Paul, Minn.

May 23 to 26.—Master Boiler Makers Association, Chicago, Ill.; H. D. Vought, 26 Cortland St., New York.

June 1, 2.—Canadian Electric Railway Association, Quebec, Que.; L. E. Moreland, Hull, Que.

June 14 to 21.—American Railway Association, Mechanical Division, Atlantic City, N.J.; V. R. Hawthorne, 481 South Dearborn St., Chicago, Ill.

Sept. 12 to 14.—Roadmasters and Maintenance of Way Association, Cleveland, Ohio; P. J. McAndrews, Chicago & Northwestern Ry., Sterling, Ill.



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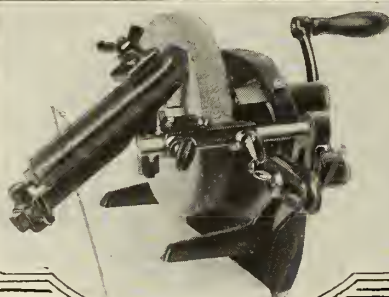
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LUTHER GRINDERS



The Temiskaming and Northern Ontario Railway Commission

Tenders for Railway Construction

Sealed Tenders for the works (other than steel bridges) necessary to the complete construction of the roadbed, ready for the ties and rails, and also the track laying, ballasting and fencing, upon approximately Seventy Miles of the Temiskaming and Northern Ontario Railway, extending from Cochrane to near New Post, will be received at the office of the Secretary Treasurer of the Commission, North Bay, until twelve o'clock (noon) of the 9th day of January, 1922.

On receipt of a request in writing, a copy of each of the following documents:

Instructions to Bidders,
Form of Tender,
Specifications,
Form of Contract,

will be furnished to intending bidders at the office of the Chief Engineer of the Commission, North Bay, where plans and profiles pertaining to the work may be seen.

The right is reserved to reject any or all bids.

S. B. Clement, W. H. Maund,
Chief Engineer. Sec. Treas.

North Bay, Ontario,
December 8th, 1921.



Capital Authorized.....\$10,000,000
Capital Paid Up..... 7,000,000
Reserve Fund..... 7,500,000

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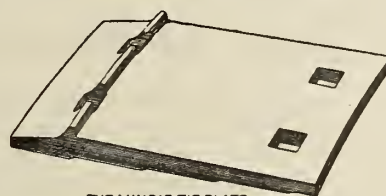
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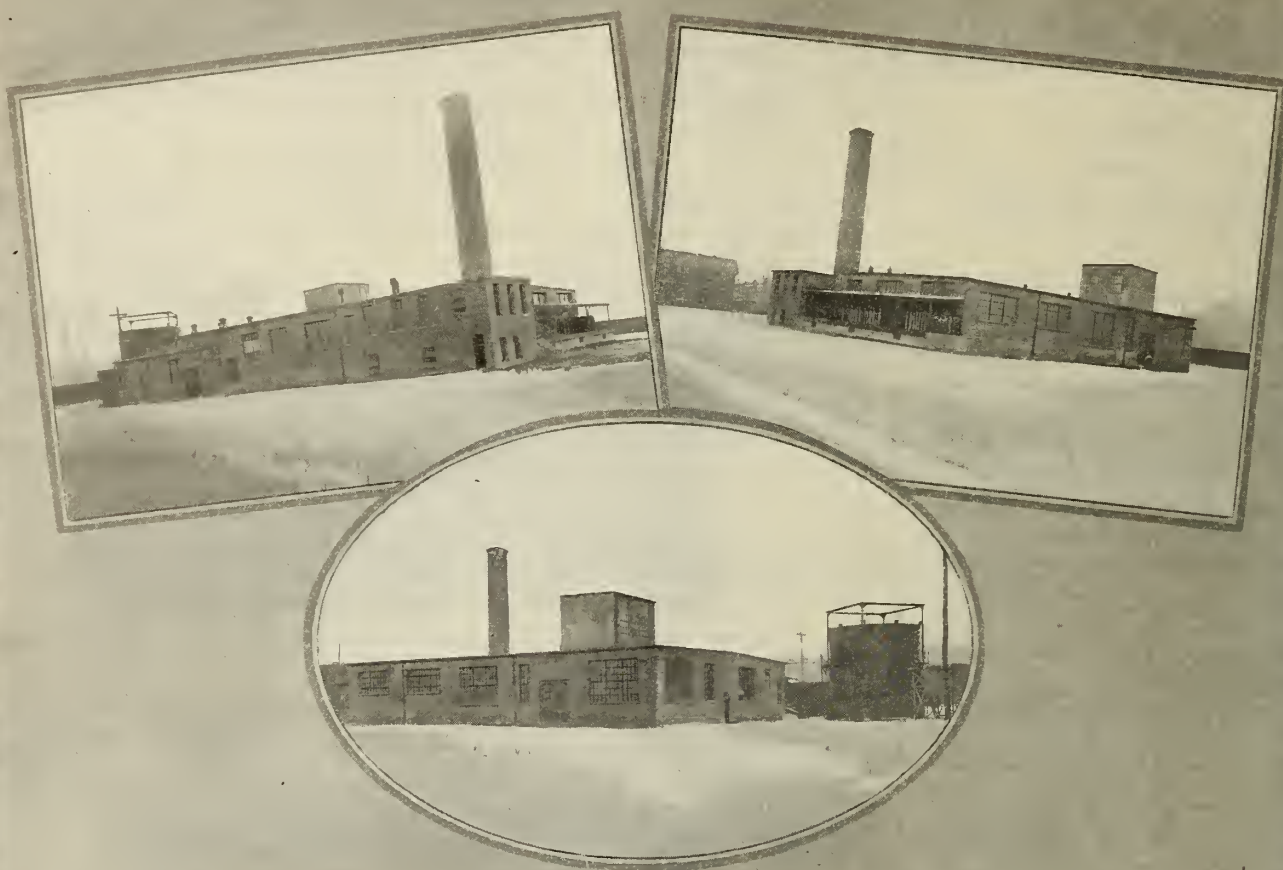
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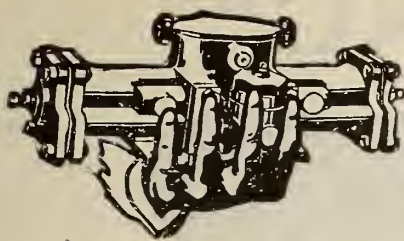
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Consolidated Steel Corporation
F. H. Hopkins & Co.

PUMPS, CENTRIFUGAL
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PUMPS, OIL
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General Supply Co.

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SCREW PLATES
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Consolidated Steel Corporation
Dominion Steel Products Co.

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Canada Foundries and Forgings Ltd.

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Diamond State Fibre Co. of Can.

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Canadian Vickers, Ltd.
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Geo. P. Nichols & Bro.

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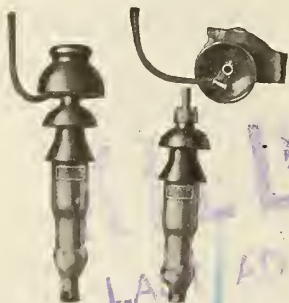
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(Department of Overseas Trade)

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will be held at

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All Canadian buyers are cordially invited to attend

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**Railway and Marine Equipment, Lighting Plant
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H. M. Trade Commissioner, 260 Confederation Life Building, Toronto.

H. M. Trade Commissioner, 610 Electric Railway Chambers, Winnipeg.

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Consolidated Steel Corporation

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Peacock Bros.

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CARTER'S GENUINE DRY RED LEAD

Made from the very best Canadian Pig Lead, highly oxidized and very finely ground. Mixed with pure linseed oil, it spreads easily and has unusual covering capacity.

For steel or wooden hulls, steam pipes or metal work, there is no better undercoating than Carter's Genuine Dry Red Lead.

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Lighter Strathbuoy—Capacity, 700 tons.

Equipped for all kinds of Towing, Wrecking, Etc.

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Consulting Railway Operating Engineers

Reports, Freight and Passenger Yards and Terminals, Single Track Capacity, Side Track Location, Interlocking and Block Signal Design and Construction.

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Lachine Quebec



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First Class Service
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Peacock Bros.

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Ohio Brass Co.

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Ohio Brass Co.

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Taylor & Arnold Engineering Co.

VARNISHES
Berry Bros.

VENTILATORS, CAR
Railway & Power Eng. Corp.

VESSELS (See Shipbuilders)

WASHERS
Steel Co. of Canada

WASHERS, FIBRE
Diamond State Fibre Co. of Can.

WASTE
B. J. Coghlin Co.

WASTE PAPER BASKETS, FIBRE
Diamond State Fibre Co. of Can.

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Babcock & Wilcox
Dearborn Chemical Co. of Can.

WELDING
Canadian Vickers, Ltd.
Reid Newfoundland Co.

WELDING APPARATUS AND MATERIALS
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Ohio Brass Co.
Prest-O-Lite Co.

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Harvard Turnbull & Co.

WHEEL GRINDERS
Griffin & Brinkerhoff

WHEELS, CAR
American Steel Foundries
Association of Manufacturers of Chilled Car Wheels
Canada Iron Foundries Ltd.
Canadian Steel-Tire & Wheel Co.
Consolidated Steel Corporation

WHEELS, LOCOMOTIVE
Canada Iron Foundries
Canadian Steel-Tire & Wheel Co.
Consolidated Steel Corporation

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Carter White Lead Co.
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Canadian Vickers Ltd.
The Wm. Kennedy & Sons, Ltd.
Harvard Turnbull & Co.

WINDLASSES, SHIP
Canadian Vickers, Ltd.
The Wm. Kennedy & Sons, Ltd.

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Brydges Ltd.
B. J. Coghlin Co.
Consolidated Steel Corporation
Dominion Wire Rope Co.
Northern Electric Co.
Peacock Bros.
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Steel Co. of Canada

WIRE, BARE COPPER
Northern Electric Co.
Standard Und. Cable Co. of Can.
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Northern Electric Co.
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Northern Electric Co.
Standard Und. Cable Co. of Can.
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WRECKING, MARINE
Dominion Towing & Wrecking Co.
John E. Russell

WRENCHES
Dominion Brakeshoe Co.

Announcement

The Northern Electric Company, Limited, has acquired the Canadian Patents of the Automatic Electric Company of Chicago, Illinois, U.S.A., and now has the exclusive right to manufacture and sell **STROWGER AUTOMATIC TELEPHONE** equipment in Canada under these patents, which cover Private Branch Automatic Exchanges (P.A.X.), and Community Automatic Exchanges (C.A.X.), as well as Central Office Exchanges of larger capacities (M.A.X.). Among these patents are the following:—

Numbers:—	140,337;	140,338;	145,308;	148,663;	148,664;	158,150;	159,469;	159,470;	159,741;
	159,891;	159,892;	162,808;	163,590;	166,115;	166,116;	166,250;	166,794;	166,928;
	167,024;	167,025;	167,105;	167,706;	168,720;	169,004;	169,435;	170,235;	170,236;
	170,646;	171,099;	171,776;	172,567;	172,884;	173,672;	173,673;	174,416;	174,665;
	174,946;	174,947;	175,100;	175,101;	175,102;	175,397;	175,398;	176,901;	176,902;
	177,065;	177,469;	178,515;	178,516;	178,633;	178,634;	178,635;	178,870;	178,986;
	178,987;	178,988;	179,109;	179,110;	179,251;	180,250;	180,374;	180,375;	180,965;
	181,124;	181,300;	181,642;	183,490;	186,406;	187,033;	187,775;	195,930;	196,385;
	196,911;	197,774;	199,202;	199,203;	199,392;	199,617;	200,845;	202,284;	206,127;
	206,367;	207,548;	208,008;	208,607;	209,118;	209,355;	210,753;	210,754;	211,442;
	211,443;	211,662;	211,936;	212,206;	211,257.				

This Company is also the exclusive licensee under Canadian patents of the International Western Electric Company, Incorporated, and other Companies associated with the American Telephone and Telegraph Company, many of which patents relate to automatic telephone equipment.

The Northern Electric Company, Limited, is prepared to manufacture and supply at reasonable prices the various types of automatic telephone equipment covered by the above patents and must ask that its exclusive rights under these patents be respected.

In case of infringement, the user is liable as well as the manufacturer or dealer, and prospective purchasers should bear this in mind in placing orders, as the Northern Electric Company, Limited, in order to maintain its rights will be compelled to prosecute infringers.

Northern Electric Company LIMITED

Montreal	Quebec	Toronto	Windsor	Regina	Edmonton
Halifax	Ottawa	Hamilton	Winnipeg	Calgary	Vancouver
		London			

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*Alternate months.

Lower Prices through Wise Buying

NOT by dickering and bargaining, not through a "buyers' strike," not by fanning the fires of ruthless competition—these are but shallow expedients without permanent value.

There is but one way in which prices can be brought down to stay down, and in a way which will not kill the cow to get the milk—that is by a reduction in the cost of making and marketing.

In both these operations the buyer can play a vital part. The best equipped factory cannot operate economically without a sustained demand for its goods which will enable *mass production*, and it cannot sell economically except through *mass marketing*.

IT IS to your interest to know that goods are *well sold*, as well as *well made*. You have to pay the cost of selling just as you have to pay for the cost of manufacturing. Think that over.

And the cost of selling is no small item. In some cases it costs more to sell goods than to make them. The seller who clings to antiquated, expensive methods of selling is no more entitled to your patronage than the one who runs an out-of-date factory, because *you have to pay* the additional costs in either case.

If the waste is to be squeezed out of selling, the buyer cannot escape a share of the responsibility in bringing it about.

THIS means recognizing in a substantial way the efforts of those sellers who have adopted modern, economical methods of selling, and one of these beyond any question is *good advertising* in good Business Papers. Advertising not only cuts the cost of selling, but it increases production volume and lowers manufacturing costs. It standardizes quality, and is a guarantee of good faith.

The sooner buyers begin to put this idea into practice in real earnest, the sooner will the benefits be manifest.

LIST OF MEMBERS

Each has subscribed to and is maintaining the highest standards of practice in its editorial and advertising service.

Advertising and Selling
American Architect &
Architectural Review
American Blacksmith,
Auto & Tractor Shop
American Exporter
American Funeral

Director
American Hatter
American Machinist
American Paint Journal
American Paint & Oil
Dealer
American Printer
American School Board
Journal

Architectural Record
Automobile Dealer and
Repairer
Automobile Journal
Automotive Industries

Bakers Helper
Bakers Weekly
Boiler Maker (The)
Boot and Shoe Recorder
Brick and Clay Record
Buildings and Building
Management
Building Supply News
Bulletin of Pharmacy

Canadian Grocer
Canadian Machinery &
Manufacturing News
Canadian Railway &
Marine World
Candy and Ice Cream
Chemical & Metal-
lurgical Engineering
Clothing and Furnisher
Coal Age
Coal Trade Journal
Concrete
Cotton

Daily Metal Trade
Distribution and
Warehousing
Domestic Engineering
Dry Goods Economist
Drygoodsman
Dry Goods Reporter
Electric Railway
Journal
Electrical
Merchandising
Electrical Record
Electrical World
Embalmers' Monthly
Engineering and
Contracting
Engineering and
Mining Journal
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Record

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Hide and Leather
Hospital Management
Hotel Monthly
Hotel Review

Illustrated Milliner
Implement and Tractor
Age

Implement & Tractor
Trade Journal
Industrial Arts
Magazine

Inland Printer
Iron Age
Iron Trade Review

Lumber
Lumber Trade Journal
Lumber World Review

Manufacturers' Record
Manufacturing Jeweler
Marine Engineering &
Shipping Age

Marine Review
Millinery Trade Review
Mill Supplies
Mining and Scientific
Press

Modern Hospital (The)
Motor Age
Motorcycle and
Bicycle Illustrated

Motor Truck
Motor World

National Builder
National Cleaner & Dyer
National Laundry
Journal

National Petroleum
News

Nautical Gazette
Northwest Commercial
Bulletin

Northwestern Druggist

Oil News
Oil Trade Journal

Power
Power Boating
Power Farming Dealer
Power Plant

Engineering
Price Current—Grain
Reporter
Printers' Ink

Railway Age
Railway Electrical
Engineer

Railway Maintenance
Engineer

Railway Mechanical
Engineer

Railway Signal
Engineer

Retail Lumberman
Rock Products
Rubber Age

Sanitary & Heating
Engineering

Shoe Findings
Shoe and Leather
Reporter

Shoe Retailer

Southern Engineer
Southern Hardware &
Implement Journal

Sporting Goods Dealer
Starchroom Laundry
Journal

Tea and Coffee Trade
Journal

Textile World

Welding Engineer
Wood-Worker (The)

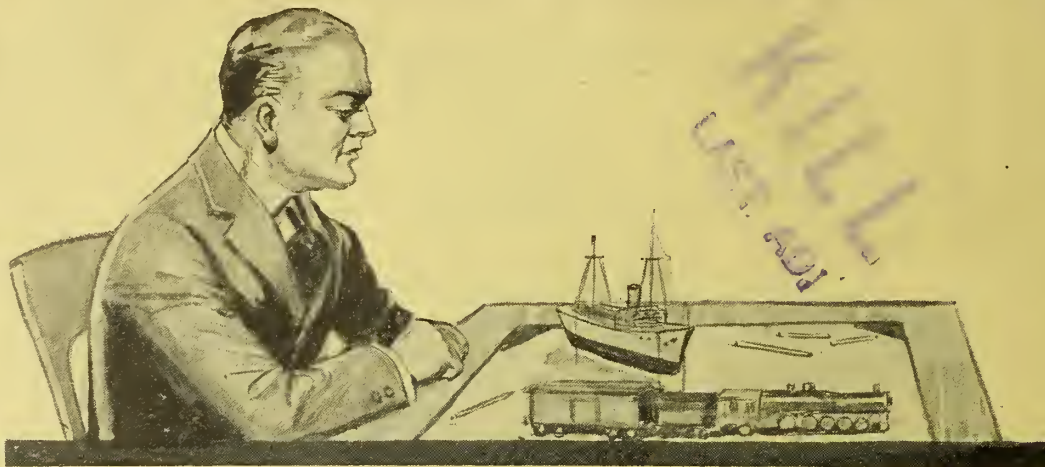
THE ASSOCIATED BUSINESS PAPERS, INC.

JESSE H. NEAL, *Executive Secretary*

HEADQUARTERS:

220 West 42nd STREET

NEW YORK CITY



Co-ordination of Canadian National Railways and the Grand Trunk System, and What It Means to Industry

The best engineering brains of Canada are now engaged in the study of the latest and best modern railway equipment, in order to formulate new standards for adoption by the co-ordinated Canadian National and Grand Trunk Railways.

Hitherto, each railway system had its own standards and its own traditions. But old standards and old traditions are being tested in the crucible of open-minded modern efficiency engineering; and only the "fit" will survive.

This revolution in Canadian railway practice offers a fertile field—an "open field and no favors"—to inventors, to designers and manufacturers of worthy devices and appliances for railway use.

Perhaps in all the history of railroading no parallel opportunity has been offered the railway supply industries. And now is the time to secure and hold the attention of a group of men whose buying power runs into exceedingly large figures.

Have you any device that you believe will add to the safety, or efficiency or economy of Canadian railways or that will contribute to the comfort of its patrons, on trains or at terminals?

Tell your story in full pages, in CANADIAN RAILWAY AND MARINE WORLD and be sure that it will be read by eyes that **command**, by men of vision who are devoting all their waking hours to a study of the betterment of Canadian railroading.

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Toronto

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markell

Canadian Railway AND Marine World

Founded in 1898 by Acton Burrows.

Number ~~287~~ 288
Index to contents, 81.

TORONTO, CANADA, FEBRUARY, 1922

See page 81 for
Subscription Rates

sent to Co March 3/22.

Empire



Special

Chilled Car Wheels for Electric Railways

Safety and Economy

are important factors in electric railway service and are requirements met by our "**Empire Special**" Wheels on Street and Interurban Railways. Their use insures minimum cost per 1,000 miles service.

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NEW YORK CHICAGO ST. LOUIS



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Application of Economy Cast Steel Draft Arms will keep cars off repair tracks.

The value of the Economy Cast Steel Draft Arm is emphasized by the fact that there are over 625,000 in service.

Application of Economy Cast Steel Draft Arms increases the revenue.

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Marine Machinery Anchor-Windlasses
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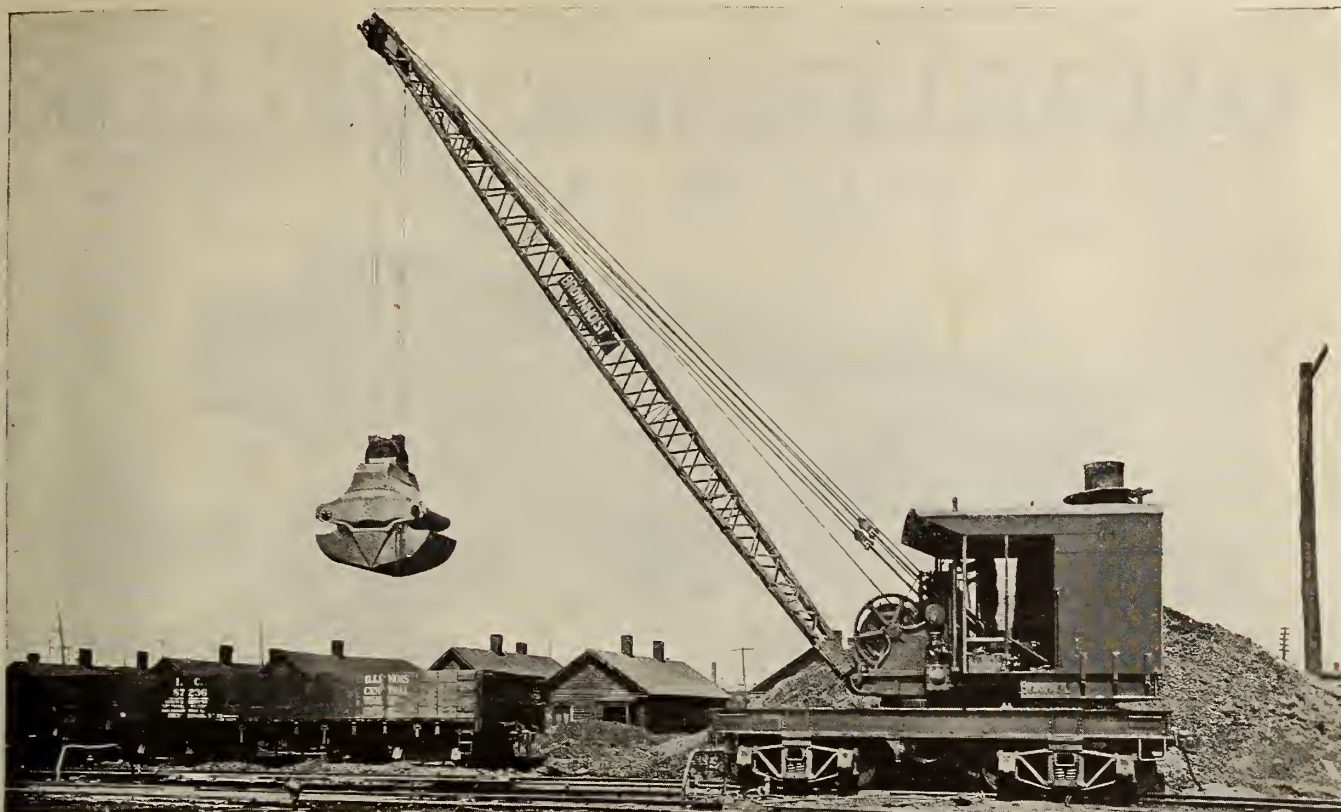
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Saving Over \$50 Per Day

After many years experience with locomotive cranes, The Nickel Plate Railroad rely on these cranes to the extent that they are indispensable in their work. They have proved that a crane saves men and money on all the big and little jobs they have to do.

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The fact that their Brownhoists will operate continuously enables the Nickel Plate to make the most of the days when working conditions are favorable. The cranes are used for excavating, pile driving, switching and many other material handling jobs that are constantly coming up.

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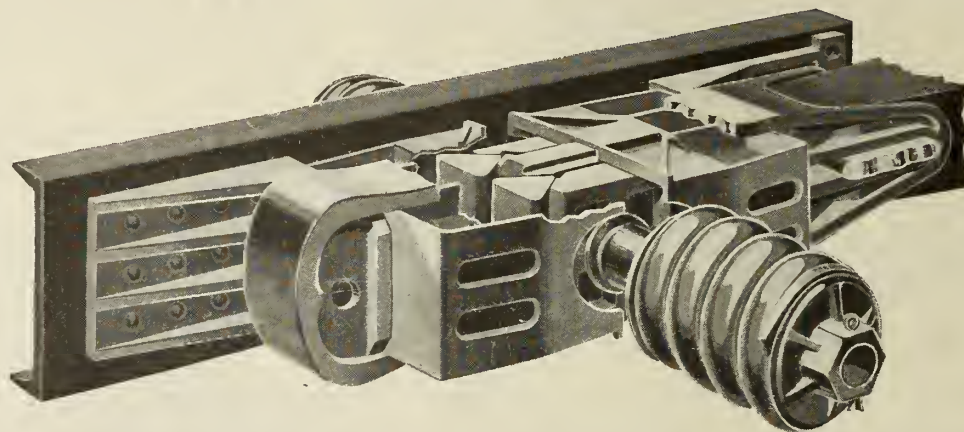
Branches: New York, Chicago, Pittsburgh, San Francisco, New Orleans.

Products—Locomotive Cranes, Buckets, Electric Hoists, Larries, Overhead Cranes, Bridge Cranes, Dock Machinery.

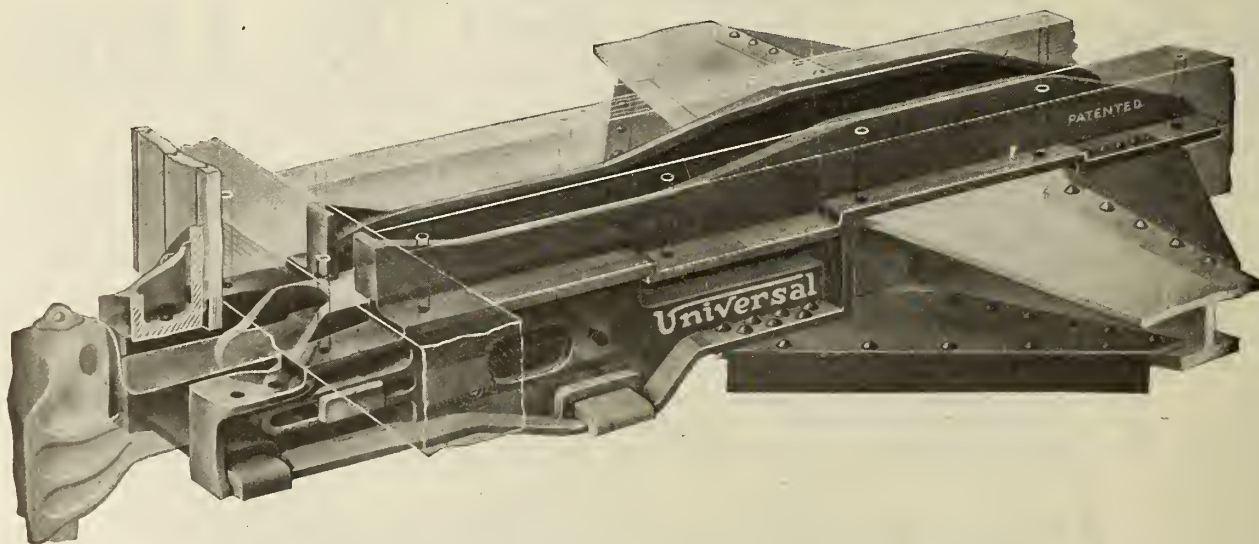
BROWNHOIST

M A T E R I A L H A N D L I N G M A C H I N E R Y

CARDWELL FRICTION DRAFT GEAR MADE IN CANADA



Universal ATTACHMENTS MADE IN CANADA



REENFORCING DRAFT ARMS
TANDEM SPRING DRAFT RIGGING
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Transportation Building, MONTREAL

RAILWAY TRACK MATERIAL

**Angle Bars
Tie Plates
Spikes
Bolts
Nuts**



HAMILTON MONTREAL

**66
Vessels**

**Canada's
Commerce
Carriers**

**Total
Tonnage
390,000**

Canadian Government Merchant Marine, Limited



REGULAR FREIGHT SERVICES

From Montreal and Quebec in Summer
From St. John, N.B., and Halifax, N.S.,
in Winter.

To the United Kingdom, Liverpool, London,
Glasgow, Cardiff, Swansea, etc.
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Sailings every ten days.

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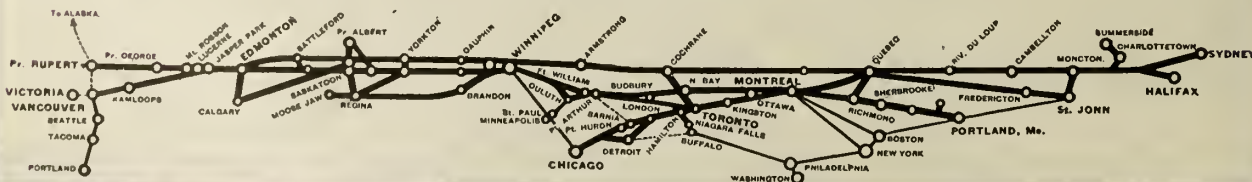
Every three weeks from Montreal in Summer, and Halifax, N.S., in Winter,
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Canadian National Railways

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Beaverduct is "Made in Canada" in a modern plant under the supervision of the best engineers available. Beaverduct is produced under the underwriters' inspection. Its use on such an installation as the new Toronto Street Cars is a fitting testimonial of its superiority.



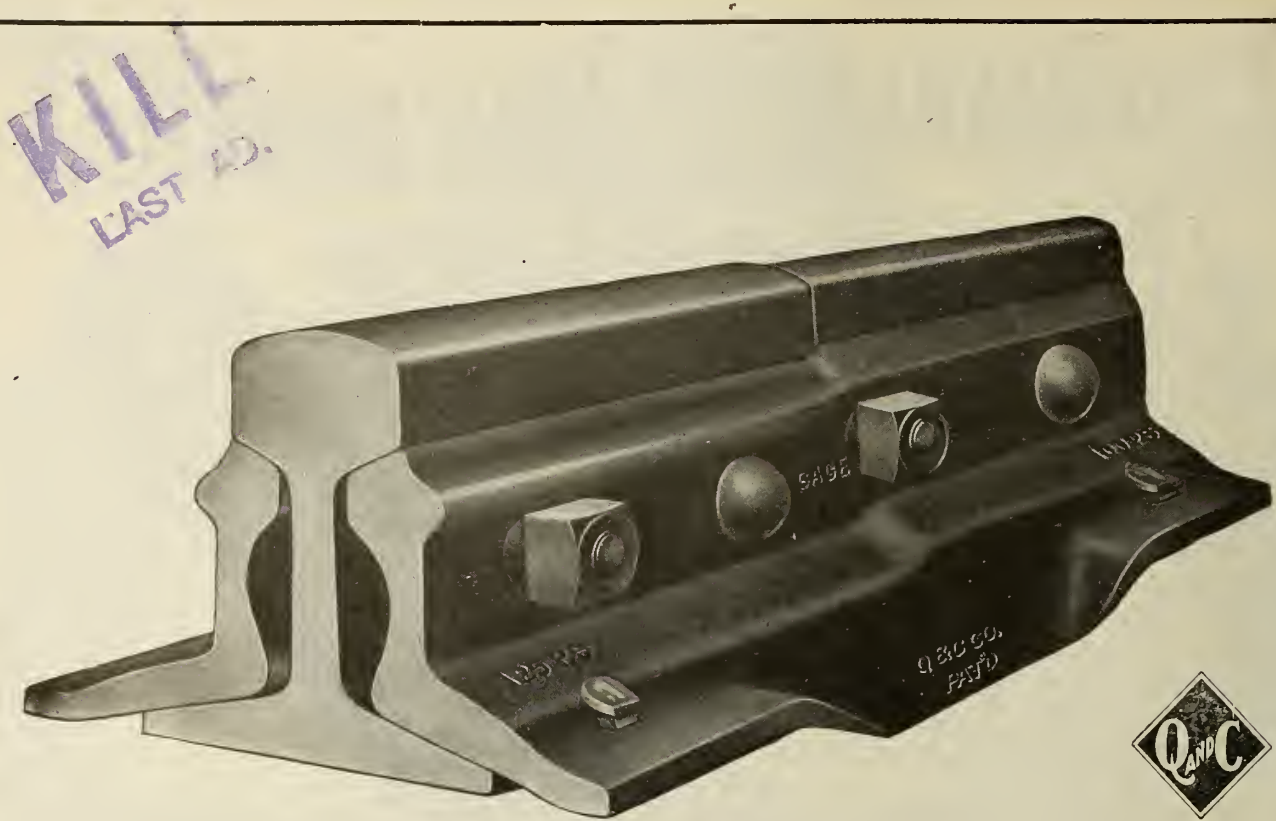
Good conduit can only be produced in a plant when the equipment permits only absolutely clean material being used. Electrical apparatus and plating solutions must be kept up to the mark under scientific management. The proper application of the enamel, after the galvanizing of the outside, is of vital importance. And, lastly, rigid inspection.

*Always specify
"Beaverduct"*

Canadian General Electric Co., Limited

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"The Joint by which others are judged"

"Heavier locomotives" is the cry today. Naturally, longer and heavier trains in the future. To successfully stand up under these additional tons, the maintenance equipment must be the best. In selecting step joints, as any other device, the design, material used, the process of manufacture and the cost are the essentials. It is on these fundamentals that the Q & C Rolled Steel Step Joint has built its reputation in the past.

Combined with their feature of strength—which under actual test has proven many times stronger than cast metal—Q & C Rolled Steel Step Joints embody the factors of safety and economy that enable them to lead in the step joint field. By our process of manufacture a rolled steel joint with the Bonzano and Thomson features is pressed to fit any rail section. This process involves heat treatment which further strengthens the joint and also permits pressing to a perfect fit. On your road you want the step joints that are the most efficient. A card will bring you any information. Write us today.

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ELECTRIC CARS

for City, Suburban and Interurban Service



Interior view, looking from front end, of Motor Cars built for Toronto Transportation Commission.
(Ask for our Bulletin No. 42)

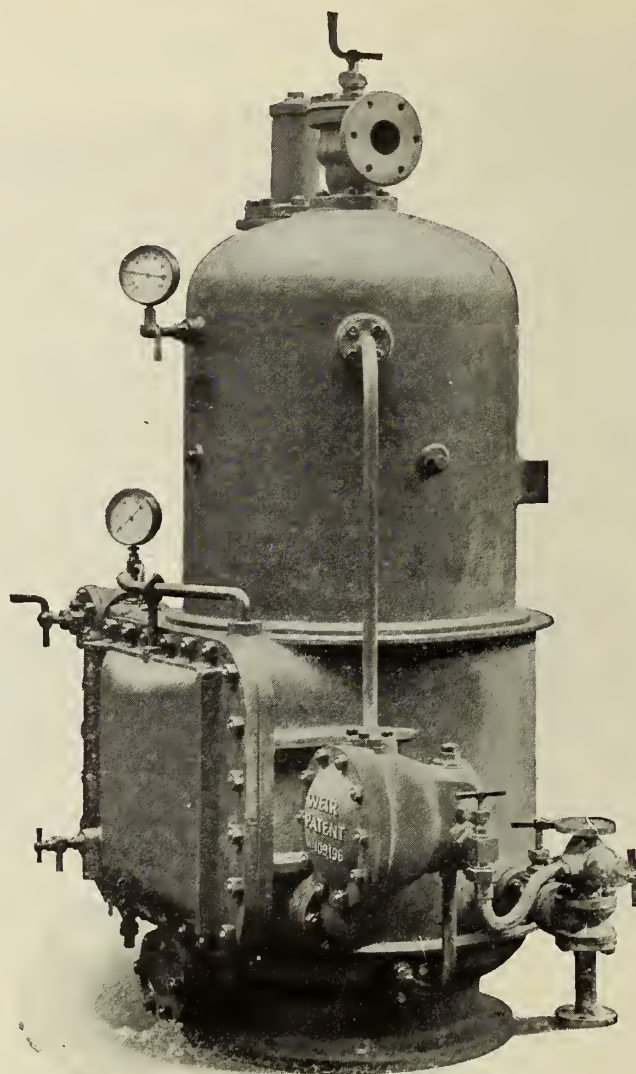
MOTOR and TRAILER CARS
PASSENGER and FREIGHT CARS
SWEEPER CARS SPRINKLER CARS
DUMP CARS SNOW PLOUGHS
ETC.

Canadian Car & Foundry Company, Limited

General Offices
Transportation Building
MONTREAL

EVAPORATORS

The New Weir Evaporator



WEIR PATENT
CONTINUOUS BRINING &
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Embodies Three Important Improvements

1. The Patent Brine Ejector.
2. The Automatic Feed Regulator.
3. The Special Tube Coupling.

These devices ensure uniform efficiency, simplify working, and lessen costs of upkeep.

They are fully described and illustrated in our New Evaporator Booklet—Send for it.

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Contractors to the British Admiralty and War Office and to the Governments of Australia, Canada, Egypt, India, New Zealand, South Africa, Argentine, Belgium, Brazil, Chili, Denmark, France, Greece, Holland, Italy, Japan, Norway, Portugal, Russia, Siam, Spain, Sweden, United States, Etc., Etc., also to the leading Steamship Lines and principal municipalities throughout the world.

**MADE
IN
CANADA**

G. & J. WEIR (Canada) LIMITED

Sales Engineers

PEACOCK BROTHERS, Limited, Montreal

Branch Offices: Toronto and Vancouver



The Results of Specialization

This company specializes in one particular phase of the oil industry—lubrication of the rolling stock and machinery equipment of railways, both steam and electric.

The entire structure of the organization is adapted to this special work and its constant function is development in lubricating efficiency. The comprehensive knowledge gained through many years of exhaustive research and experience shapes this development.

The result may be seen in Galena Service—*lubrication literally reduced to a science*. Lubrication that is free of the annoying and expensive troubles always identified with haphazard "oiling" methods. Lubrication that reduces time losses to a minimum; that protects and preserves bearing surfaces and lessens depreciation of costly equipment; that saves fuel and gives greater mileage. In other words, a lubrication service that is a positive aid in securing operating efficiency.

Throughout Canada and the United States there are over a thousand steam and electric railways using Galena lubricants, a fact that speaks more convincingly than words of their exceptional merit.

*"When Galena Service Goes In
Lubrication Troubles Go Out!"*

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GALENA-SIGNAL OIL CO.
OF CANADA LIMITED

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DOMINION IRON & STEEL CO. LIMITED.

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HALIFAX SHIPYARDS, LIMITED.

EASTERN CAR CO. LIMITED.

"THE ONLY STEEL MAKERS IN CANADA
WHOSE ENTIRE RAW MATERIALS ARE
PRODUCED WITHIN THE BRITISH EMPIRE"

STEEL PRODUCTS *of every
description*

*"Dominion"
"Old Sydney"
"Springhill"*

STEAM COALS

"FROM ORE TO FINISHED PRODUCT"

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O-B High Tension Insulators

Bought on a Basis of Tangible Fact

Engineers used to buy O-B Insulators on faith—faith in their own ability to judge good design—faith in the O-B organization.

Their trust has been fully justified by the records of O-B Insulators in service.

Time on the line is the only complete and final test of insulators. O-B Insulators have made good under all conditions and in all services.

A design for every place on the line and in the station. Prompt shipment.



THE OHIO BRASS CO.

Mansfield, Ohio, U.S.A.

Products: High Tension Porcelain Insulators; Trolley Material; Rail Bonds; Electric Railway Car Equipment; Third Rail Insulators.

Dearborn Service Saves Dollars In Locomotive Operation

It is a case of *real saving*, accomplished on a scale the extent of which it is difficult to compute, when it is remembered that the savings relate to such matters as fuel, lubrication, boiler washing, time of the locomotive in service, life of boiler tubes, and repair outlay, all items that enter into the *daily operating expense*.

With the use of Dearborn Treatment considerable increase in the mileage between boiler washings is accomplished. This, in turn produces a saving in fuel, and boiler washing expense, and reduces the time the locomotive is out of service.

There is also a vast saving in fuel consumption due to keeping the heating surfaces free from scale.

In the prevention of foaming by the use of Dearborn Treatment, the fuel saving is a large item,—as well as water and lubrication,—in addition to which the operating conditions are greatly improved, and engines are enabled to haul full tonnage with no delays because of foaming.

Dearborn methods of Water Treatment are scientific, yet simple, practical, and inexpensive. Send samples of your bad water supplies for analysis, and let us advise regarding treatment. There is no charge for the analytical work.

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Lima, Peru	Shanghai, China
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CABLE ADDRESS: CONSTECO, NEW YORK

Cable Codes: Consolidated Steel Corporation, Western
Union, A B C Fifth Edition Improved, Scott's 10th
Edition, Bentley's Complete Phrase, Lieber's



THE map above shows the location of the 49 foundries in the United States and Canada, represented by the Association of Manufacturers of Chilled Car Wheels.

Chicago, 3	Sayre, Pa.
St. Louis, 2	Berwick, Pa.
Buffalo, 4	Albany
Pittsburgh, 2	Toronto
Cleveland, 2	New Glasgow, N.S.
Amherst, N.S.	Madison, Ill.
Montreal	Huntington, W. Va.
Mich. City, Ind.	Wilmington, Del.
Louisville	Houston, Tex.
Mt. Vernon, Ill.	Hannibal, Mo.
Ft. Wayne, Ind.	Reading, Pa.
Birmingham	Baltimore
Atlanta	Richmond, Va.
Savannah	Ft. William, Ont.
Boston	St. Thomas
Detroit	Hamilton
St. Paul	Ramapo, N. Y.
Kansas City, Kan.	Marshall, Tex.
Denver	Los Angeles
Tacoma	Council Bluffs
Rochester, N. Y.	

American Railroad Association Standards

650 lb. wheel for 60,000 Capacity Cars
 700 lb. wheel for 80,000 Capacity Cars
 750 lb. wheel for 100,000 Capacity Cars
 850 lb. wheel for 140,000 Capacity Cars

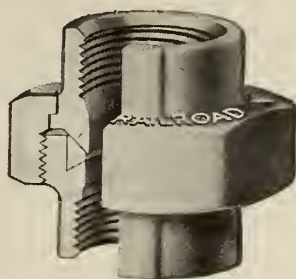
The Standard Wheel for Seventy-One Years.

CHILLED IRON WHEELS

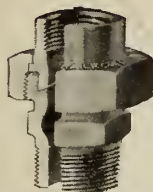
for railway and street car service. Capacity 20,000 per day. 25,000,000 in service.

ASSOCIATION OF MANUFACTURERS
 OF CHILLED CAR WHEELS
 1847 McCormick Bldg., Chicago

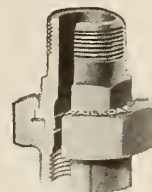
CHILLED IRON WHEELS



No. 519



No. 517 Reducing
Pump Stud Union.



No. 519 1/2. Male and
Female Union.



No. 594 Tee
with Female Union.



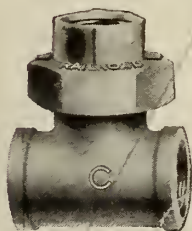
No. 595 Tee
Reducing or. Outlet



No. 596 Tee
with Male Union.



No. 592 Elbow
with Male Union



No. 598 Tee
Union on Outlet.



No. 590 Elbow
with Female Union

CRANE RAILROAD UNIONS AND FITTINGS

**Are Absolutely Leak-Proof, and
Eliminate Unnecessary Joints.**

**THEY REQUIRE NO GASKETS AND
MAY BE TAKEN APART EASILY.**

*Manufacturers of Valves, Fittings and Piping
Equipment and Distributors of Pipe
Plumbing and Heating Supplies.*

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WINNIPEG, REGINA, CALGARY,
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Sales Offices:
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ST. JOHN, VICTORIA.

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Limited**

Head Office and Warehouse:
LONDON, ENGLAND.

Sales Offices:
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LEEDS, GLASGOW.

The "E Pluribus Unum" of business

NO sale or business transaction can take place without a "meeting of minds." Whether a block or a thousand miles separate buyer and seller, their minds must meet before goods can be sold or bought.

In the old days, trading at a distance was slow and cumbersome; the standards of merchandise, demand and price varied widely every hundred miles. Big, economical production was impossible. The world moved with a slow and halting pace.

The contrast between that period and today demonstrates that *civilization can advance only in proportion to our ability to disseminate thought and transport things.*

This principle is the foundation of our national unity. Canada is not merely a physical union, but a union of hearts and minds created by common ideals, uni-

formity of education, common habits, thoughts and purposes.

This is made possible largely by unifying influences not possessed by the ancients—by our great, pulsating *highways of intelligence*—the daily, weekly and monthly publications.

No more than three or four of the readers of this paper may be in a single town, and the others similarly scattered over the country, but all read the same news, get the same ideas, learn of the same goods, and thus the group is integrated and bound together by a common source of information.

By establishing these great information routes between the members of the various trade and industrial groups, the Business Paper makes one market of the whole country for the seller, and gives to the buyer a nation-wide source of supply.

LIST OF MEMBERS

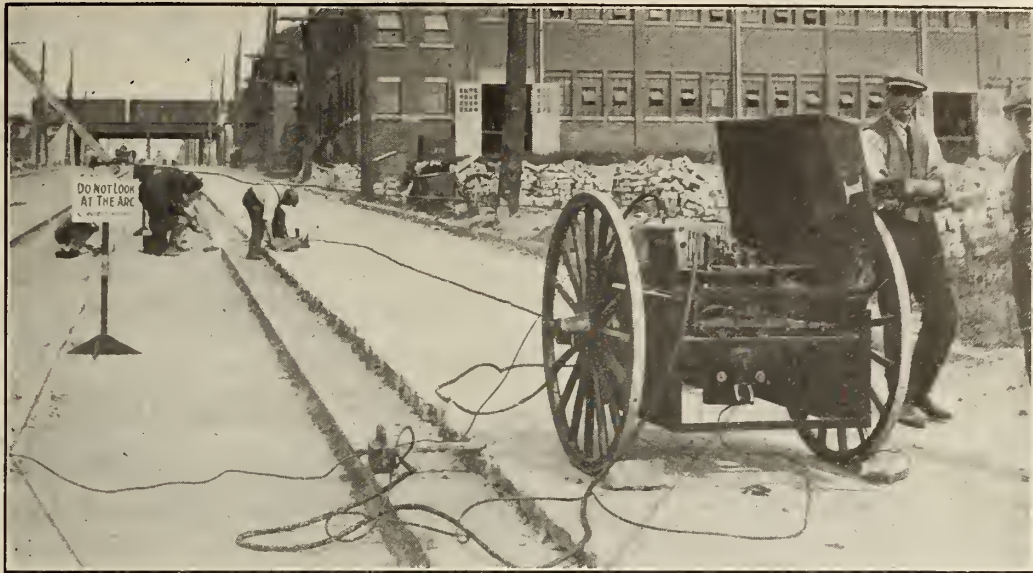
Each has subscribed to and is maintaining the highest standards of practice in its editorial and advertising service

Advertising and Selling	Building Supply News	Embalmers' Monthly	Heating and Ventilating	Modern Hospital (The)	Railway Electrical
American Architect &	Bulletin of Pharmacy	Engineering and	Magazine	Motor Age	Engineer
Architectural Review	Canadian Grocer	Contracting	Hide and Leather	Motorcycle and	Railway Maintenance
American Blacksmith,	Canadian Machinery &	Engineering and	Hospital Management	Bicycle Illustrated	Engineer
Auto & Tractor Shop	Manufacturing News	Mining Journal	Hotel Monthly	Motor Truck	Railway Mechanical
American Exporter	Canadian Railway &	Engineering News-	Hotel Review	Motor World	Engineer
American Funeral	Marine World	Record	Illustrated Milliner	National Builder	Railway Signal
Director	Candy and Ice Cream	Factory	Implement and Tractor	National Cleaner & Dyer	Engineer
American Hatter	Chemical & Metal-	Farm Implement News	Age	National Laundry	Retail Lumberman
American Machinist	lurgical Engineering	Farm Machinery—	Implement & Tractor	Journal	Rock Products
American Paint Journal	Clothier and Furnisher	Farm Power	Trade Journal	National Petroleum	Rubber Age
American Paint & Oil	Coal Age	Fire and Water	Industrial Arts	News	Sanitary & Heating
Dealer	Coal Trade Journal	Engineering	Magazine	Nautical Gazette	Engineering
American Printer	Concrete	Foundry (The)	Inland Printer	Northwest Commercial	Shoe Findings
American School Board	Cotton	Furniture Journal	Iron Age	Bulletin	Shoe and Leather
Journal	Daily Metal Trade	Furniture Manufacturer	Iron Trade Review	Northwestern Druggist	Reporter
Architectural Record	Distribution and	and Artisan	Lumber	Oil News	Shoe Retailer
Automobile Dealer and	Warehousing	Furniture Merchants'	Lumber Trade Journal	Oil Trade Journal	Southern Engineer
Repairer	Domestic Engineering	Trade Journal	Lumber World Review	Power	Southern Hardware &
Automobile Journal	Dry Goods Economist	Garment Weekly (The)	Manufacturers' Record	Power Boating	Implement Journal
Automotive Industries	Drygoodsman	Gas Age-Record	Manufacturing Jeweler	Power Farming Dealer	Sporting Goods Dealer
Bakers Helper	Dry Goods Reporter	Good Furniture Maga-	Marine Engineering &	Power Plant	Starchroom Laundry
Bakers Weekly	Electric Railway	zine	Shipping Age	Engineering	Journal
Boiler Maker (The)	Journal	Grand Rapids Furniture	Marine Review	Price Current—Grain	Tea and Coffee Trade
Boot and Shoe Recorder	Electrical	Record	Millinery Trade Review	Reporter	Journal
Brick and Clay Record	Merchandising	Haberdasher (The)	Mill Supplies	Printers' Ink	Textile World
Buildings and Building	Electrical Record	Hardware Age	Mining and Scientific	Railway Age	Welding Engineer
Management	Electrical World	Hardware & Metal	Press		Wood-Worker (The)

THE ASSOCIATED BUSINESS PAPERS, INC.

JESSE H. NEAL, *Executive Secretary*

HEADQUARTERS: 220 West 42nd STREET NEW YORK CITY



One of the Four Type W.W. Dynamotors Purchased by Toronto Transportation Commission

Type W.W. Will

1. Weld joints by the Lincoln Carbon Arc Process, insuring deep penetration and greater speed than any other method.
2. Apply bonds by the Lincoln Carbon Arc Process, same as type B.B.
3. Weld joints, using the metallic arc.
4. Apply steel terminal bonds, using metallic arc.
5. Build up worn rails.
6. Do repair work.

Type B.B. Will

1. Apply bonds by the Lincoln Carbon Arc Process, securing the following advantages:
 - a. Lowest first cost of bond.
 - b. Greatest saving in power.
 - c. Bond actually applied in from 45 to 60 seconds.
2. Weld joints, using the metallic arc.
3. Apply steel terminal bonds, using metallic arc.
4. Build up worn rails.
5. Do all kinds of general repair work that can be done with any type of electric arc welder, including type W.W.

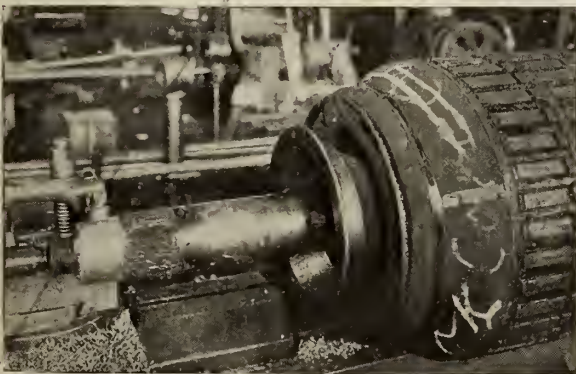


Carbon Arc Bond.

The LINCOLN ELECTRIC CO. OF CANADA LIMITED

Head Office and Works: John St., Toronto

Branch: Coristine Bldg., Montreal



Worn Armature Shaft, built up by Electric Welding and being turned down to size.



Carbon Arc Joint.



To Get The Best Results

Buy Your Wire Rope

FROM ONE OF THE OLDEST MAKERS
IN CANADA

THE DOMINION WIRE ROPE CO., LIMITED

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Branches: TORONTO, WINNIPEG

The Improved Hart Convertible Car

Unloads Clean Without Extra Hand Labor



Old Level Floor Car. Note Ballast Left by Plow.

For
Ballasting
Center
Dump
or
Side Dump

For Coal
or General
Service

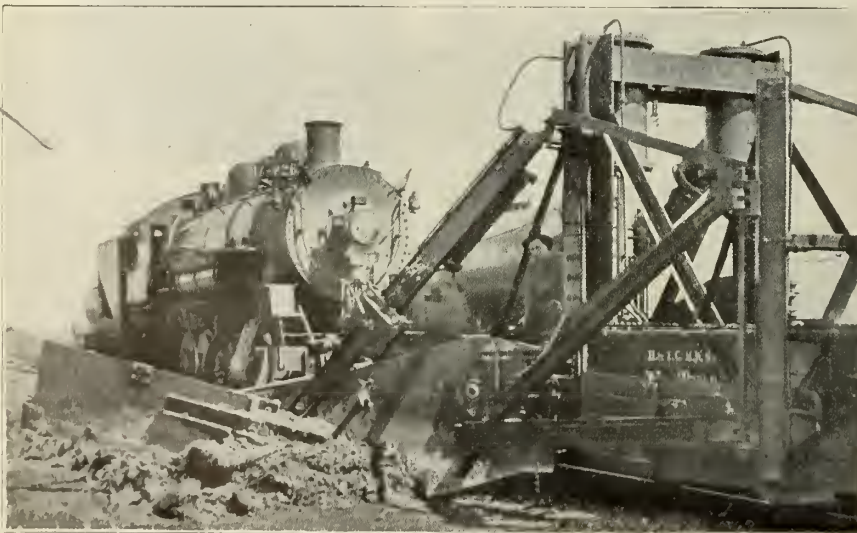


Improved Car Unloaded by Top Plow. Has no Ballast to be Shovelled out by Hand.

The Car With Gravity Discharge Sockets

—DESIGNED, PATENTED AND BUILT IN CANADA—

The HART-OTIS CAR CO., Limited, MONTREAL



Do you know that there have been two recent improvements made in the

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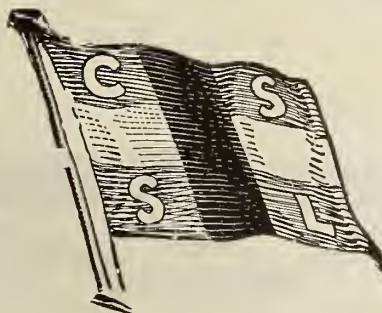
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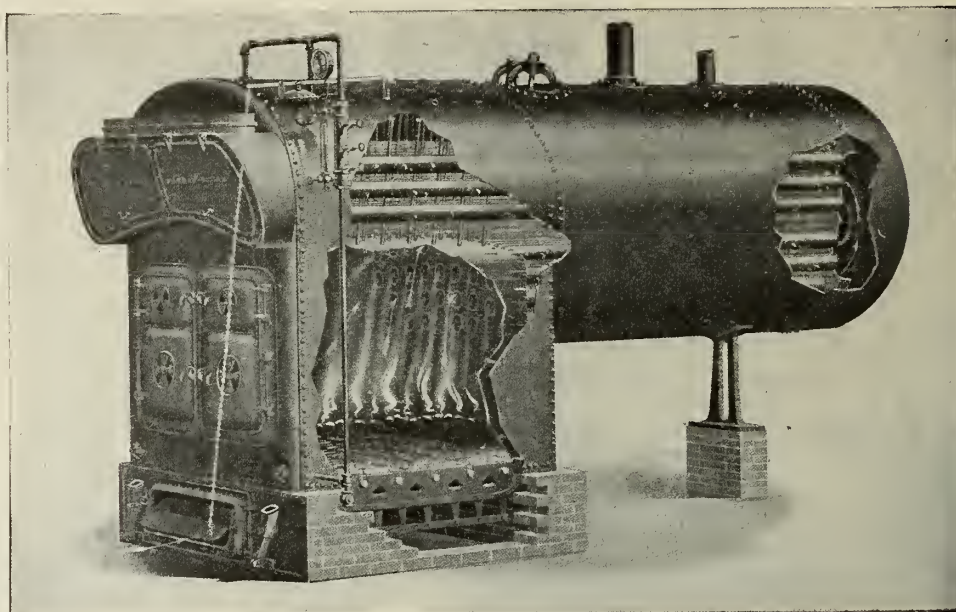
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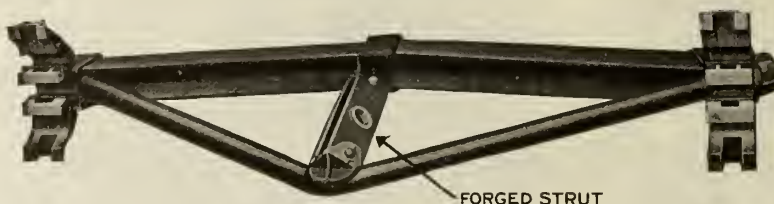
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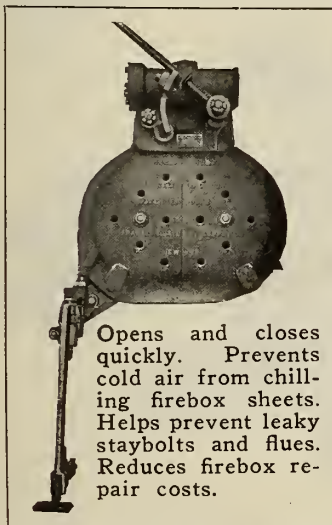
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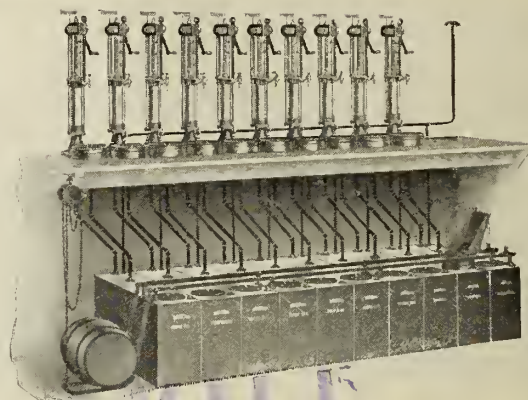
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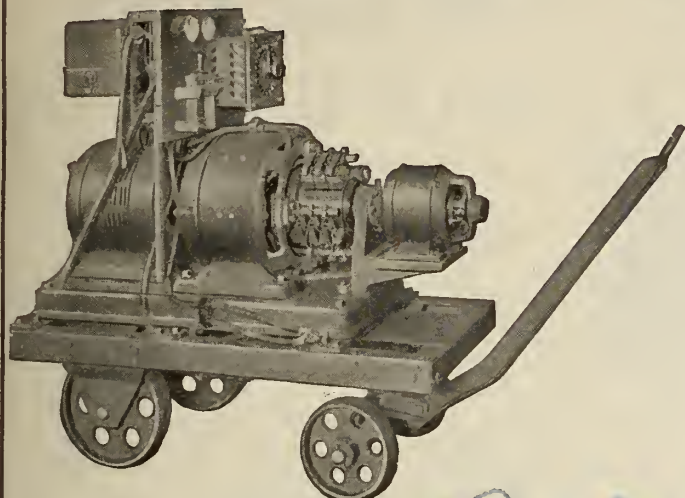
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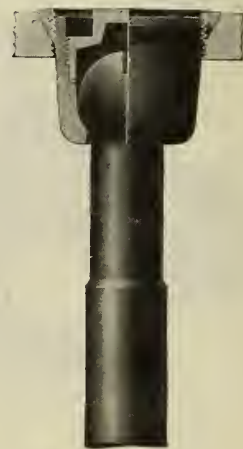
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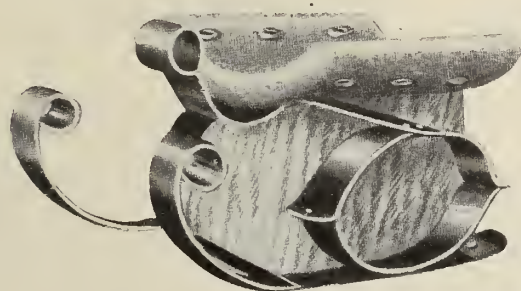
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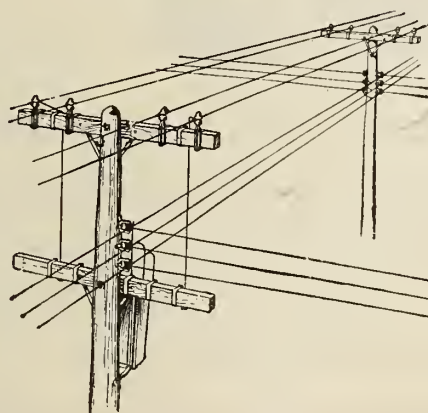
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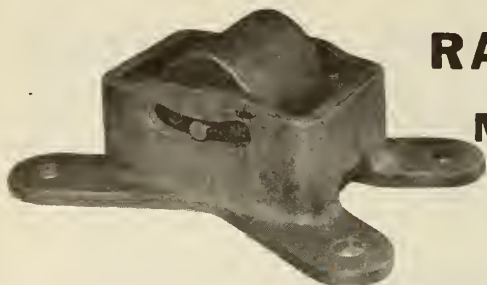
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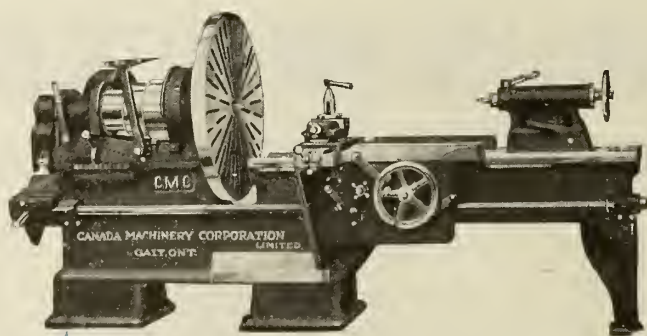
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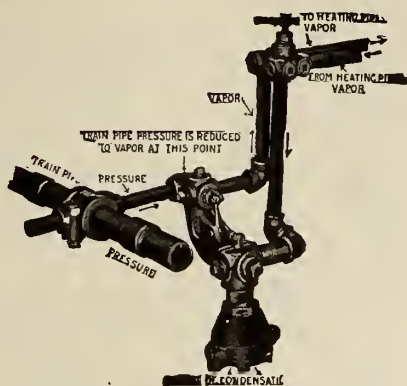
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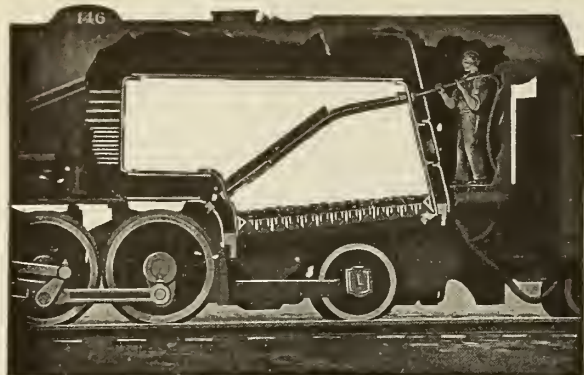
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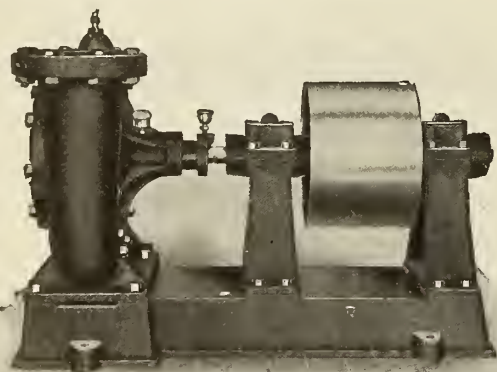
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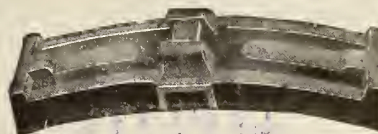
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Canadian Railway and Marine World

February, 1922

Double Gauge Track on Prince Edward Island Railway.

As the question of completing the changing of the Prince Edward Island Ry. gauge from 3½ ft. to the standard 4 ft. 8½ in. was much discussed during the recent general elections, it will be of interest to review what has already been done in this connection, the methods adopted, and the results. The P.E.I.R.

12.89 miles, a total of 60.27 miles. The laying of the third rail was begun in Aug. 1918, and carried on until the early part of December, when it was abandoned for the winter. Construction resumed in May 1919 and completed in August of that year.

The original narrow gauge track con-

the surface of the three rails would be in the same plane. This has proved fairly satisfactory, except that, owing to the short life of the shims, the cost of replacement is becoming rather heavy. Some difficulty is also being experienced in keeping the shimmed rail to gauge on sharp curves, as the shims have a tend-

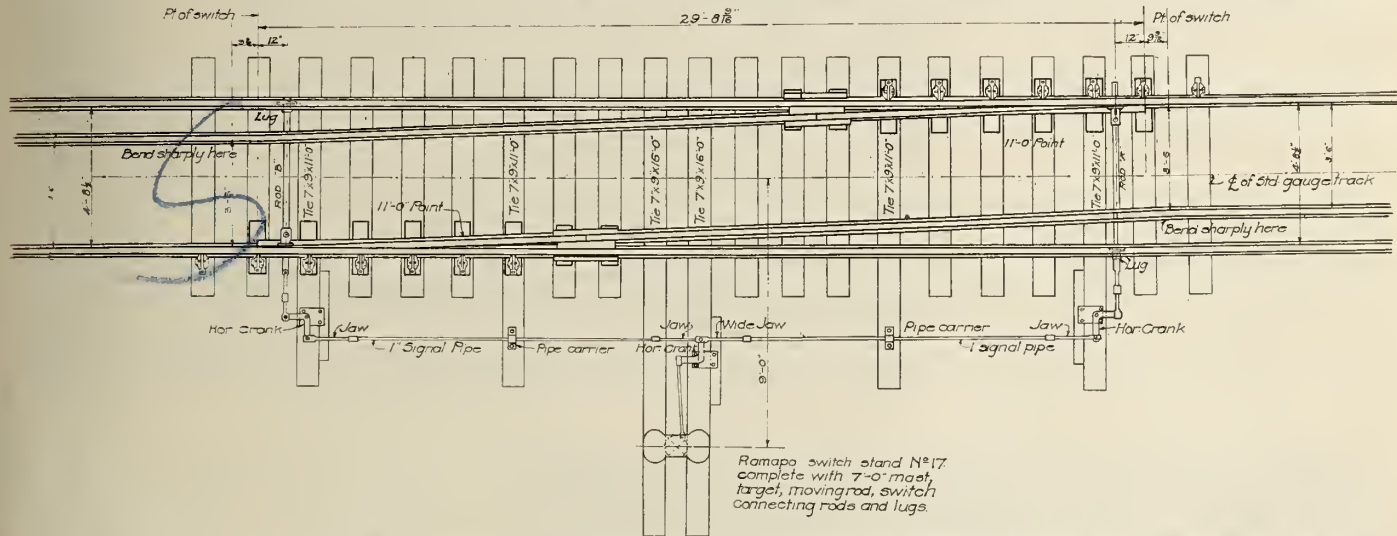


Fig. 1. Double Gauge Tracks, Prince Edward Island Ry. Standard and narrow gauge combination turnouts, 80 lb., showing switches necessary for Y tracks.

has a total mileage of 276.77, made up as follows:—main line, Charlottetown via Summerside to Tignish, 115.17; and the following branches, Charlottetown to Mur-

sisted of about 38 miles of 56 lb. rail, and 22 miles of 50 lb. rail, but for the installation of the third rail this was replaced in part by having the two outer

ency to slide on the ties, but this is overcome to some extent by the insertion of wooden braces between the shimmed rail and the outer Russian rail.

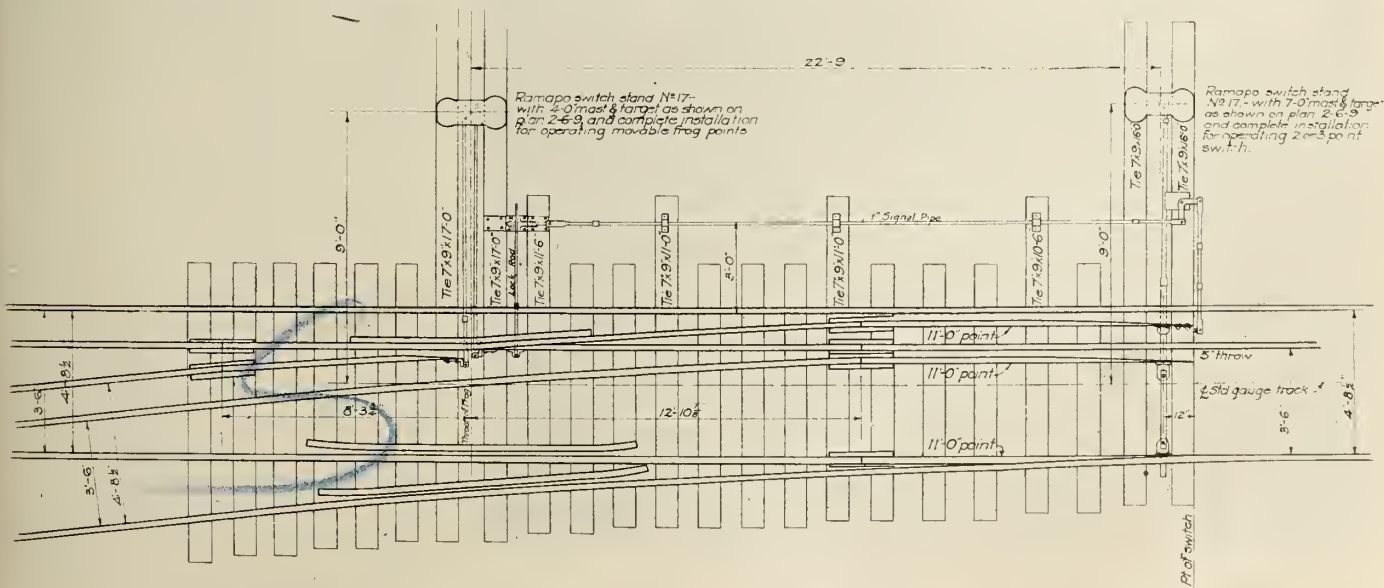


Fig. 2. Double Gauge Tracks, Prince Edward Island Dy. Standard and narrow gauge combination turnouts, 80 lb. Method of interlocking movable point frog and switch point.

ray Harbor, 47.70; Lake Verde to Vernon, 4.43; Royalty Jct. to Souris, 56.08; Harmony Jct. to Elmira, 9.85; Mount Stewart Jct. to Georgetown, 24.29; Emerald Jct. to Borden, 12.89. A third rail has been laid on the main line from Charlottetown to Summerside, 47.38 miles, and on the Emerald Jct.-Borden Branch.

or standard gauge rails of 67½ lb. rail, which had been rolled for the Russian Government in 1917. The inside rail of 56 or 50 lb. weight, was allowed to remain for narrow gauge equipment. As the Russian rail is 5 in. high and the 56 lb. rail only 4 in., it was necessary to place shims under the light rail, so that

There were no particular problems experienced in the laying of the third rail, but the labor involved was rather heavy, as the two outer rails had to be laid so that the center line of the standard gauge track, which would carry the heaviest rolling stock, would correspond with the center line of the roadbed or ties, and this

meant that the remaining narrow gauge rail had to be moved over on the tie $7\frac{1}{4}$ in., being half the difference between the width of the standard and narrow gauge. In general the third or standard gauge rail is laid on the north or right hand side of the track, but to follow this out while connecting up at junctions would have meant that the third rail at one end of the Y would be on the opposite side of the track, when meeting up with

For yard sidings a no. 13 rigid frog was used. This frog is double pointed, and, owing to the very small angle, the tracks and wheels must be rigidly to gauge to avoid derailments, on account of the liability of wheels striking frog points. The accompanying plans, figs. 2 and 3, show the arrangements of both the rigid and movable frog turnouts.

Nearly all the bridge spans had to be renewed to take care of the heavier roll-

that there are two rails on the north side of the track, close together, provides sufficient shade from the sun to hold the frost at the north end of the ties for a longer period than at the south end, with the inevitable result that during this time it is quite a problem to hold the track to anything like proper elevation, and there have been several derailments on this account.

The third rail was to provide through

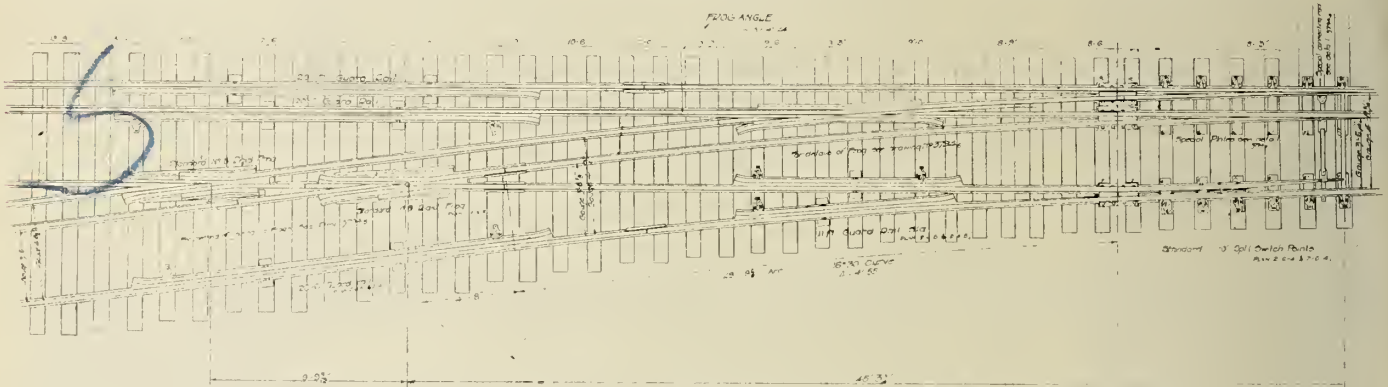


Fig. 3. Double Gauge Tracks, Prince Edward Island Ry. Standard and narrow gauge combination turnouts.

the main line tracks. This was overcome simply, by the provision of two switchpoints, one on each side of the rail, operated by a single switch stand, by means of which the third rail was transferred from one side of the track to the other. The accompanying plan, fig. 1, of switch for Y tracks will explain this more clearly.

All main line turnouts are no. 8, and

ing stock, but as none of them are over 40 ft. long, no heavy work was involved.

It was expected that considerable difficulty would be experienced in winter operation in keeping the narrow and outer rail clear of ice and snow, but the drop nose ploughs previously in use for narrow gauge operation have done this work quite satisfactorily. Their drop noses were fitted with a removable plate,

standard accommodation between Charlottetown and Summerside, the chief distributing points on the Island, and mainland points, via the car ferry between Port Borden, P.E.I., and Cape Tormentine, N.B., and covers about one-fifth of the P.E.I.R., which is now the Canadian National Rys. Island Division, but it is hoped that financial conditions will in the not distant future permit the extension of the standard gauge to outlying points, and thus eliminate the present multiple rail track as far as possible.

Canadian Railway and Marine World is indebted to Alex. Scott, Division Engineer, Island Division, Canadian National Rys., for the foregoing information.

The next portion of the work to be undertaken will undoubtedly be the part of the main line between Summerside and Tignish, 115.17 miles, which would do away with the transfer of freight from standard gauge cars to narrow gauge ones at Summerside, for points from there to Tignish.

Additional illustrations will be found on page 61.

Station Caretaker Agents' Duties.

The Board of Railway Commissioners passed general order 355 Jan. 5, as follows:—Re general order 119, Jan. 31, 1914, and the appointment of caretaker agents at non-agency stations. Whereas railway companies are required from time to time to appoint caretaker agents at stations at which regular station agents are not maintained, the Board therefore declares that the duties of a caretaker agent shall be to see that the station is kept clean, and, when necessary, heated and lighted for passenger's accommodation, and to be present on the arrival and departure of trains; such duties to be the same as those of a regular station agent, excepting the billing of freight and handling the telegraph system.

The Canadian National Rys. Employees' Social Club held a New Year party in the Winnipeg union station rotunda, commencing just after midnight and continuing until 4 am. on Jan. 2.



Double Gauge Tracks and Switches in Charlottetown Terminal Yard, P.E.I. Ry.

consist of two no. 8 frogs and one no. 13 frog, with movable points. These frog points are operated by a Ramapo switch stand, having two moving rods, and double throw instead of the ordinary single throw. This stand is partly interlocked with the switch points by plunger and lock rods, making it impossible to leave the frog points set for a siding if the switch points are set for the main line.

slotted for the inner or narrow gauge rail. This plate is changed over to the left or right hand of the plough to suit the position of the inner rail, that is in working west the plate is on the right hand side of the plough, and in working east it is changed over to the left hand side. Considerable trouble has, however, been experienced in the spring, while the frost is leaving the ground. The fact

Birthdays of Transportation Men in February.

Many happy returns of the day to:—

W. J. Atkinson, Superintendent, St. Maurice Division, Quebec District, Canadian National Rys., Quebec, Que., born at Levis, Que., Feb. 14, 1880.

T. Ginnelly, Assistant Freight Claims Agent, Canadian National Rys., Western Lines, Grand Trunk Pacific Ry. and Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C., born in Ireland,

there, Feb. 15, 1879.

T. C. Hudson, General Master Mechanic, Eastern Lines, Canadian National Rys., Montreal, born at Brockville, Ont., Feb. 20, 1873.

H. Hulatt, Manager of Telegraphs, G. T.R., Montreal, born at London, Eng., Feb. 15, 1883.

A. H. Jones, Assistant Engineer, Canadian National Rys., Toronto, born at Liverpool, Eng., Feb. 16, 1884.

A. E. McAmmond, Chief Dispatcher, Kenora Division, Manitoba District, C.P.R., Kenora, Ont., born at Britannia Bay, Ont., Feb. 19, 1879.

John McCraw, Travelling Representative, G.T.R., New London, Conn., born at Craigville, Ont., Feb. 6, 1868.

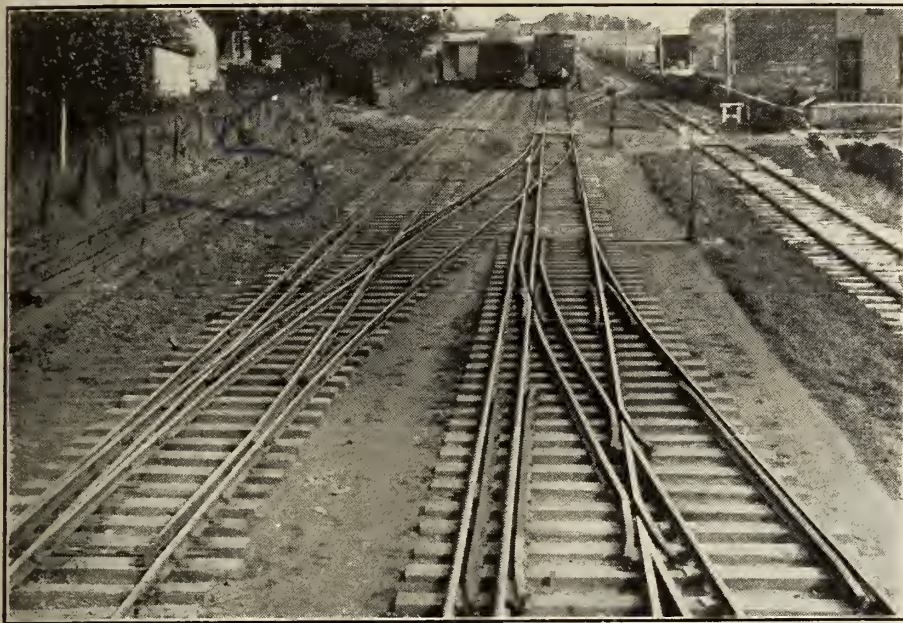
J. K. McNeillie, General Manager's office Delaware & Hudson Rd., Albany, N. Y., born at Toronto, Feb. 23, 1874.

J. D. McNutt, Assistant Superintendent, Halifax Division, Maritime District, Eastern Lines, Canadian National Rys., Truro, N.S., born at Stewiacke, N.S., Feb. 8, 1873.

D. C. Macdonald, Assistant General Claims Agent, C.P.R., Winnipeg, born at Elmsdale, N.S., Feb. 9, 1874.

C. S. Maharg, Superintendent, Vancouver Division, British Columbia District, C.P.R., Vancouver, born in Dufferin County, Ont., Feb. 4, 1867.

V. J. Melsted, ex-Engineer of Water Service, C.P.R., now of Milton Hersey Co., Winnipeg, born at Gardar, N.D., Feb.



Double Gauge Tracks and Switches in Summerside Yard, P.E.I. Ry. See pages 59 and 60.

T. Britt, General Fuel Agent, C.P.R., Montreal, born there, Feb. 3, 1871.

G. E. Bunting, General Traffic Agent, Canadian National Rys., and Australasian Manager, Canadian Government Merchant Marine, Auckland, New Zealand, born at Toronto, Feb. 8, 1873.

J. S. Byrom, General Superintendent, Sleeping, Dining and Parlor Cars and News Service, Eastern Lines, C.P.R., Montreal, born at Jersey City, N.J., Feb. 10, 1872.

B. E. Chace, City Ticket Agent, C.P.R., Nelson, B.C., born at New York, N.Y., Feb. 29, 1884.

H. R. Charlton, General Advertising Agent, G.T.R., Montreal, born at St. Johns, Que., Feb. 9, 1866.

R. Chisholm, Inspector of Agencies, Canadian National Rys. and Grand Trunk Pacific Ry., Winnipeg, born at Georgeville, N.S., Feb. 25, 1871.

R. Colclough, Superintendent, St. Maurice Division, Quebec District, Canadian National Rys., Quebec, Que., born at Bic, Que., Feb. 24, 1871.

G. M. Cordingley, Chief Dispatcher, C.P.R., Saskatoon, Sask., born at Montreal, Feb. 13, 1886.

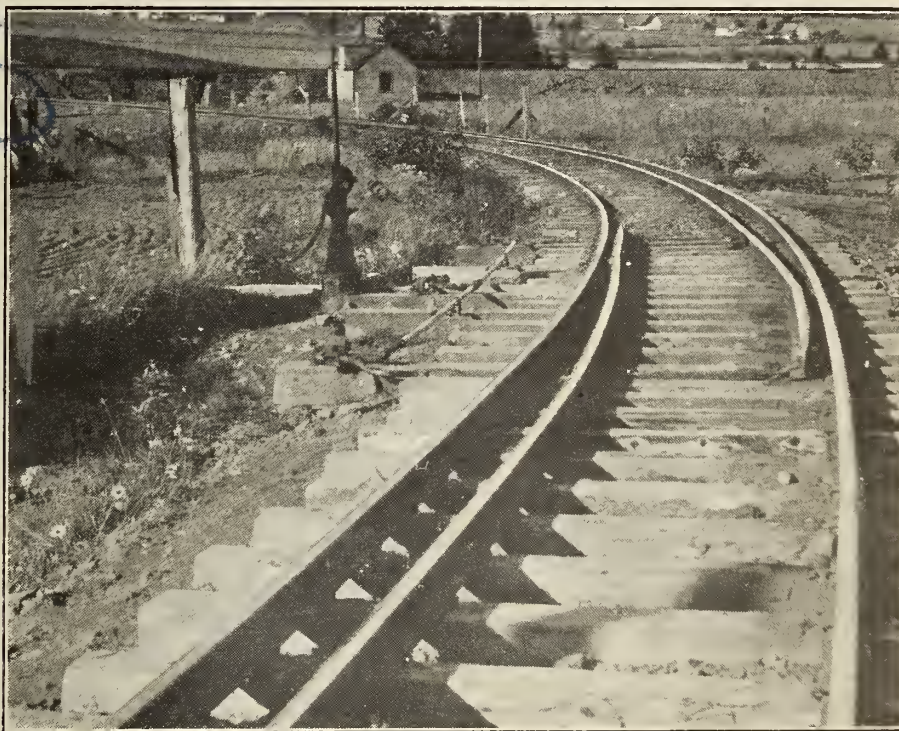
R. Crawford, Northwest Agent, Northern Navigation Co., Winnipeg, Man., born at Kingston, Ont., Feb. 21, 1870.

V. A. G. Dey, Division Engineer, Bruce Division, Ontario District, C.P.R., Toronto, born at Aberdeen, Scotland, Feb. 4, 1883.

E. A. Evans, consulting engineer, ex-General Manager and Chief Engineer, Quebec Ry., Light & Power Co., Quebec, born at Kensington, Eng., Feb. 26, 1855.

Goodwin Ford, General Superintendent Western Lines, Dominion Express Co., Winnipeg, born at Bordentown, N.J., Feb. 23, 1859.

U. E. Gillen, General Manager, Toronto Terminal Ry. Co., Toronto, born at Brooklyn, Mo., Feb. 27, 1867.



Special Switch at Emerald Jct., P.E.I. Ry., for Y, to change third rail from left hand to right hand. Points set for standard gauge. See pages 59 and 60.

Feb. 11, 1880.

L. L. Grabill, General Baggage Agent, G.T.R., Toronto, born at Walkerton, Ont., Feb. 6, 1878.

S. M. Greene, City Ticket Agent, Canadian National Rys. and Grand Trunk Pacific Ry., Regina, Sask., born at Derby, Eng., Feb. 15, 1887.

A. J. Hills, Assistant to President, Canadian National Rys., Toronto, born

20, 1887.

G. A. Montgomery, Vice President and General Manager, Algoma Central & Hudson Bay Ry., and President, Algoma Eastern Ry., Sault Ste. Marie, Ont., born at Bradford, Ont., Feb. 11, 1871.

A. Z. Mullins, General Agent, Freight Department, Canadian National-Grand Trunk Rys., Grand Rapids, Mich., born at Appin, Ont., Feb. 14, 1862.

F. Norman, Superintendent, Canadian National Express Co., Winnipeg, born at Picton, Ont., Feb. 24, 1874.

C. T. Ridalls, Car Foreman, C.P.R., London, Ont., born at St. Heliers, Jersey, Channel Islands, Feb. 8, 1864.

A. E. Rosevear, General Freight Agent, Canadian National Rys., Western Lines, and Grand Trunk Pacific Ry., Winnipeg, born at Montreal, Feb. 20, 1863.

J. G. Scott, ex-General Manager, Quebec & Lake St. John Ry., and Great Northern Ry. of Canada, Quebec, born there, Feb. 13, 1847.

J. J. Scully, General Superintendent, Algoma District, C.P.R., North Bay, Ont., born at Montreal, Feb. 3, 1872.

E. M. Snell, General Agent, Erie Rd., Toronto, born at Wingham, Ont., Feb. 16, 1872.

J. M. Sparling, Assistant to Vice President, Traffic, G.T.R., Montreal, born at Toronto, Feb. 16, 1882.

G. Spencer, Chief Operating Officer, Board of Railway Commissioners, Ottawa, born in London, Eng., Feb. 21, 1865.

A. P. Villain, City Ticket Agent, C.P.R., San Francisco, Cal., born there, Feb. 6, 1891.

F. L. Wanklyn, General Executive Assistant, C.P.R., Montreal, born at Buenos Aires, Feb. 25, 1860.

J. R. Watson, Assistant Superintendent, Sleeping Dining and Parlor Cars and News Service, Eastern Lines, C.P.R., Montreal, born at Morpeth, Eng., Feb. 8, 1873.

A. Williams, Superintendent, Farnham Division, Quebec District, C.P.R., Farnham, born at Mono Road, Ont., Feb. 22, 1872.

The Canadian Light Railway Co's Position.

A storm is brewing at Kirkland Lake and Swastika. The headquarters of the Canadian Light Railway Construction Co. is the storm-center, and unless a change takes place exceedingly soon, there promises to be a veritable cloudburst. C. E. Pinelle has apparently been promoting the scheme to build a light railway through the Kirkland Lake district. This gentleman stated some weeks ago that the expectations were that the line would be in partial operation before the arrival of heavy winter snow. However, already the "beautiful" is even now almost belly-deep, but so far as I can find out the necessary ties and steel rails, have not even been bargained for, let alone purchased.

Dame rumor is working overtime these nights in this second largest of Canadian gold mining fields. Men have been employed by the Canadian Light Railway Co., but there is no record of a good many of them having been paid for their labor. Indeed, pay day is far overdue and it is a fact that starvation has actually threatened certain of the company's employees. This fact became so apparent that a private citizen at Kirkland Lake was moved to purchase a supply of provisions in order to prevent extremely serious hardship to say the least.

Perhaps the greatest wonder of all may be attached to the fact that the names of a number of prominent men are identified with this unfortunate situation. It is one of the greatest mysteries that there is no record of such men as Frank L. Culver of the Beaver Consolidated Mines, D. A. Dunlop, Vice President of the Hollinger Consolidated Gold Mines, W. H. Alderson of the Gutta Percha & Rubber Manufacturing Co., Hugh Blain, President of the Eby-Blain, Ltd., and W. H. Vaughan, formerly identified with the C.P.R., having raised any objection to their names being capitalized in connection with lending an air of stability to the light railway project.

It was early last summer that F. L. Culver, President of the Canadian Light Railway Co., announced to the writer that arrangements had been made to enter into a scheme to build approximately 100 miles of light railway, running to the west of Swastika to West Shining tree, and east of Swastika to Larder Lake by way of Kirkland Lake. Col. R. P. Rogers, it was announced, would have charge of construction work, and a good part of the line would be in operation before winter. The scheme looked good,

especially in view of the proven ability of some of the men on the directorate. Time wore on, however, without an actual start being made. Hope commenced to sink, and with this sinking grew the silence of the directors. Late in the fall came the announcement that a new company known as the Canadian Light Railway Construction Co., had been incorporated and would take over the original concern as a means of overcoming certain "irregularities" in connection with the early activities of the company. Since that time, the name of C. E. Pinelle has seemed to become conspicuous in all mention of the scheme, while the names of F. L. Culver, Col. R. P. Rogers, D. A. Dunlop, and so on, have seemed to sink into obscurity—that is, in so far as the Canadian Light Railway scheme is concerned. Yet, just here is one of the matters which is coming in for criticism.

In the Hotel Goldfields, Timmins, Ont., right in the shadow of the Hollinger mine, there hangs a prospectus, of a sort, of the Canadian Light Railway concern, beside which is a map of the new townsite of Mt. Snowden and beneath the two, the list of original directors, namely: F. L. Culver, D. A. Dunlop, Hugh Blain, W. H. Vaughan, and W. H. Alderson. Whether or not this is intended to capitalize the names of these gentlemen is perhaps not for me to judge; but, the fact remains that all those looking over the literature would perhaps draw only one conclusion. The question is this: Are these men still behind or identified with what is taking place in connection with this Northern Light Railway Construction Co.? If not, are they going to remain silent and stand by the result, favorable or otherwise, of the scheme? If they are, or, if they are not, a part and parcel of the present company, they should keep in mind that the public has never been informed about their withdrawal, and all of which leads me to ask these gentlemen a few questions:—

Is it known that F. W. Duncan, Kirkland Lake, was moved to purchase provisions to save unpaid employees of the Canadian Light Railway Construction Co. from hunger? Is it known that Mr. Lillico, a Swastika lawyer, has been engaged to endeavor to collect bills from the company? Is it known that the Board of Trade has considered the situation so serious as to occupy its attention and a decision to appeal to the authorities? Is it known that the townsite of Mt. Snowden, a mere piece of wilderness, com-

prised of claims which are not yet even patented, is being advertised on the strength of the possibility of a railway being built? Is it known that temporary water works and light have been promised on the townsite of Mt. Snowden by the first of 1922, while about the only evidence of this may be a hole in the ice on Victoria Lake and a convenient pail, together with a battery or pocket light? Is it known that F. W. Duncan has gone to Toronto for the purpose of placing certain facts before the Attorney General? If these facts and many others of vital interest are not known, then it behooves the original directors of the projected light railway to come forward and acknowledge their ignorance. Continued silence cannot help but involve their names with gossip which is at once based upon facts, and which becomes exaggerated to such an extent as to give rise to rumors that there may be the deuce to pay before many moons.

The truth is that even among the pioneers of the north, where every man and every project is given the benefit of ordinary doubt, the tactics of C. E. Pinelle, the adopted father of the light railway scheme, is coming in for a great deal of criticism. Without any attempt to sit upon the judgment seat, it is my opinion that the hopes of far away claim holders are in danger of becoming so many bubbles if they are based upon the construction of a railway promoted along the lines followed by Pinelle. I have lived in certain parts of the great north where the unwritten laws dictated that no man should exploit the energy of others without compensation. Yet, here at Kirkland Lake there is a situation which not only involves alleged failure to pay wages, but where men have been found penned up in a shack on the very outpost of civilization, unable to find other jobs, unable to collect wages and with emptiness alone filling the bread box.—From Toronto Saturday Night Jan. 7.

Grain Shipments Through Port McNicoll.

Following are particulars of grain shipped through Port McNicoll, Ont., by the C.P.R., from Sept. 1 to Dec. 31, 1921, and 1920, respectively:—

	1921	1920
Total bushels shipped	28,502,880	10,285,975
Bushels shipped per day	233,630	84,311
Total cars shipped	15,068	6,667
Cars shipped per day	124	54½

Dispute over J. J. Hill's Millions.—A Minnesota court has before it certain matters in connection with the settlement of the estate of the late Mrs. Mary T. Hill, widow of the late Jas. J. Hill, formerly Chairman of the Board, Great Northern Ry. It is stated that the issue involves more than a family disagreement, and that it is really a fight between Great Northern Ry. and Northern Pacific Ry. interests for the control of the Chicago, Burlington & Quincy Ry. One of the developments of the fight is reported to have taken place Jan. 6, when Louis W. Hill, Chairman, Great Northern Ry. Co., was replaced as President of the United Securities Co. by his brother James N. Hill. L. W. Hill and C. R. Brown, Jr., subsequently resigned from the Northwestern Trust Co.'s directorate.

United Shippers Limited, which was incorporated under the Dominion Companies Act, Dec. 6, 1921, has been granted supplementary letters patent authorizing it to act as a common carrier of freight.

Freight Rates and the C.P.R.'s Crowsnest Pass Agreement.

A recent Ottawa press dispatch said: "When the Crowsnest Pass railway legislation was enacted, a condition of it was low rates on western grain on the C.P.R. In 1918 this was amended, and the rate fixing power given to the Board of Railway Commissioners, but this provision was limited to three years. It expires in 1922. Unless the new Parliament renews the Board's authority, there will be a reversion to the old rate, which was about half of the present one."

When the C.P.R. projected a branch line from Lethbridge, Alta., to Nelson, B.C., via the Crowsnest Pass, it obtained a Dominion Government subsidy of \$11,000 per mile, under the authority of an act passed by Parliament in 1897, which provided that the company should enter into an agreement with the Government in connection with freight rates as follows: "A reduction shall be made in the general rates and tolls of the company as now charged, or as contained in its present freight tariff, whichever rates are now the lowest, for carloads or otherwise, upon the classes of merchandise hereinafter mentioned, westbound, from and including Fort William, and all points east of Fort William on the company's railway, to all points west of Fort William on the company's main line, or on any line of railway throughout Canada, owned, or leased by, or operated on account of the company, whether the shipment is by rail line or by lake and rail, such reduction to be to the extent of the following percentages. (Here followed the reductions to be made in rates in specific commodities.) There shall be a reduction in the company's present rates and tolls on grain and flour from all points on its main line, branches, or connections, west of Fort William, to Fort William and Port Arthur, and all points east, of 3c. per 100 lb. "The reduced rates on the westbound commodities were to be put in effect on or before Jan. 1, 1898; the reductions on eastbound grain were to be 1½c. per 100 lb. on or before Sept. 1, 1898, and the additional 1½c. per 100 lb. on or before Sept. 1, 1899. The railway was built from Lethbridge west to Kootenay Landing, at the south end of Kootenay Lake, 283.1 miles, and from Nelson to Procter, on the west shore of Kootenay Lake, 20.4 miles, and steamship connection on Kootenay Lake was between Kootenay Landing and Procter. Rates conforming with the agreement, and even lower than required by it in some cases, were put in effect in due course.

On the Canadian railways' application for a 15% increase in rates, which was granted with modifications by the Board of Railway Commissioners, Mar. 15, 1918, I. Pitblado, K.C., who appeared on behalf of Manitoba, submitted that the C.P.R., in its application, was attempting to override the agreement, and as a special act passed by the Dominion Parliament overrides the general act and limits the Board of Railway Commissioners' general jurisdiction, his contention was apparently justified. The Board granted the railways the increase sought, subject to the terms of the agreement, the restrictions imposed by which preventing the Board from allowing the full increase on some commodities. On grain, for example, a flat increase of 2c. per 100 lb. was about all that could be granted

without putting in a higher rate than the agreement would allow.

The next general rate increase was the so-called 25% increase granted the railways by order in council 1863, Aug. 12, 1918. The two increases resulted in rates being increased about 30% on the whole. In the application for the so-called 25% increase, the terms of the Crowsnest agreement were apparently disregarded.

The Railway Act of 1919 was assented to July 7, 1919. The railways had pointed out that, on account of changed conditions, the rates which they could charge as limited by the Crowsnest agreement were not remunerative, and suggested the advisability of amending the then existing Railway Act so as to give the Board of Railway Commissioners power, in determining reasonable rates for the carriers, to override agreements previously entered into, any prior act of Parliament, whether general in nature, or applying to only one railway, or only a portion of one railway. As a result the following was inserted in the Railway Act as subsec. 5 of sec. 325: "Notwithstanding the provisions of sec. 3, the powers given to the Board, under this Act, to fix, determine, and enforce just and reasonable rates, and to change or alter rates as changing conditions or cost of transportation may from time to time require, shall not be limited or in any manner affected by the provisions of any act of the Parliament of Canada, whether general in application, or special and relating only to any specific railway or railways and the Board shall not excuse any charge of unjust discrimination, or of undue or unreasonable preference, on the ground that such discrimination or preference is justified, or required, by any agreement made or entered into by the company. Provided that this subsection shall remain in force only during the period of three years from and after the date of the passing of this act."

It is evident then, that the Board of Railway Commissioners' power to disregard the Crowsnest agreement, in its determination of what constitutes reasonable rates, will terminate on July 7, 1922, and that unless action is taken in the meantime, the rates will be thereafter limited by the agreement, according to the law. The Canadian Northern Ry. was also bound by a similar agreement made in 1901, with the Manitoba Government; but the Dominion Parliament was asked for an authorizing and confirming statute, which was passed, and which stated in part "Nothing in this act . . . shall divest or limit . . . the rights or powers of the Governor in council, or of the Railway Committee of the Privy Council, or of any commission or other authority . . ." Therefore, so far as the Canadian Northern's Manitoba agreement respecting rates is concerned, orders of the Board of Railway Commissioners have precedence. But as concerns the C.P.R. agreement, the Board's orders have precedence only under the Railway Act, sec. 325, subsec. 5, quoted above, and this precedence will terminate July 7, 1922.

It is evident that the Railway Act will have to be amended so as to continue the Board of Railway Commissioners'

powers to determine the reasonableness of rates, regardless of the Crowsnest and other agreements. It will be observed that the Crowsnest agreement provided for certain rates on various commodities westbound, and on grain eastbound. As a result of the agreement, the company made lower rates on commodities westbound from Fort William and Winnipeg, with the result that British Columbia coast cities at once pointed out the discrimination, and by a Board of Railway Commissioners' judgment (7 CR.C. 125) the coast cities were granted proportionate eastbound rates. In a discussion preceding the 15% rate advance of Mar. 15, 1918, Sir Henry Drayton, then Chief Commissioner, stated, "I am of the opinion that discrimination should be avoided, and that the effect of the Crowsnest agreement must be extended to the system of the company as today operated." It would appear, then, that if the agreement be enforced, it would determine rates for the whole system. Otherwise, it would be a breeder of discrimination, and would directly infringe on the provisions of the act requiring uniformity in rates. Further, if certain rates be enforced on one railway, it practically means that the same rates will be in force on all railways serving the same territory. Other companies would be injured to the same extent as the company making the agreement, and through no fault of their own.

One of the basic requirements of the Railway Act is that railways be granted rates which are reasonable and remunerative. If the agreement were enforced, the rates would be unreasonable, and the purpose of the act would be defeated. Suppose a shipper signs a contract with a provincial railway to pay a certain rate for transportation, and the railway subsequently comes under the Board of Railway Commissioners' jurisdiction and the Board should decide the rate to be unreasonable. The Board would be looked to to override the agreement, and prescribe a reasonable rate. The same reasoning holds. The Board of Railway Commissioners' rate regulating authority should give it power to override the Crowsnest agreement and prescribe reasonable rates, not only until July 7, 1922, but for all time. We are at a loss to understand what kind of reasoning prompted the insertion of the three year limitation in the Railway Act of 1919, sec. 5, subsec. 5, the only possible reason being that a complete restoration of the economic conditions formerly prevailing was fully expected. It is evident that this complete restoration is highly improbable, and in view of conditions it appears desirable that the subsection be amended by striking out the reference to time limitation. It is unthinkable that the regulating authority, the Board of Railway Commissioners, be bound by contracts made years ago, or which may be made and ratified by Parliament from time to time, which would breed discrimination, exert an influence to defeat the provisions of the act, and place a barrier in the way of just and efficient regulation of railways.

R. P. Ormsby, Secretary, Canadian National Rys., Toronto, has been re-elected Mayor of Leaside, Ont., by acclamation.

Stop Over Charges on Grain for Storage, Milling etc. in Transit.

Chief Commissioner Carvell gave the following judgment, Dec. 17, 1921, which was concurred in by Deputy Chief Commissioner Nantel and Commissioner Rutherford:—Re complaint of Winnipeg Board of Trade, Western Canada Flour Mills, and others, against the proposed increase in the stop-off charge on grain for storage, milling, etc., in transit; application of Dominion Millers' Association for an order directing that the G.T.R. discontinue excessive stop-over charge of 2c. per 100 lb. on grain products shipped milling-in-transit for domestic consumption; and application of Dominion Millers' Association and Montreal Board of Trade for an order directing the railways to grant the right to Ontario and Quebec mills to mill in transit grain grown in Ontario and Quebec. As these three cases all have been heard by the Board at various time and are standing for judgment and are so closely inter-related, I propose to treat them in one judgment. An examination of the history of the milling-in-transit privilege would rather show that it was inaugurated primarily for the purpose of encouraging the milling of grain in western Canada, the object being the establishment of industries and the production of by-products in the west which are so necessary for the raising of live stock; and for many years the rate charged by the C.P.R. for the privilege was 1c. per 100 lb. west of Fort William and 2c. per 100 lb. east thereof, on grain for domestic consumption. In Feb. 1917, application was made by the Dominion Millers' Association and others, asking that the rate in eastern Canada on grain milled for domestic use be reduced to 1c. per 100 lb., the same as that charged in western Canada, my understanding being that the rate for export was 1c. per 100 lb. both in the east and in the west. After very lengthy hearings and argument, the Board gave judgment on Oct. 3, 1917, directing the C.P.R. to reduce the rate in the east to 1c. per 100 lb., as there was discrimination under the then existing conditions, holding that, as the G.T.R. had no railway in the west (the Grand Trunk Pacific being in law a separate entity), the charge of 2c. by that company was not discriminatory, and no order was made with respect to that railway. On June 14, 1918, the Dominion Millers' Association applied to this Board for an order directing the G.T.R. to discontinue the stop-over charge of 2c. per 100 lb. on grain products for milling in transit for domestic use. In Sept. 1918, the Canadian Pacific, Grand Trunk, Canadian Northern, and Grand Trunk Pacific Railways filed tariffs becoming effective Nov. 1, 1918, increasing the stop-off charge from 1 to 2c. per 100 lb. Protests were immediately made by Quaker Oats Co., Dominion Millers' Association, and Winnipeg Board of Trade Shippers' Bureau against this application, asking that it be suspended pending a hearing, which was done by order 27,781, Oct. 28, 1918. The matter came on for hearing first in Toronto in Oct. 1918, and later on at Ottawa, and practically all important points west as far as Vancouver, the principal stand against any increase in rate being made at Winnipeg in March, 1919. While this case was pending, on Sept. 20, 1919, C. B. Watts, on behalf of the Dominion Millers' Association, applied to this Board, asking that the rail-

way companies be ordered to grant the same milling-in-transit privilege to grain growers in Ontario and Quebec as that granted to western grain, and the three cases have been heard practically concurrently down to the present time.

I entirely concur in the principles enunciated by this Board in its judgment of Oct. 3, 1917, that, as the G.T.R. did not operate in western Canada, the charge of 2c. made by it in the east was not discriminatory, and I also agree with the Board that, because one railway may charge a different rate from a competitor, it is no evidence of discrimination. As before stated, the milling-in-transit privilege was inaugurated for the purpose of encouraging the milling industry in western Canada, and, without a doubt, it has served its purpose, because large mills are in operation in most cities from Kenora to Calgary, a great business is being carried on, and the by-products, in the shape of shorts and bran, are available for the feed of stock, which is becoming more and more important to western Canada. As the principal mills are on the C.P.R. lines and the rate, by the judgment above referred to, was made the same both east and west, so long as the rate is the same, no matter what it may be, no injury can befall the western mills which would not be equally applicable to the east, and no lesser amount of by-products would be available in western than in eastern Canada. Mr. Watts, in his application for the milling-in-transit privilege being granted to Ontario and Quebec grain, stated that the G.T.R. grants to mills in Michigan the right to mill grain produced in Michigan and other parts of the United States at a rate of $\frac{1}{2}$ c. per 100 lb. and, as far as I can read the case, this statement has not been contradicted. It was alleged by the Dominion Millers' Association, and the tariff citations given in proof support the allegation, that all grain coming from Detroit ex rail and ex lake is granted the milling-in-transit privilege in Ontario by both the Canadian Pacific and Grand Trunk Railways, and this applies to U.S. grown as well as Canadian grown grain, the stop-over charge on grain from Detroit to Montreal being $1\frac{1}{2}$ c. per 100 lb., while the stop-off on grain from Goderich and Port McNicoll is 1c.

I am at a loss to understand why the milling-in-transit privilege should be granted to western Canadian grain and U.S. grain for grinding at the mills in Ontario and Quebec, while the same right is denied to the grain of these two provinces, and, in my opinion, the same treatment that is handed out to grain produced in one part of Canada, not to say anything about U.S. grain, must be granted to grain produced in all other parts of Canada, and, therefore, I find that all grain produced in Canada should be allowed the same stop-over privileges for milling purposes, no matter in what part of Canada the milling operation takes place. This, of course, has nothing whatever to do with the out of line haul. In such cases, reasonable rates off the through line should be granted the transportation companies. As I view the question, the stop-over privilege for milling, elevator, cleansing, or hospital purposes, is a service incidental to transportation, customary and usual in connection with the business of the railway companies in Canada, and has nothing what-

ever to do with the ordinary transportation charges, and it should make no difference whether the main line haul were 100, or 1,000, or 3,000 miles. This service should be paid for entirely independent of the line haul, and, therefore, the charge for this service, unless conditions are very dissimilar, should be the same on every railway in Canada. For this reason, I think that the charge for milling-in-transit or other such services on the G.T.R. should be the same as that made by the Canadian Pacific, Canadian Northern, and Grand Trunk Pacific Railways, or any other railway in Canada under the Board's jurisdiction.

This naturally brings us to the question of what is a reasonable rate for the services to be performed by the railway, always considering that it receives the legal rate for transporting the grain from the starting point to destination, and that the stop-over privilege simply means that, if the same amount in weight is returned to the railway company for transportation to destination within six months, the completion of the contract of carriage will be made by the railway at the legal through rate, whatever it may happen to be. It would probably be impossible to find exactly the same set of circumstances at any two given points, or perhaps, to put it more mildly, the cost of this service at many points in Canada would be greater or less than at many other points, and all the Board can do is to arrive at a fair average value for the services performed.

This case was exhaustively heard at Winnipeg in March, 1919, and argued and some additional evidence given before this Board at Ottawa in May, 1920. At the sittings in Winnipeg, evidence was furnished by both the Canadian National Rys. and the C.P.R. as to the cost of a switching movement such as would be required with the stop-over privilege in the Winnipeg yard, and, from this evidence, it seemed pretty hard to arrive at any exact data as to how much shunting is ordinarily required for stopping off a car of grain for grinding purposes and forwarding the product thereof at a later date. According to the evidence, in some cases the railway company was called upon to perform two movements, i.e., the spotting of a car of grain on one side of the mill and lifting it from the other side, the car having been switched around by the milling company itself. No doubt, in many cases, a car would be placed on one side of the mill and another one lifted from the other side, involving practically one movement, and, in many other cases, the loaded car would be spotted, and the empty removed, after it had been unloaded, and, when the flour was ready for shipment, an empty car would be spotted and the full car lifted, thus making four movements. It seemed to me to be almost impossible to arrive at any absolute conclusion as to what would be the actual cost of these switching movements. As I read the evidence, it has never been the railway companies' contention that the switching movement was intended to produce profit. In fact, as far back as 1916, Mr. Beatty contended that the 1c. rate did not pay the actual cost of operation to the company, but that it was granted to the west for the purpose of encouraging the milling industry. Then, again, the figures furnished by the two railway companies two

years ago, while fairly indicative of the cost today, would probably not be as accurate a year from today, because operating costs of all railways have to some extent been reduced during the past six months, and there is no reason to believe there will not be further reductions within the next six months or a year.

I have, therefore, come to the conclusion that, as the C.P.R. has always granted the stop-over privilege, and performed the necessary switching, for 1c. per 100 lb., there is no reason why a change should be made under present conditions, and, as I have already found that the rate should be the same all over Canada, this would involve a reduction of the G.T.R. rates from 2c. to 1c. per 100 lb. I, therefore, think an order should issue that all railway companies in Canada under the Board's jurisdiction should be allowed to charge 1c. per 100 lb., for the stop-over privilege for milling purposes, no matter in what part of Canada the operation may be carried on, and the privilege should be granted to all grains produced in Canada, when milled at any point in Canada, at the same rate per 100 lb., and the several railway companies under the Board's jurisdiction should be directed to file tariffs accordingly.

Assistant Chief Commissioner McLean gave the following judgment Dec. 30. I

agree that the proposal to increase the milling-in-transit rate from 1c. to 2c. should be dismissed. In regard to the application to have the G.T.R. discontinue the stop-over charge of 2c. per 100 lb. on grain products shipped milling-in-transit for domestic consumption, my position is already expressed in *Dominion Millers' Association vs. Canadian Freight Association*, 22 Can. Ry. Cas. 125, at p. 134.

The further application involved is one asking that the Board direct the railways to grant the right to Ontario and Quebec mills to mill-in-transit grain grown in Ontario and Quebec. Ontario grain for milling and reshipment is subject to two separate contracts; one for the carriage of grain on a special basis of local rates to the mill; the other for the carriage of the product from the mill under the ordinary tariff. In the presentation of this application, it was admitted by the applicant that there was no effective competition between the flour milled from Ontario wheat and the flour milled from northwest wheat. Montreal was referred to by the applicant as being the main market for Ontario wheat, and it was admitted that there was no effective competition there; and that the use of the two types of flour were different and not competitive. The application as launched, turning, as I under-

stand it, on unjust discrimination, I am not satisfied that a *prima facie* case of discrimination was established. Reference was made in correspondence from the applicant, subsequent to the hearing, to milling-in-transit at Canadian points on U.S. grain while milling-in-transit was not granted to Ontario wheat. There is in force a C.P.R. tariff on grain from Detroit, ex lake and ex rail, with milling-in-transit arrangements and charges in Canada, and shipped to Canadian destinations. The basic charge is 1½c. The tariff does not limit this to U.S. grain. Whether or not the existence of this arrangement, applicable to grain from Detroit, ex lake and ex rail, while there is not a milling-in-transit arrangement on Ontario grain, is unjustly discriminatory or unduly preferential is a matter into which, in my opinion, it is not necessary to go in advance of a *prima facie* case of discrimination being made out.

The Board issued the following general order 354, Jan. 4:—The Board orders that all railway companies subject to its jurisdiction file tariffs, effective not later than Feb. 1, 1922, showing a charge of 1c. per 100 lb. for the stop-over privilege on all grain for storage, milling, malting, or other treatment; such privilege to be granted for all grain produced in Canada, subject to a reasonable charge for out of line hauls.

Canadian Pacific Railway Earnings and Expenses, November, 1921.

C.P.R. gross earnings for Nov. 1921 were \$18,787,679, a decrease from Nov. 1920 of \$5,011,466; working expenses, \$15,115,877, were \$4,610,257 less than in Nov. 1920, and net earnings, \$3,671,801, were \$401,208 less. As compared with the preceding month, Oct. 1921, gross earnings in Nov. 1921 fell off \$3,301,945, operating expense decreased but \$262,261, and net earnings decreased \$3,039,685.

While the Nov. 1921 gross earnings were less than the Nov. 1920 gross earnings by \$5,011,466, the Oct. 1921 gross earnings were less than the Oct. 1920 gross earnings by only \$2,711,008. In view of the fact that the rate relationship as between Oct. 1920 and Oct. 1921 was practically the same as the relationship between Nov. 1920 and 1921, it is evident from the above figures that traffic did not keep up as well relatively in Nov. 1921 as in Oct. 1921. The decrease in gross as between Nov. 1921 and Oct. 1921 was to be looked for, in view of the fact that October is always a month of exceptionally heavy traffic, largely on account of the grain movement. The decrease in gross in Nov. 1921 as compared with Nov. 1920, while large, also reflects the decreases in rates which had gone into effect, viz., the 20% reduction in passenger rates, the 5% reduction in freight rates, and the large number of individual rate reductions made by Canadian railways voluntarily.

Looking back over the years, it is worthy of note that although the Nov. 1921 gross earnings were so much smaller than those of Nov. 1920, they were, however, the largest gross earnings for November of any year except 1920. In net earnings, however, Nov. 1921 was exceeded by Nov. 1920, and by the same month in every year from 1917 back to 1910, inclusive, with the single exception of 1914. The fact of there being such a large decrease in gross reve-

nue in Nov. 1921, as compared with Nov. 1920, in so far as this is based on lower rates, indicates that deflation is taking place on the railways so far as transportation costs to the public are concerned, but the fact remains that net earnings have not yet regained their pre-war volume, which indicates that deflation has not yet taken place to the same extent on the railways so far as operating costs are concerned.

A condition worthy of the attention of shippers and of that of the people as a whole, is to be found in a comparison of the C.P.R. operating figures for Nov. 1921 with those for Oct. 1921. As stated, gross earnings were \$3,301,945 smaller in November than in October; net earnings were \$3,039,685 smaller, but operating expenses were only \$262,261 smaller. In other words, the C.P.R. had to spend \$15,378,138 in operating expenses to do \$22,089,624 worth of business in October, while in November the company had to spend \$15,115,877 to do \$18,787,679 worth of business. Stated another way, additional business worth \$3,301,945 was done at an additional expenditure of only \$262,261. While it is not improbable that certain features of maintenance and operation called for increased expenditure in November, yet the mere fact of the company being able to derive so much larger gross earnings in October at such a comparatively small additional expenditure, clearly demonstrates that the railway business is one of the most, if not the most, outstanding example of a "business of increasing and decreasing returns." The business is one wherein what would ordinarily be referred to as overhead costs, in a manufacturing business or trading enterprise, are such a large percentage of the total cost of doing business that when once enough business is secured to make the venture pay its way, any additional business can be handled at smaller cost, and will finally result in greatly increased profits, which,

under a scheme of wise regulation, will finally result in lowered prices to the public for the products turned out by the business. In this case the products are freight, passenger and other forms of transportation. It would require a book to present a thorough examination of the effect of fluctuating traffic on the multitudinous items of expense of railway operation, individually, but the idea may be expressed by stating that a case could easily arise where nine trains daily would leave a road struggling to escape bankruptcy, while 10 trains a day would make it a steady dividend payer.

This condition conveys a lesson in no unmistakable terms, and shows plainly that Canada's greatest need today is greater population, to the end that greater passenger travel and a greater freight tonnage may be created for the railways, which are here and in a position to handle it. The proposition is simplicity itself. With present rates and traffic the C.P.R. is earning a sum approximately a fair return to the investors in the enterprise; with a sufficiently increased business it can continue to earn a fair return and also set aside funds for use in the provision of new lines and facilities, while at the same time it can afford to give lower rates to the public.

That the C.P.R. is aware of this fact, and that it is taking active measures to convert possibilities in this connection into realities, thus further demonstrating the fact that it is one of the greatest agencies in the building up of this country, and that the interests of Canada and of the C.P.R. are inseparably linked together, is to be found in the fact that the company will have in operation, this year, a fleet of ships of a type which can be expected to be commercially profitable, of practically 500,000 tons. By the addition of more passenger steamers on both the Atlantic and Pacific Oceans, the company is making provision for handling

immigration which it will undoubtedly encourage, and which should be encouraged. In this connection, the importance of the Dominion Government placing in effect a vigorous immigration policy, providing for the absorption of large numbers of people, of a desirable class, into the agricultural and industrial life of the country, cannot be over emphasized. It is axiomatic that cheap and efficient transportation is a necessity in this country, and it can also be taken as axiomatic that with an increase in population and production, transportation costs to the public will steadily decrease, so long as competition is kept on a proper basis and

is not made extreme by too many participants, so long as ill advised construction, unjustified economically, is not indulged in, and so long as regulation does not become narrow, restrictive, and the creator of a false economy which would inevitably breed inefficiency in transportation and result, ultimately, in large national loss.

The C.P.R. earnings for Nov. 1921, as reviewed above, could have been much better, as concerns gross and net. They reflect conditions of traffic below normal, of expenses which were still high in relation to rates, and of net earnings which should be higher to provide for a

fair return on the value of the property, and for the creation of funds which may be drawn on in the future for new facilities, without the necessity of adding largely to fixed charges. But it is evident that the railway is not deterred from looking forward to better conditions by the earnings of any one month, or by the reduced earnings of the last three years; not only is it looking forward to better conditions, but it is actively engaged in the creation of better conditions, of a new and greater prosperity, not only for itself, but for every individual and every business institution in this country.

Orders By Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a complete record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

General order 353. Jan. 3.—Amending general order 271 by inserting Canadian Wholesale Grocers' Association, instead of Ontario Grocers' Guild, and by adding United Grain Growers, Ltd., and Fruit Commissioner's Office, Agricultural Department, to list of those to receive copies of proposed freight and express classifications.

General order 354. Jan. 4.—Directing all railways to file tariffs, effective not later than Feb. 1, showing charge of 1c. per 100 lb. for stop-over privilege on all grain for storage, milling, malting, or other treatment; such privilege to be granted for all grain produced in Canada, subject to reasonable charge for out of line hauls.

31,888. Dec. 10.—Authorizing Canadian Northern Ry. to replace timber cattle pass on Geo. Fraser's farm at mile 52.6 Lachute Subdivision, Lachute, Que., and to build additional farm crossing at grade to the west of the present under-crossing.

31,889. Dec. 10.—Authorizing G.T.R. when signals are clear to operate locomotives and trains over crossing of Toronto Transportation Commission's tracks on Queen St., Toronto.

31,890. Dec. 9.—Authorizing C.P.R. to build spur for West Toronto Iron & Metal Co., Toronto.

31,891, 31,893. Dec. 9.—Declaring that the present Canadian National Rys. crossings near Kylemore and at 7th Avenue, Regina, Sask., are protected to Board's satisfaction.

31,893. Dec. 9.—Approving agreement between Bell Telephone Co. and Enterprise Telephone System, Lennox and Addington County, Ont.

31,894. Dec. 2.—Extending to July 1, 1922, time within which C.P.R. may build interchange track with Canadian National Rys. at Montfort Jct., Que.

31,895. Dec. 6.—Dismissing Canadian Fisheries Association's application for order reducing switching charge of \$15 at Prince Rupert, B.C.

31,896, 31,897. Dec. 10.—Ordering C.P.R. to rebuild overhead highway bridges in Lot 14, Con. 1, Bowmanville, Ont., and in Lot 16, Con. 1, near Smithfield, Ont., so that they will carry a load of 12 tons.

31,898. Dec. 9.—Ordering Canadian National Rys. to build third class station at Winter, Sask., by Sept. 1, 1922.

31,899. Dec. 12.—Authorizing Dominion Atlantic Ry. to build spur for L. E. Shaw & Co., Avonport, N.S.

31,900. Dec. 12.—Authorizing Canadian National Rys. to open for traffic portion of line from Lintlaw to Kelvington, Sask., mile 100.3 to 114.1.

31,901. Dec. 12.—Authorizing G.T.R. to build spur for Fairbank Lumber & Coal Co., Toronto.

31,902. Dec. 9.—Authorizing Canadian National Rys. to remove station agent at Yonker, Sask., caretaker agent to be appointed.

31,903. Dec. 13.—Authorizing G.T.R. to install improved type of automatic bell with wigwag signal in lieu of watchman at crossing of Stave Bank Road, near Port Credit, Ont.

31,904. Dec. 13.—Approving Canadian National Rys. proposed freight and passenger shelter at Barrows Jct., Man.

31,905. Dec. 13.—Authorizing G.T.R. to build spur for Drummond, McCall & Co., Montreal.

31,906. Dec. 12.—Authorizing Canadian Northern Ontario Ry. to connect its tracks with G.T.R. at Rockland, Ont.

31,907. Dec. 13.—Approving agreement between Bell Telephone Co. and Laurentide Telephone Co., Mull County, Que.

31,908. Dec. 13.—Ordering Canadian National Rys. to set aside present waiting room at Rama, Sask., as an office, present freight shed to be converted into a waiting room, whole building to be

put into good shape, and addition made or another small building erected, for accommodation of freight shipments; work to be done by May 30, 1922; and station agent appointed by Sept. 1, 1922, present caretaker agent to be continued in charge until then.

31,909. Dec. 12.—Ordering Canadian National Rys. to stop trains on flag at crossing of C.P.R. near Nightingale, Alta., and to erect portable shelter and platform there.

31,910. Dec. 13.—Dismissing application of Indian Affairs Department for order directing C.P.R. to erect gates at highway crossing at three points in Lytton, B.C.

31,912. Dec. 13.—Authorizing Canadian National Rys. to open for traffic connection of Edmonton & Slave Lake Ry. and Grand Trunk Pacific Ry. at Union Jct., Alta.

31,913. Dec. 13.—Ordering Canadian National Rys. to make sidewalk on each side of trestle bridge south of station at St. Louis, Sask.

31,914. Dec. 13.—Authorizing Windsor, Essex & Lake Shore Rapid Ry. to open for traffic portion of its line from Main St. across Pearl and Mill Sts., to connection with its line on Lansdowne Ave., near Mill St., 907 ft.

31,915. Dec. 14.—Authorizing C.P.R. to build spur for F. C. Bell Winnipeg.

31,915. Dec. 14.—Authorizing G.T.R. to install wigwag signal at crossing of Argyle St. Peterborough, Ont.

31,916. Dec. 13.—Declaring that for the present crossing of G.T.R. at Beaconsfield, Que., is protected to Board's satisfaction.

31,917. Dec. 13.—Approving agreement between Bell Telephone Co. and Coulson-Jarratt Telephone Co., Simcoe County, Ont.

31,918. Dec. 9.—Recommending to Governor in council for sanction, agreement between Prince Edward Island Telephone Co. and Eastern Telephone & Telegraph Co. by which all property, etc., of the former is sold and transferred to the latter.

31,919. Dec. 16.—Dismissing application of City of Brandon, Man., for order requiring removal of station at Knox, Man., to intersection of C.P.R. and Grand Trunk Pacific Ry. ¾ mile east of its present location, and establishing a joint station there.

31,920. Dec. 16.—Authorizing Hydro Electric Power Commission of Ontario to remove C.P.R. and Guelph Radial Ry. interchange tracks, Guelph, Ont., built under order 27,128, Apr. 17, 1918, and to build new interchange track.

31,921. Dec. 16.—Declaring that, for the present, Canadian National Rys. crossing 1.3 miles west from Quill Lake, Sask., is protected to Board's satisfaction.

31,922. Dec. 16.—Authorizing Canadian Northern Ry. to connect its Vegreville Subdivision with Grand Trunk Pacific Branch Lines Co.'s Bashaw Subdivision, mile 33.86, near Camrose, Alta.

31,923. Dec. 16.—Declaring that, for the present, crossing of C.P.R. near Murillo station, Ont., is protected to Board's satisfaction.

31,924. Dec. 16.—Ordering Grand Trunk Pacific Ry. with co-operation of C.P.R., to make ditch on north side of its tracks in Sec. 6, Tp. 13, Range 19, west 3rd meridian, Sask., for 3,200 ft.

31,925. Dec. 19.—Recommending to Governor in council for sanction Grand River Ry. bylaw 4, and Lake Erie & Northern Ry. bylaw 35, covering General Train and Interlocking Rules.

31,926. Dec. 19.—Dismissing application of Fort Garry rural municipality, Man., for order directing Canadian National Rys. to make street crossing, or sidewalk, over its tracks at Fairfield Ave.

31,927. Dec. 20.—Suspending, pending hearing, Dominion Atlantic Ry. Supplement 7 to Tariff C. R.C. 575, issued to become effective Jan. 5, 1922, re terminal charges at Halifax on export and import traffic.

31,928. Dec. 19.—Authorizing Canadian National Rys. to open for traffic, connection of its Strathcona-Camrose Branch, at mile 2.39, with Grand Trunk Pacific Branch Lines Co.'s Bashaw

Subdivision at mile 23.57, Alta.

31,929. Dec. 19.—Authorizing Canadian National Rys. to open for traffic, connection between Canadian Northern Western Ry. Brazeau Subdivision, at mile 24.39 with Grand Trunk Pacific Branch Lines Co.'s Three Hills Subdivision, at mile 79.06, Alta.

31,930. Dec. 19.—Authorizing G.T.R., when clear signals are displayed, to operate over crossing of Hamilton Radial Electric Ry. at Burlington, Ont., without first stopping, speed not to exceed 6 miles an hour.

31,931. Dec. 19.—Extending to July 1, 1922, time within which C.P.R. may build spur for Standard Lime Co., St. Elizabeth Parish, Que., authorized by order 30,079, Sept. 2, 1920.

31,932. Dec. 16.—Approving London & Port Stanley Ry. crossing at Bessie St., Port Stanley, Ont.

31,933. Dec. 20.—Authorizing G.T.R. to operate over crossing of Montreal Tramways Co.'s tracks at Guy St., Notre Dame St. and St. Henri Place, Montreal.

31,934. Dec. 20.—Approving plan showing location and details of G.T.R. proposed station at St. Polycarpe Jct., Que.

31,935. Dec. 21.—Authorizing C.P.R. to build two sidings, and three spurs, for Elbow Lake Lumber Company, in Lot 11, Con. 1, Cleland Tp., Ont.

31,936. Dec. 21.—Authorizing G.T.R., when signals are clear, to operate over crossing of Preston & Berlin Ry., half a mile south of Kitchener, Ont., without first stopping, speed not to exceed 6 miles an hour.

31,937. Dec. 21.—Approving location and detail plans of G.T.R. proposed new station at Sutton, Ont.

31,938. Dec. 20.—Authorizing G.T.R., when signals are clear, to operate over crossing of Montreal Tramways Co.'s track at Notre Dame St., Montreal, without first stopping, speed not to exceed 6 miles an hour.

31,939. Dec. 21.—Authorizing Canadian National Rys. to divert and cross certain highways on its Vegreville Subdivision, near Camrose, Alta.

31,940. Dec. 21.—Approving agreement between Bell Telephone Co. and Violet Hill Telephone Co., Dufferin County, Ont.

31,941. Dec. 21.—Ordering Canadian National Rys., without in any way limiting obligation to meet requirements of Railway Act, 1919, Sec. 274, to complete work of providing proper cattle guards and protection fences on Brazeau Subdivision, by May 1, 1922.

31,942. Dec. 21.—Authorizing Canadian National Rys. to open for traffic portion of its line from mile 394.13, Drumheller Subdivision, to mile 197.13 of Grand Trunk Pacific Branch Lines Co.'s Three Hills Subdivision, Alta.

31,943. Dec. 21.—Declaring that for the present, G.T.R. crossing at mile 5.58 Stoney Creek Subdivision, Beach Road Highway, on Burlington Beach, is protected to Board's satisfaction.

31,944, 31,945. Dec. 22.—Authorizing C.P.R. to build spur, and sub-spurs, for International Construction Co., and spur for Smith, Aielle & Delduce, Carbon, Alta.

31,946. Dec. 23.—Authorizing G.T.R. to build two spurs for Anglo-Canadian Leather Co., in Lot 13, Con. 1, Chaffey Tp., Ont.

31,947. Dec. 22.—Ordering C.P.R. to install, by June 1, 1922, gates at crossing of Selkirk Ave., Winnipeg, to be operated by day and night watchmen; gates to be interlocked with derails on street railway track.

31,948. Dec. 21.—Authorizing Canadian National Rys. to build Y at Sturgis, Sask.

31,949. Jan. 3, 1922.—Authorizing C.P.R. to build spur for Imperial Oil Ltd., Joliette, Que.

31,950. Jan. 3.—Authorizing Edmonton, Dunvegan & British Columbia Ry. to build spur for Capital City Box Co., near Smith, Alta.

31,951. Jan. 3.—Ordering that flag protection be provided for all switching movements on G.T.R. sidings over Main St., Seaforth, Ont.

31,952. Jan. 3.—Declaring that G.T.R. crossing of highway at Glen Robertson, Ont., is protected to Board's satisfaction.

31,953. Jan. 3.—Authorizing Canadian National Rys. to operate trains over spur to Luscar Collieries, in Sec. 8, Tp. 47, Range 23, west 5th meridian, Alta.

31,954. Jan. 3.—Authorizing Canadian National Rys. to open for traffic portion of its line from mile 21.89 Battle River Subdivision, to connection with Grand Trunk Pacific Ry. at mile 741.90 Viking Subdivision.

31,955. Jan. 3.—Ordering G.T.R. to build farm crossing for J. W. Peer, Lorne Park, Ont.

31,956. Jan. 3.—Rescinding order 29,926, July 27, 1920, authorizing G.T.R. to connect with Canadian National Rys., in Lot 10, Con. 1, Brighton Tp., Ont.

31,957. Jan. 3.—Authorizing G.T.R. to close station at Washago, Ont.

31,958, 31,959. Jan. 5.—Amending orders 26,740 and 26,742, Nov. 15, 1917, directing Canadian Northern Quebec Ry. to install gates at Darling and Chambly Sts., Montreal, by providing that 25% instead of 20% be paid out of Railway Grade Crossing Fund.

31,960. Jan. 4.—Extending to Jan. 31, time within which Grand Trunk Pacific Ry. may complete station between Dominion and Quebec Sts., Prince George, B.C.

31,961. Jan. 3.—Authorizing Canadian National Rys. to open for traffic portion of its railway from Scapa, mile 28.54, to Beachy, mile 35, Sask.

31,962. Jan. 4.—Declaring that for the present C.P.R. first crossing of highway east of Neepawa station, Man., is protected to Board's satisfaction.

31,963. Jan. 4.—Authorizing Canadian National Rys. to build spur for Alberta Government in s.e. and n.e. $\frac{1}{4}$ Secs. 6, Tp. 54, Range 23, west 4th meridian, Alta.

31,964. Jan. 4.—Authorizing G.T.R. to build siding and crane track for Ontario Public Highways Department, at Stoney Creek, Ont.

31,965. Jan. 4.—Approving plan dated Nov. 29, 1921, in lieu of plan dated Sept. 29, 1921, showing installation of half interlocking plant at C.P.R. and Peterborough Radial Ry. crossing at George St., Peterborough, Ont.

31,966. Jan. 5.—Authorizing Hull Electric Co. and C.P.R., when signals are clear, to operate trains and cars over crossing at Montcalm St. (Chelsea Road), Hull, Que., without first stopping, speed over crossing not to exceed 15 miles an hour.

31,967. Jan. 4.—Authorizing Toronto, Hamilton & Buffalo Ry. and the G.T.R. to build, jointly, nine branch lines across Kenilworth Ave., Hamilton, Ont., for National Steel Car Corporation.

31,968. Jan. 4.—Extending to May 31, time within which G.T.R. may complete siding for Hepworth Mfg. Co., Keppel Tp., Ont., authorized by order 30,344, Nov. 13, 1920.

31,969. Jan. 5.—Authorizing G.T.R., when signals are clear, to operate trains over Oshawa Ry. crossing at Oshawa, Ont., without first stopping.

31,970. Jan. 5.—Authorizing C.P.R. to build spurs for Drummond Mine Co., near Kirkpatrick, Alta.

31,971. Jan. 4.—Approving agreement between Bell Telephone Co. and Schomberg Telephone Co., Simcoe and York Counties, Ont.

31,972. Jan. 4.—Dismissing application of Frank Hill Cattle Co., Calgary, Alta., and J. M. Dillon, Cayley, Alta., for leave to commence action against C.P.R. for recovery of triple damages for excess charges on certain live stock shipments to Chicago, Ill., and other points in the U.S. in 1920.

31,973. Jan. 5.—Declaring that for the present, C.P.R. crossing at mile 30.4 Peterborough Subdivision, at Kendry, Ont., is protected to Board's satisfaction.

31,974. Jan. 5.—Approving Vancouver, Victoria & Eastern Ry. & Navigation Co. plan, showing change of location of signals governing movements on British Columbia Electric Ry. to opposite side of street at crossing of Georgia St., Vancouver, to provide for change in rule of road from left to right.

31,976. Jan. 7.—Authorizing Canadian National Rys. to cross and divert surveyed road in n. $\frac{1}{2}$ Sec. 5, Tp. 40, Range 9, west 5th meridian, near Horburg, Alta.

31,977. Jan. 5.—Extending to Feb. 1, time within which bell and wigwag signal may be installed at C.P.R. crossing at Beaconsfield, Que., provided watchman be maintained there between 8 a.m. and 7 p.m. daily.

31,978. Jan. 4.—Authorizing G.T.R. to install, in lieu of watchman, improved type of double illuminated electric bell, with wigwag signals, bonded to both main tracks, at crossing of Main St., Princeton, Ont.

31,979. Jan. 5.—Dismissing G.T.R. application for order amending order 25,651, Nov. 17, 1916, by authorizing it to add wigwag signal to electric alarm bell installed at crossing of Prince St., Lansdowne, Ont., in substitution for watchman maintained there.

31,980. Jan. 5.—Ordering C.P.R., within 90 days, to install two double electric automatic il-

luminated bells, with wigwag signals, of most improved type, at crossing of highway south of Iberville Jct. station, Que., mile 18.8 Adirondack Subdivision.

31,981. Jan. 5.—Amending order 26,741, Nov. 15, 1917, directing Canadian Northern Quebec Ry. to install gates at crossing of Davidson St., Montreal, by providing that 25% instead of 20% of cost be paid out of Railway Grade Crossing Fund.

31,982. Jan. 4.—Ordering Canadian National Rys. to maintain permanent station agent at Ardill, Sask., until further order.

31,983. Jan. 5.—Approving Hydro Electric Power Commission of Ontario's plan showing details of abutments for bridge carrying Michigan Central Rd. over canal at Montrose, Ont.

31,984. Jan. 5.—Ordering Canadian National Rys. until further order, to appoint caretaker agent at Peesane, Sask., and to maintain telephone service installed between Crooked River and Peesane.

31,985. Jan. 5.—Rescinding order 27,216, providing for installation of electric bell at Regent St. crossing, Hawkesbury, Ont., by G.T.R., and ordering that all G.T.R. movements over crossing be protected by the trainmen.

31,986. Jan. 5.—Rescinding order 27,215, requiring watchman to be maintained at Main St. crossing, Hawkesbury, Ont., by G.T.R., and ordering that all train movements over crossing be protected by the trainmen.

31,987. Jan. 9.—Approving plan and specifications showing character of work to be done on Mathers drain, under G.T.R. on Lots 32 and 34, Con. 1, Morris Tp., Ont.

31,988. Jan. 7.—Approving Vancouver, Victoria & Eastern Ry. & Navigation Co. (G.N.R.) plan showing change of location of derrails and signals, governing movements on British Columbia Electric Ry., to opposite sides of street at crossing of Powell St., Vancouver, to provide for change in rule of road from left to right.

31,989. Jan. 5.—Authorizing G.T.R. to build spur for Dumart Packing Co., Kitchener, Ont.

31,990. Jan. 9.—Rescinding order 17,358, Aug. 27, 1912, in so far as it exempts C.P.R. from erecting fences on south side of its Thompson Subdivision, at miles 81.4 to 81.6; 81.9 to 83.4; 83.3 to 83.7; and 84.1 to 84.2.

31,991. Jan. 9.—Declaring that for the present, G.T.R. Wheatley's crossing, 4 miles east of Dunnville, Ont., is protected to Board's satisfaction.

31,992. Jan. 7.—Ordering Canadian National Rys. to appoint station agent at Lake Lenore, Sask., by Jan. 31.

31,993. Jan. 9.—Authorizing Toronto Tp., Ont., to make highway crossing over G.T.R. in s.e. $\frac{1}{4}$ of Lot 9, Con. 2, south of Dundas St.

31,994. Jan. 9.—Dismissing application of Hunting Merrit Lumber Co., Vancouver, B.C., relative to absence of through coast rate from Marpole on British Columbia Electric Ry., to local Milwaukee points on Chicago, Milwaukee & St. Paul Ry.; and application of Granite Island Quarries Ltd., Vancouver, B.C., A. Cotton, Eburne Saw Mills, B.C., and others regarding publication of joint terminal rates over Canadian National Rys. and other railways to Canadian points from points on British Columbia Electric Ry. Vancouver & Lulu Island Branch.

31,995. Jan. 9.—Authorizing Saskatchewan Highways Department to make highway crossing over Canadian National Rys. Big River Branch in s. w. $\frac{1}{4}$ Sec. 27, Tp. 53, Range 7, west 3rd meridian, Sask.

31,996. Jan. 10.—Authorizing G.T.R. to build spur for Barrie Fuel & Supply Co., Barrie, Ont.

31,997. Jan. 3.—Ordering Canadian National Rys. to complete fencing between miles 75 and 77, north side, in Nipigon Tp., Ont., by June 15.

31,998. Jan. 10.—Authorizing C.P.R. to build spur for Imperial Oil Ltd., West Selkirk, Man.

31,999. Jan. 9.—Authorizing Canadian National Rys. to build spur for Stettler Meat Co., Stettler, Alta.

32,000. Jan. 9.—Ordering C.P.R. to thoroughly clean out watercourse built by it on Barome Rochon's property at Keewatin, Ont., as early as conditions will permit in the spring; to be completed by May 1.

G.T.R. Stockholders and Levies on Dividends.—Holders of G.T.R. 5% and 4% debenture stocks and 4% guaranteed stock, were notified recently that the dividends payable Jan. 5 would be subject to a levy of $\frac{1}{4}$ % on the debenture stocks and of $\frac{1}{2}$ % on the guaranteed stock, to meet the costs of the recent arbitration proceedings. This is the second deduction made for the same purpose, and a London cable of Jan. 5 states that considerable complaint has been made by the stockholders at the deductions and at the probability of another deduction being made to meet the costs of the appeal to the Privy Council.

Prosecution of Train Baggage-man for Alleged Drunkenness.

The Quebec Court of Appeal, in a majority judgment delivered at Montreal recently by Mr. Justice Tellier, Mr. Justice Rivard concurring, and Mr. Justice Guerin dissenting, in the matter of a reserved case from the Court of Sessions on the point as to whether the employment of a baggage man is one having to do with the movement of trains. The facts of the case are that Frank Lang was a C.P.R. baggage man, and that it was alleged that on March 8, 1920, he was found to be under the influence of intoxicating liquor while in his car at Windsor St. station, Montreal. Proceedings were taken under the Railway Act, 1919, sec. 423, which fixes the penalty for such an offence at a fine of not more than \$400, or imprisonment for not more than five years. At the trial it was urged that no offence had been proved, as there was no evidence that Lang's employment had anything to do with the movement of trains. Upon the prosecution's motion Judge Decaire reserved for the Court of Appeal the question, "Was the occupation of the accused as baggage man an employment having to do with the movement of C.P.R. trains?" The Court of Appeal, after hearing an argument May 18, decided to send the case back to the Court of Sessions for supplementary details, including the definition of the duties of a baggage man, from which it appeared that while the train was in motion the baggage man became an ordinary trainman subject to the conductor's orders as to signalling, opening switches, etc.

In the majority judgment, Mr. Justice Tellier pointed out that the Court of Sessions apparently took it as decided in the affirmative that Lang was under the influence of liquor when taken from the train, and stated that the sole question for the court to decide was whether his employment had to do with the movement of trains. The answer must be in the affirmative. It was during his hours of service that he was taken out of the car, into which he insisted on going after being advised not to do so on account of his condition. His duties as baggage man consisted in doing duty as a trainman when required to do so by the conductor, all these services being required by the one employment. The question would be answered in the affirmative; the verdict of not guilty recorded by the Court of Sessions would be quashed, and the accused would be retired, and his case disposed of in conformity with the answer given in reply to the question asked in the reserved case.

Railway Rolling Stock Orders and Deliveries.

The Lehigh Valley Rd. is having 1,000 box cars repaired by National Steel Car Co., Hamilton, Ont.

The G.T.R. has ordered 10 switching locomotives and 5 transfer locomotives to be built at its Montreal shops.

Electrification of Michigan Central Rd.—A recent press report stated that the M.C.R. management was considering plans for the electrification of its Canadian lines. We are officially advised that this is not the case.

The Agitation for Lower Freight Rates.

Despite the freight rate reduction which took effect Dec. 1, 1921, and preceding reductions, agitation for further rate reductions is still pronounced throughout the country. In the Saskatchewan Legislature on Jan. 16, Hon. C. A. Dunning moved that:—"Whereas the burdens of existing freight rates, especially on the products of agriculture, is so great as to be more than the traffic can bear; and whereas in many parts of the province the result of this condition is that grain is standing in the fields unthreshed because, at the present prices, threshing costs and freight charges would absorb the whole of the price realized; therefore, be it resolved, that, in the opinion of this Assembly, the Saskatchewan Government should continue its application for the reduction of freight rates now before the Board of Railway Commissioners; and further, that, in the opinion of this Assembly, the Dominion Parliament should under no circumstances re-enact the Railway Act of Canada, sec. 325, sub-sec. 5, which expires in July, 1922, and which, if allowed to lapse, will again bring into force the Crownest Pass agreement." In the debate Mr. Dunning said that every western member of the House of Commons should be urged to again bring into force the Crownest Pass agreement. He pointed out that this agreement has been suspended for the past three years, and that unless Parliament passes new legislation concerning it, it will go into effect again in July 1922. He claimed that if the agreement was reverted to it would mean a reduction of 80% from the rate in force on Jan. 1, 1921 on grain from Winnipeg to Fort William, 77% from Brandon, 76% from Qu'Appelle, 66% from Medicine Hat, and 62% from Calgary. He added: "It may be said that the railways must operate. I agree, but Saskatchewan farms must be operated also. They cannot operate successfully under present freight rates and present prices for farm products. The railways must operate because farms here are not much use without transportation. The interests of the railways and the interests of the farmers in regard to these basic products are identical."

The United Farmers of Alberta at a convention in Regina, on Jan. 20, passed a resolution requesting the Board of Railway Commissioners to put into effect an immediate reduction in freight rates on agricultural products, lumber and coal.

The Lieutenant Governor's speech at the opening of the Manitoba Legislature's current session said:—"My Government is of the opinion that railway rates on farm products, compared with the prices the farmer can now secure for these commodities, are so high that the burden can scarcely be longer borne by the industry, and they will continue unabated their efforts of the past years for both a general reduction in freight charges, and such an adjustment of their distribution, as will remove what is believed to be an unjust discrimination against the western provinces."

The United Farmers of Manitoba, at a convention in Winnipeg in January, passed a resolution demanding that freight rates be brought back to the 1917 level immediately. J. R. Murray, Assistant General Manager, United Grain Grow-

ers, claimed that western farmers paid \$11,000,000 more than they should have in freight charges last year. W. H. Lilwall said that farmers' profits had "vanished as a result of exorbitant freight rates" but afterward qualified his statement by stating that freight rates constituted only one factor in the elimination of farmers' profits.

The Canadian Council of Agriculture, in a meeting at Winnipeg on Dec. 22, 1921, passed a resolution calling on the new Dominion Government to make use of its "undoubted authority to override, and, if necessary, reorganize the personnel of the Railway Commission, in order that relief from the crushing burden of freight rates may be secured."

The Board of Railway Commissioners has been holding hearings in Halifax, N.S., and St. John, N.B., on the application of Maritime Province interests for lower rates, and chiefly for the restoration of the differentials prevailing before rates were increased. In the hearing at Halifax on Jan. 17, the Nova Scotia Government, Halifax Board of Trade, Canadian Manufacturers' Association, Maritime Branch, Amherst Board of Trade, and several industrial representatives appeared in support of the application. At the hearing in St. John, N.B., on Jan. 19, other Maritime interests' representatives were heard. These hearings were confined to the statement of cases and the presentation of evidence, argument being set for Feb. 15, at Ottawa. The differentials to which the Maritime Province interests chiefly object were discussed fully in Canadian Railway and Marine World for May, 1921, pg. 259.

Proposed Coal Rate Reductions on D.T. & I. Rd. Disallowed.

The Detroit, Toledo & Ironton Rd., by schedules filed to become effective Sept. 3, 1921, proposed to reduce the interstate rates on coal, in carloads, from mines on its line in Ohio, to Toledo, Ohio, Detroit, Mich., and other points served by it. Upon protest by the Northern West Virginia Coal Operators' Association and others, the schedules were suspended by the Interstate Commerce Commission until Jan. 1, 1922, and later until Jan. 31, 1922. At a hearing by the Commission in Dec. 1921, the matter was again dealt with, the fact being developed that the total coal traffic originating on the D.T. & I. lines is relatively small compared to the total produced in the Ohio district, and it was also shown that the D.T. & I. management was aware of the fact that differentials had been fixed between the various competitive groups of mines of which the mines served by the D.T. & I. are a part. Commissioner Esch pointed out that a proper rate relationship between competitive groups, particularly on such a commodity as coal, is in many respects of greater importance to the shipping public than the measure of the rate itself. He also made clear the fact that the Commission assumes the power to suspend proposed reductions in rates in any case where such suspension would operate to prevent an apparent discrimination. Undue prejudice and preference may be brought about as readily by reducing one of two related rates as by

increasing the other rate. Following the hearing, the Commission issued a judgment cancelling the schedules containing the reduced rates, on the ground that they would result in undue preference to mines on the D.T. & I. line and in undue prejudice to other mines competing in the same market and served by other railways.

The D.T. & I. Rd. has come into prominence because Henry Ford, the automobile manufacturer, acquired it, because a notable improvement became evident in its earnings in the spring of 1921, and because it was claimed that new and more efficient operating methods were responsible for this improvement. Much publicity has been given the matter in daily newspapers. However, as pointed out in Canadian Railway and Marine World for Oct. 1921, pg. 532, the change in the financial results secured by the road was brought about by the addition of a large volume of high class traffic, and by the fact that the road is now more of a manufacturing plant facility than a common carrier.

While in June, 1921, the D.T. & I. operating ratio had been reduced to 52.7, it has been steadily increasing since then, being 59.7 in July, 71.8 in August, 75.3 in September, and 78.8 in Oct. 1921, while net operating income was \$261,259 in June and \$15,191 in October. Gross operating revenues did not change materially, except to decrease by about 15% in October, as compared with September, the increase in operating ratio being due to rate decreases and increased expenses. While these results will not bring gratification to the newspaper writers who have been holding up the D.T. & I. as the model of railway operating efficiency, it is not likely that they were caused by growing inefficiency. The operating results on the D.T. & I. are not to be compared with those of any other rail carrier, for the reason that the D.T. & I. is paying extraordinary wages and has made many rate reductions, on the one hand, but is favored with a large volume of high rate traffic from the Ford plants, on the other. The eternal struggle to make railway operation efficient has been going on since the birth of the railway industry. Contrary to what daily newspapers would have the public believe, the D.T. & I.'s new management has not ended that struggle by attaining the maximum efficiency in railway operation. The struggle to make railroading efficient in all its branches and departments will continue, and the truth of the matter is that the new D.T. & I. management has merely joined the managements of all railways, large and small, in the struggle.

Railway Lands Patented.—Letters patent were issued during December, 1921, for Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia as follows:—

	Acres.
Alberta & Great Waterways Ry.	6.50
Canadian Northern Ry.	644.85
Canadian Northern Western Ry.	1.98
Canadian Pacific Ry.	44.83
Central Canada Ry.	107.92
Edmonton, Dunvegan & British Columbia Ry. .	103.56
Total	909.64

The Railway and Steamship Employees' Club, incorporated in 1920, gives notice in the Quebec official Gazette that its office is at 329 St. Lawrence Boulevard, Montreal. J. Walls is Secretary-Treasurer.

Pacific Great Eastern Railway Construction Costs.

The British Columbia Premier stated in the Legislative Assembly recently that the total amount provided by the Government in connection with the construction of this railway, including interest to Sept. 30, was \$38,652,703.03. The audited accounts of the company as at June 30, were presented, showing as follows:

Liabilities.	
Capital stock	\$ 40,000.00
Guaranteed 4½% debenture stock, 1st and 2nd mortgage less \$5,925- 195 pledged to the Government as security ..	14,234,805.00
Interest accrued	293,592.88
Provincial loans, accrued interest....	18,579,437.90
Interest on guaranteed debenture stock paid by province	4,911,125.44
Accounts payable	486,015.34
Total.....	\$38,544,976.54
Assets.	
Investment in road and equipment	\$36,320,332.18
Miscellaneous physical property	736,657.61
Current assets	576,501.00
Unexpired insurance	2,243.36
Discount on funded debt adjusted to June 30	909,242.30
Total.....	\$38,544,976.54

Automatic Train Control in the United States.

Considerable progress has been made in Europe and the U.S. in connection with automatic train control. In the latter country, a block signal and train control board was created in 1907 and was employed by the Interstate Commerce Commission till 1912 in studying train control, and since that date the I.C.C. Bureau of Safety has continued the studies. The U.S. Railroad Administration had an automatic train control committee, which continued a study of the matter and handed over its records to the I.C.C., and since the termination of Federal control a joint committee of the American Railway Association has been working with the I.C.C. Bureau of Safety in the study of various train control devices operating under varying conditions.

The Interstate Commerce Commission, on Jan. 10, issued an order calling upon 49 railways to show cause by March 15 why the Commission should not issue an order requiring them to install by July 1, 1924, on certain specified sections of their lines, automatic train control devices to meet the requirements set forth. This order is based on the Transportation Act of 1920, sec. 26, which empowered the Commission to call upon carriers to install automatic train control apparatus which would meet certain service requirements, any order of the Commission under that section to be made effective within two years from its issue.

The Commission's order of Jan. 10 points out that great attention has been paid to the results of operation of automatic train control devices on the Chesapeake & Ohio, the Chicago, Rock Island & Pacific and the Chicago & Eastern Illinois Railroads, and that the different automatic train stop and train control devices in use on those lines have proved highly efficient. The order also contains a summary of the savings which automatic train control devices would make possible, on the basis of past accident records, by eliminating accidents. It is stated that 14 years of investigation and study of the matter, during which time the Commission has been in close touch

with all developments, has clearly demonstrated the practicability and necessity of automatic train control. The Commission makes it clear that a road does not necessarily have to be block signalled before the automatic train stop can be used in operating it, by recognizing the possibility of using such a device without the necessity of using automatic block signals in conjunction with it. After specifying what portions of the roads named in the order are affected, the order concludes with a list of the specifications and requirements a satisfactory automatic train control system would have to meet.

Among the railways mentioned in the order on which devices are to be installed are the Michigan Central, between Chicago and Detroit only; and the Pere Marquette, between Grand Rapids and Detroit only.

Aerial Transportation Notes.

Plans for an air service between London, Eng., and Cork, Ireland, are reported as being made. The service will, it is said, be arranged in connection with trans-Atlantic steamships, and it is claimed that a day could be saved on the trip from London to New York by the use of such a service.

Major Cotton, who made an abortive attempt to establish a mail service between Newfoundland and Nova Scotia on Dec. 10, 1921, is reported to have arrived at Botwood, Nfld., Jan. 16, to arrange for another attempt. The proposed route is from Botwood to Halifax, with a possible stop at Sydney.

The special ensign to be flown over the Canada Air Board's properties is described as follows:—Light blue, in the dexter canton the Union and, in the center of the fly of the flag, on a red shield edged with white, an albatross, white, with wings extended over three maple leaves conjoined on one stem, proper.

The Canada Air Board is about to appoint an Air Wireless Inspector for the Operations Branch at High River, Alta., at an initial salary of \$2,340, and an air photographer for the operations branch at an initial salary of \$1,800 a year. Applications will be received by the Civil Service Commission at Ottawa to Feb. 9.

The Canada Air Board has added the following to the Air Regulations 1920:—"No person shall enter or attempt to enter any aircraft in flight; or leave or attempt to leave any aircraft in flight, except for the purposes of making a parachute descent; or give, upon any aircraft in flight, any gymnastic or other like exhibition."

The first lighthouse for airplanes will, it is reported, be built by French engineers on Mont Afrique, near Dijon, in southeastern France. Dijon is the converging point of a number of international air routes, including the Paris-Algiers, the Paris-Mediterranean, the Paris-Switzerland and the Paris-Italian lines. The light will be visible, in ordinary weather, for over 90 miles, and up to an altitude of 12,000 ft.

Canadian Railway Club.—J. Marshall, Special Representative, American Railway Association, read a paper, on prevention of freight loss and damage, before the club in Montreal Jan. 10. The club's annual dinner was held at Montreal, Jan. 28.

Storm Interference with Maritime Provinces and Newfoundland Transportation.

A severe gale, accompanied by heavy snowfall, in the Maritime Provinces and Newfoundland, on Dec. 30, 1921, blocked traffic on the Intercolonial Ry., in Cape Breton, and in the Folliegh Mountain portion of the main line, near Truro, N. S., also on the Sydney & Louisburg Ry., the Cape Breton Electric Co.'s line, and the Reid Newfoundland Ry. Main line traffic on the Intercolonial was partially restored within a couple of days, but further drifting, caused by the continuance of high winds, prevented anything like a general restoration of the service for over a week, and the regular passenger service to Sydney was not restored until Jan. 6. During the clearing of the Sydney & Louisburg Ry. lines on Jan. 5, a snow plough accident resulted in three men being rather badly scalded. The car ferry from Tormentine, N.B., to Borden, P.E.I., was not able to make the regular trips on Dec. 30, and the train service on the island was tied up for several days. The Reid Newfoundland Ry. express train from Port aux Basques to St. John's when near Rapid Pond, about 11 miles east of Humperside on Dec. 30, was practically buried under an avalanche of snow, believed to have been unloosed by the movement of the heavy trains. Three cars were derailed, but no one was injured. A wrecking crew was sent out, and the train was released, arriving in St. John's on the evening of Jan. 3.

Steam Railway Track Laid in 1921.—Canadian Railway and Marine World has not received any additions to or revision of the figures given in its January issue showing the mileage of new track laid by Canadian steam railways during 1921. These figures showed a total of 242.80 miles of new track laid, against 309.68 miles laid in 1920. During 1921 the Canadian National Rys. laid 101.69 miles and C.P.R. owned, controlled or operated lines laid 85.71 miles. The distribution of miles of new track laid by provinces is as follows:—Alberta, 70.27; Saskatchewan, 68.35; British Columbia, 62.26; Quebec, 21.73; Manitoba, 17.70; Nova Scotia, 2.50. Total, 242.80.

C.P.R. officials have given the Royal Military College, Kingston, Ont., a number of war souvenirs, etc., for the decoration of the staff mess. E. W. Beatty, President, C.P.R., who is also a member of the college governing board has given a Prussian helmet and a German regimental flag captured during the war; F. L. Wanklyn, General Executive Assistant has given an umbrella stand, table lamp and tobacco box, made from shell cases, a picture of the surrender of Cronje, a scene in the Boer war, and a picture showing an express train and a flash of lightning, and named Rivals; and A. D. MacTier, Vice President, Eastern Lines, has given a picture entitled Comrades.

Grand Trunk Ry. Arbitration.—The appeal of G.T.R. shareholders against the arbitrators' award that certain stocks were valueless, had not been entered for hearing before the Imperial Privy Council up to Jan. 9. On the other hand, a committee representing banks, trust companies, insurance companies, and others interested in G.T.R. stocks, etc., has decided to appeal to the Dominion Government for consideration.

Canadian Pacific Railway Construction, Betterments, Etc.

The appropriations for construction and betterments for this year have been under consideration by the management at Montreal since early in January, when D. C. Coleman, Vice President, Western Lines, went there from Winnipeg to consult with Grant Hall, Vice President, J. M. R. Fairbairn, Chief Engineer, and other general officers. The result has not been announced, but a press report says that the estimates presented call for an expenditure of about \$25,000,000.

Chateau Frontenac, Que.—Excavation for the erection of the 20-storey tower is reported to have been started. The tower is to be built on the site of the old kitchens on Des Carriers St., which is being cleared for the new structure. The Dominion Bridge Co., which has the contract for the erection of the steel work, is assembling the material on the site, and expects to have its contract completed during the summer.

Glen Yards Car Cleaning Plant.—A contract has been let to D. G. Loomis & Son, Montreal, for the erection of a car cleaning building and a large area of open and covered platforms at Glen yards, Montreal.

Northern Colonization Ry.—The Dominion Parliament will be asked at its next session to extend the time for the completion of the partially built line from Labelle, westerly to Mont Laurier, and thence to Lake Timiskaming in Pontiac County, Que.

Interprovincial & James Bay Ry.—The Dominion Parliament will be asked at its next session to extend the time within which the company may complete its partially built line from the C.P.R. near Lumsden's Mills to the Des Quinze River, Que.

Carleton Place Station.—Construction of the new station at Carleton Place, Ont., is reported to be making satisfactory progress. The slate roofing is practically completed, concrete flooring is being put in the waiting room, and other interior work done. The new platform in front of the station is reported 75% complete, and a long island platform has been built.

Islington Station Burned.—The station at Islington, Ont., which was built in the early part of 1921, was completely destroyed by fire on Jan. 5, with the exception of the concrete foundation walls. The cost of the station was about \$10,000. Work on the erection of a new structure similar in design and size to that destroyed, was started, on Jan. 10, the existing concrete foundations being utilized, and it is expected to be ready for occupancy in February.

Saskatchewan & Alberta Extensions.—The Dominion Parliament will be asked at its next session to extend the time for the commencement and completion of the following branch lines:—From near Asquith, Tp. 36, Range 9 or 10, west of 3rd Meridian, on the Pheasant Hills Branch, northwesterly to near Cloan, on the Wilkie northwesterly branch, Tp. 42, Range 30, west 3rd Meridian, Sask. From near Rosetown, on the Moose Jaw Northwesterly Branch, Tp. 30, Range 15, west 3rd Meridian, northerly and northeasterly to near Keppel, on the Pheasant Hills Branch, Tp. 35, Ranges 12 or 13, west 3rd Meridian, Sask. From Kelfield, on the Wilkie-Anglia Branch, Tp. 34, Range 19, west

3rd Meridian, easterly to Tp. 32 or 33, Range 14, west 3rd Meridian, Sask. From Amulet, on the Weyburn-Sterling Branch, Tp. 8, Ranges 20 or 21, west 2nd Meridian, northwesterly to Dunkirk, on the Moose Jaw Southwesterly Branch, Tp. 12, Range 28, west 2nd Meridian, Sask. From the Manitou Lake Branch, Tp. 43, Range 21, West 3rd Meridian, generally northwesterly through Lloydminster to Whitford Lake, Tp. 26, Range 15, west 4th Meridian, Alta. From Kipp, on the Crowsnest Subdivision, Tp. 9, Range 22, west 4th Meridian, easterly and northeasterly to Retlaw, on the Suffield-Blackie Branch, Tp. 13, Range 17, west 4th Meridian, Alta.

Moose Jaw Station, Etc.—Good progress is reported to have been made with the finishing of the interior of the office building. The plastering of the walls and ceilings is practically completed, with only a portion of the ground floor remaining unfinished. The staircase has been installed, and a big section of the hardwood floor laid on the top flat. Installation of conduits, tables, switchboard, etc., in connection with the telegraph office is proceeding so that when the building is completed, which it is expected will be by April 1, the staff will move from the old offices to the new ones without delay.

Vancouver Pier.—Grant Hall, Vice President, is reported to have stated during his recent visit to Vancouver, that the company's most important project in view for the British Columbia District for 1922 is a pier on the Burrard Inlet waterfront, and that an announcement would be made at an early date as to the contract. The construction of this pier was decided upon several years ago, and early in 1920 a contract was let to the Pacific Construction Co. for excavation and fill work on the site. Details of this work were given in Canadian Railway and Marine World for May 1921, pg. 250. We are officially advised by D. C. Coleman, Vice President, Western Lines, that work on the construction of this pier, the dredging and filling for which was done in 1920 and 1921, will be proceeded with this year. It is said that the work will probably occupy about 18 months. (Jan., pg. 23.)

Freight and Passenger Traffic Notes.

A shipment of 100 pairs of silver black foxes, with a reported value of \$100,000, was made recently from the Colpitts ranches, near Salisbury, N.B., to New York State.

There have been shipped from St. John, N.B., direct to Galveston, Tex., recently 12,000 barrels of seed potatoes, the first shipment of such an extent to that section of the United States.

The C.P.R. is reported to have hauled 2,048 cars, containing 4,285,903 bush. of grain during the present season to the elevators at West St. John, N.B., compared with 2,063 cars containing 3,473,545 bush. in the same period for the 1920-21 season.

British Columbia's halibut catch for 1921 is reported as over 20,000,000 lb., valued at \$2,274,525. The greater part of this was landed at Prince Rupert, and carried over the Grand Trunk Pacific Ry. to Winnipeg, where it was delivered to

various lines for shipment to eastern Canadian and United States points.

The C.P.R., in conjunction with La Cie. Francaise du Tourisme, is organizing a personally conducted pilgrimage to points on the European continent, including famous shrines in Italy and France, with special optional tours to the Passion Play at Oberammergau, and the various battlefields of the Great War.

The Canadian National Rys. on Jan. 15 reduced its train service between St. John, N.B., and Quebec via McGivney Jet., from a daily to tri-weekly, on Mondays, Wednesdays and Fridays, leaving St. John at 3.20 p.m., and Quebec at 3.45 p.m., and arriving at Quebec at 10.45 a.m. and at St. John at 11.35 a.m. on the following day.

The Canadian National Rys. on Jan. 15 reduced its express train service on the Canadian Northern Ry. between Toronto and Winnipeg from a daily train to one three times a week westbound, Mondays, Wednesdays and Fridays, and eastbound Tuesdays, Thursdays and Saturdays. The change has been made to reduce operating expenses, and it is said the daily service will be resumed as soon as conditions warrant in the spring.

The Reid-Newfoundland Co. gave notice recently that it had been decided to continue the operation of trains on the Bonavista, Bay de Verde and Trepassy branches during the winter, unless weather conditions prevented. The closing down of four branches of the Newfoundland Ry. during the first quarter of 1922 was provided for in the legislation of 1921, passed on Sir George Bury's recommendation. The only one of these branches which will not be operated will be that from Humbermouth to Miller-town Jet.

The C.P.R. Co. and its station agent at St. Hughes, Que., were, on Jan. 16, ordered, jointly and severally by the Quebec Superior Court to pay to L. H. Marcotte, St. Simon, Que., \$399, with costs, for damages resulting from discriminating against the plaintiff in the supply of cars. The plaintiff is a hay dealer, and between Sept. 1, 1919, and April 20, 1920, was engaged in shipping it from St. Hughes and Cavignac. He alleged that during that period he was only provided with 21 cars for loading, while three other shippers from the same places were supplied with 383 cars. The railway's figures showed that 26 cars had been provided for plaintiff's shipments. The company in defence contended that there was a difficulty in obtaining cars for the carrying of freight to U.S. points, and that it had treated him with fairness and justice in supplying cars. The court held that the company's agent had acted in an unjust and partial manner towards the plaintiff, who had been obliged to stop buying hay from the farmers because he could not get cars. There had been a violation of the Railway Act, secs. 312 and 316, and the plaintiff's loss had been shown to be greater than the amount claimed. Judgment was given for the \$399 claimed with costs.

Tie Durability.—Tests by the Forest Products Laboratory at Madison, Wis., show that there is practically no difference in the durability of Douglas fir ties cut in mountain territory and those cut along the Pacific coast, although it was observed that the latter receive preservative treatment a little more readily than the former.

The Interstate Commerce Commission's General Investigation of Railway Rates.

The Interstate Commerce Commission's action in ordering a substantial reduction in western grain and hay rates on U.S. railways was dealt with in Canadian Railway and Marine World for Dec. 1921, pg. 636, as was also the railways' action in proposing a 10% reduction in freight rates on practically all classes of agricultural products throughout the whole of the U.S. except certain New England territory. In proposing this latter reduction, the railways made application to have the reduction applying to the western territory only set aside, but after hearings the Commission refused the application, so that as matters stand the railways will have to bear both reductions.

On Dec. 14, 1921, the Interstate Commerce Commission began what is intended to be a most thorough investigation into the whole subject of railway rates. This action was taken on the Commission's own motion, but it would seem as if the railways' application to the Commission for a clean-cut enunciation of future policy in connection with rates had a lot to do with it. Generally, the purpose of the investigation is to determine if any further reductions in freight rates can be required by the Commission, having in view the existing law, and all relevant circumstances, and incidentally the enquiry will cover the percentage of return which the railways should be allowed to earn, the present percentage standards being due for revision on March 1.

Large numbers of railway and public representatives have been attending the hearings, which started with the examination of Howard Elliott, Chairman of the Northern Pacific Ry., who handed to the commissioners a hundred pages of tariff changes involving rate reductions which had gone into effect on the Northern Pacific since the Transportation Act was passed. He emphasized that U.S. railway managements are aware of the fact that deflation has taken place in a large degree, and of the necessity of the railways joining in the deflation process, but he also forcibly drove home the fact that the railways did not reap the benefits of inflation as did the agricultural and manufacturing interests. He said: "Rates are higher today than before the war, but they were then far too low for safety, and we are comparing today with an indefensible basis, if the country is to continue private operation and ownership of railways, subject to public regulation." He made it plain that rates could be made too low for the country's good, saying: "To permit wastage through inadequate rates means a deterioration of the properties, which will tend to prevent their serving the public adequately, and to permit such wastage is not honest, efficient and economical." In summing up his argument to show that deflation must take place in other lines, before prices in them are as reasonable as rates, he said: "A sweeping reduction in rates would not, in my judgment, at this time increase business, for many other things must be settled before we obtain what we all desire, that is, a complete revival of industry in this country." As showing the public interest in efficient transportation, he said in concluding his testimony: "It is just as important to each of those gentlemen

(farmer, miner, manufacturer, etc.), in the long run, to make certain that he is going to have service as it is to the railways." Though such a thing needed no further publicity, Mr. Elliott clearly showed that the railways, despite honest, efficient and economical management, have not earned a fair return. He made it clear that the U.S. has increased and prospered along every line much more than have the carriers that performed the transportation services that were such an important element in aiding the growth of the last 50 years.

A. P. Thom, counsel for the Association of Railway Executives, told the Commission that the labor situation is one of the greatest barriers to the restoration of rates to a nearer approximation of the pre-war level. He pointed out that the railways naturally expect the shippers and the public as a whole to realize that high wages were the chief cause of present rates, and that they also expect that public support will be given the railways in a wage readjustment.

Statistical data were presented to the Commission covering operating results on the railways operating in the southern, western and eastern territories, and the operations of the railways as a whole. G. M. Shriver, Senior Vice President, Baltimore & Ohio Rd., presented figures to show that the net operating income of the railways as a whole for the year ended Sept. 30, 1921, was at the rate of but 2.75%, and even at that the amount of deferred maintenance which will have to be made up in the near future is great. He made it plain that a rate reduction at this time would be merely an experiment to see whether lower rates would result in increased traffic, and increased net earnings, and he emphasized the fact that the railways are in no position to experiment, proving this latter statement by a comprehensive review of the railway revenues and expenses from the resumption of private control to date.

Numerous other representatives appeared on behalf of individual railways or groups of railways, and on Jan. 11, when testimony concerning the New England roads was being presented, it was brought out that the roads in that territory, considered as a whole, were operating at a loss during 1921.

R. H. Aishton, President, American Railway Association, gave evidence concerning the efficiency of railway operation, dealing with such things as freight loss and damage, car loading and car mileage, etc. He expressed the opinion that railway operation in the U.S. is characterized by as great a degree of efficiency and economy as it is humanly possible to bring to the work on the basis of the existing facilities.

Daniel Willard, President, Baltimore & Ohio Rd., told the Commission that railway managers are doing everything in their power to make railway rates as low as possible, and expressed the opinion that a general reduction in freight rates would be undesirable at this time. He said that freight rates did not go up till other costs had been at their peak for some time, and although it undoubtedly will be the case that rates will accompany prices in their downward course, it cannot logically be expected that rates will precede prices in deflation.

The Commission has arranged for continuations of the hearing throughout January, when other railway representatives will be heard and when representatives of shippers and the public generally will express their views.

An examination of the testimony given and the circumstances surrounding this hearing and other recent I.C.C. rate hearings makes the fact plain that the rate situation in the U.S. is largely identical with that in Canada, although undoubtedly rates have been reduced to a greater extent in Canada than in the U.S. Human nature seems the same the world over, in that every individual tries to reduce his costs by the most obvious and convenient method, and what is true of an individual is also true of the great number of individuals deriving their livelihood from any industry. Because freight rates are subject to Government supervision, and because they are higher than before the war, they seem to be a fitting instrument by means of which costs for other industries may be reduced; while costs controlled by other private individuals cannot be so conveniently attacked. It will be interesting to see whether public thought concerning railways in the U.S., or rather public carelessness and lack of thought concerning railways, more or less automatically interpreted by railway regulation, will be such as to compel a reduction in railway rates without a reduction in railway operating expenses having first been accomplished. To people in Canada who watched the course of U.S. railway regulation in the period preceding Federal control, the actions of the Interstate Commerce Commission and of the U.S. Railroad Labor Board during 1922 will be significant.

Toronto City Council Railway Directorships.—In the early days of bonusing the construction of steam railways the Toronto City Council secured the right to nominate a director of each of the following companies:—Northern Ry., Credit Valley Ry., Toronto, Grey & Bruce Ry., and Ontario & Quebec Ry. The first named has been for years part of the G.T.R. system, and the others have become merged in the C.P.R. system, but for certain purpose the four companies' corporate entity remains. The city council decided on Jan. 9 not to appoint any directors of these companies, as the several boards have now no duties to perform and that the former practice of giving passes to the city's directors has been abolished.

Railway Accidents Throughout Canada. The total number of accidents during Dec. 1921, reported to the Board of Railway Commissioners, was 131, resulting in 19 persons being killed, and 133 injured. Of those killed, 1 was a passenger, 10 employees and 8 others; and of those injured, 7 were passengers, 100 employees, and 26 others. Under "others" are included 6 persons killed and 18 injured in 16 highway crossing accidents. In 4 of these accidents, crossings were protected by gates, and 1 by a bell, while in 11 cases, the crossings were unprotected. Automobiles were concerned in 7 of the accidents, wagons and buggies in 5, pedestrians in 3, and a bicycle in 1.

Canadian National Railways Construction, Betterments, Etc.

Western Lines Track Construction.—During 1921, on new branches, or the extension of existing branches, work was started on 13 different lines, on which at the end of 1920 there had been completed 589.39 miles of grading, 326.85 miles of track having been laid thereon. Grading was continued during 1921 on 10 of these lines, and 67.31 miles additional were got ready for track laying, while track was laid on a further 99.29 miles of the completed grading. Of the 656.70 miles of completed grading, track has been laid on 426.14 miles. One of the branch lines is partly in Saskatchewan and partly in Alberta. The following table shows the state of construction on each of the lines, the mileage in each province being given separately:—

Branch	Miles graded		Miles of track laid	
	to Dec. 1920	in 1921	to Dec. 1920	in 1921
Manitoba—				
Oakland Branch	62.03	.....	44.18	17.70
Saskatchewan—				
Eston S.E.	29.53	.519	.....	0.17
Jackfish Lake	76.43	6.57	62.74	15.06
Luck Lake	21.66	3.36	19.75	15.02
Melfort N.E.	29.94	.....	.....	23.70
Peebles-Lampman	19.28	.....	.....	0.50
Prince Albert N.E.	2.46	15.54	.....	.....
Thunderhill	97.33	0.60	80.13	13.86
Turtleford, E.	2.27	20.73	.....	.....
Acadia Valley	17.00	.....	.....	0.64
Alberta—				
Acadia Valley	16.99	14.33	.....	.....
Hanna—				
Medicine Hat	132.11	0.08	58.82	.....
Onoway Branch	76.25	0.94	60.50	11.90
Vegreville-Calgary	1.40	0.07	0.73	0.74

Western Lines Betterments.—During 1921 the C.N. Rys. carried out an extensive programme of betterments on the western lines. The work covers the laying of a second track for 6.57 miles, completing the second track construction between Munson and Wayne, Alta., to serve the Drumheller coal areas. The following track relaying was done: 22.21 miles on the National Transcontinental Ry. relaid with 80 lb. rails, and 16.01 miles on the National Transcontinental, the Grand Trunk Pacific and the Canadian Northern relaid with 85 lb. rails. Of the 80 lb. rails, 2.51 miles were laid between miles 30.7, 33.27, and 2 miles between miles 33.27 and 49.6, the latter in patches, on the Fort William-Lake Superior line; 11.56 miles in patches between Sioux Lookout, mile 0 and mile 104.34, and 6 miles in patches and curves, between mile 2 from Reddit and mile 39. The 85 lb. rails were laid on the following sections of the National Transcontinental: Fort William to Lake Superior, 7.5 miles; between miles 69.1 and 76.6, 7.5 miles; between miles 160 and 177.3, 18.72 miles; between Sioux Lookout, mile 104.34 and mile 123.06, 18.72 miles; between Reddit, mile 89.9 and mile 115.3, 25.6 miles; between miles 119.46 and 120.7, 1.24 miles; 24.05 miles on Grand Trunk Pacific Ry. between Melville and Harte, Man., mile 84.63 to 108.78, and on the following sections of the Canadian Northern Ry.:—Between Duluth, Winnipeg and Pacific Ry. and Rainy Lake, 4.04 miles between miles 100.24 and 104.28; 44.46 miles between miles 120.97 and 165.43; 9.4 miles between Rainy Lake and Kashabowie, mile 1.2 to 142.6 (changing old battered rails); 3.30 miles between Rainy Lake and Fort Frances; mile 142.6 to 255.85 (changing old battered rails), and 16.8 miles between miles 255.85 and 272.85; 5 miles between Rainy River and Sprague; mile 288 to 293; 4 miles be-

tween mile 329 and 385 (one rail partly relaid); 2.98 miles near Gladstone, Man., between miles 25.8 and 28.77; 2.88 miles near Pleasant Point, between miles 2.2 and 5.18; 24.70 miles between Dauphin and Kamsack, mile 178.2 to 203.2; 3.7 miles between Calgary and Hanna, mile 125.6 to 129.3; and 102.4 miles between mile 159.4 and 261.8.

The ballasting of 131 miles of track on the Hanna, Alta., Subdivision, was completed in 1921 at an approximate cost of \$210,000.

Work was completed, or started, on a number of new structures at divisional and other points on the Canadian Northern and Grand Trunk Pacific Rys., the principal of which were the following:—

Construction was started upon the replacement of the Howe truss span bridge over the Assiniboine River at mile 72.6, Pleasant Point Subdivision, Man. The new steel superstructure will consist of one 225 ft. through truss span on concrete substructure, and is estimated to cost \$160,000. The construction is reported to be 15% completed, and it is expected to have it finished this year.

At Melville, Sask., on the Grand Trunk Pacific Ry., an extensive system of water supply works has been completed at a cost of about \$320,000. The works include a dam, a new reservoir and a pipe line.

At Nutana, a few miles east of Saskatoon, new terminal facilities have been laid out at an approximate cost of \$174,000, and the necessary terminal buildings erected at a cost of approximately \$236,000.

A new steel bridge has been completed over the South Saskatchewan River at Saskatoon, Sask., at a cost of approximately \$340,000. The new structure consists of six 157 ft. through truss spans, erected on the previously existing foundations and piers.

The concrete substructure for a new bridge across the Red Deer River at mile 59 on the Hanna-Medicine Hat line has been completed, and it is expected that the steel superstructure will be erected this year. It will consist of one 80 ft. and one 76 ft. deck girder spans, and four 165 ft. through truss spans. The entire structure is estimated to cost \$326,000.

The new work completed at Prince Rupert consists of a salmon wharf 860 ft. x 173 ft. 3 in., on which work has been started on the erection of a warehouse, 810 ft. x 147 ft. 3 in. Some details of these works have already been given in Canadian Railway and Marine World, and additional details regarding the warehouse are now available. The frame structure is to be built to resist a wind load of 25 lb. a square foot; and to sustain a snow load of 30 lb. a square foot on the roof; while the warehouse floor will sustain a live load of 500 lb. a square ft. The building will have capacity for handling 50,000 cases of salmon, leaving a 26 ft. passage in the center, and a 16 ft. one on each side. A feature of the structure will be a suspended office in the middle of the building, 58 ft. 4 in. x 30 ft. 10 in. On the deep water front of the wharf a track will be provided for a 5-ton 4-motor electric travelling crane. In addition to its use as a salmon warehouse, the building may be used for general oriental trade, and for this purpose it is calculated that it will have a

capacity of 12,000 tons. The total cost of the wharf and warehouse is estimated at \$750,000, and it is expected that the whole work will be completed during next summer.

Vancouver Island.—The present rail-head on the line from Victoria, B.C., northwesterly is at 74.6. We are officially advised that it has been decided to extend it for about 10 miles to where the James Logging Co. is operating. (Jan., pg. 27.)

Humber River, Newfoundland, Development Proposals.

Sir W. G. Armstrong, Whitworth & Co., issued a statement relative to their connection with the Humber River valley, Nfld., development proposals, and the plans being made for carrying them out. This British company took up the matter upon the invitation of the directors of the Newfoundland Products Corporation, and Mines and Forests Limited, and is acting as the technical adviser of these companies in the development of the natural resources of the areas controlled by them. The engineers of the Reid Newfoundland Co., which is the controlling influence of the two companies named, prepared plans for the development of the Humber River valley areas, which have recently been examined, checked and proved by the British company's engineers and experts. The plans provide for the development of 150,000 h.p. from the Junction Brook flow, to which can be added from other streams 85,000 h.p., at a total cost of not exceeding \$60 a horsepower. The first industrial plant to be started would be a pulp mill, utilizing about 80,000 h.p., and providing 400 tons of newsprint a day. The available supply of wood for the mill is estimated at 10,500,000 cords, which is sufficient to supply for 50 years without considering natural growth. The British company will take a contract to supply all the machinery and equipment for the whole power development and for the pulp and paper mill at a firm price, and will do all the construction work on a cost plus percentage basis. The estimated cost of the development, including the amount required for working capital, is approximately \$4,000,000.

To finance this undertaking it is proposed to authorize the issue of \$4,000,000 of bonds, of which \$1,000,000 will be retained for issue as and when required. The Newfoundland Government has been asked to guarantee the interest and sinking fund of the bond issue, and to safeguard the Government it is proposed to set aside a special reserve fund of \$250,000 a year for six years to be deposited with trustees. The earnings are estimated at more than double the amount required to meet the fixed charges.

The shareholders of the two companies first named put into the concern, without payment, their lands, waterpowers, etc., which will be mortgaged to secure the bonds. It is proposed that the existing Newfoundland Products Corporation be enlarged and altered to meet the requirements of the new conditions, and be renamed the Newfoundland Electric Power & Products Corporation, and that the British company be represented on the directorate.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Alberta & Great Waterways Ry.—P. L. DEBNEY, heretofore Resident Engineer, Lacombe & Northwestern Ry., has been appointed a draftsman, A. & G.W. Ry., at Edmonton, Alta.

Board of Railway Commissioners—G. A. BROWN, heretofore chief clerk, Traffic Department, who has been acting as Traffic Officer since the death of Jas. Hardwell, Chief Traffic Officer, in 1921, has been appointed Assistant Chief Traffic Officer, with office at Ottawa. By order in council of Dec. 5, 1921, his salary was fixed at \$3,000 for the first year, increasing \$120 a year for 5 years until \$3,600 is reached. This is subject to revision on the appointment of a Chief Traffic Officer. The rate is effective from April 1, 1919, as he has been performing the duties since that date.

R. RICHARDSON, heretofore Assistant Secretary, has been appointed Assistant Secretary and Registrar, with office at Ottawa. By order in council of Dec. 5, 1921, his salary was fixed at \$3,240 for the 1st year, increasing to \$3,420 for the 2nd year, \$3,600 for the 3rd year, \$3,780 for the 4th year, and \$3,900 for the 5th year, the rate to be effective from April 1, 1921, as he has been performing the duties since that date.

Canadian National Rys.—G. M. HEMSWORTH, Travelling Passenger Agent, Canadian National-Grand Trunk Pacific Rys., and Grand Trunk Pacific Coast Steamship Co., and **D. ROSS**, sailed from Vancouver, B.C., recently, for Shanghai, China, where, it is reported, they have been appointed assistants, in the Passenger and Freight Departments, respectively, to A. Brostedt, General Traffic Agent, C.N.R., who has general supervision of the traffic interests in China, Japan, Straits Settlements and the Philippines.

H. SAMPSON, heretofore Stores Inspector, Leaside, Ont., has been transferred to the District Storekeeper's office there, as a general clerk.

E. D. TOYE, heretofore District Storekeeper, Ontario Lines, Toronto, has been assigned to special duties in the Stores Department, Toronto.

H. WRIGHT, ticket clerk, Vancouver, B.C., is reported to have been appointed Travelling Passenger Agent, Canadian National-Grand Trunk Pacific Rys. and Grand Trunk Pacific Coast Steamship Co., Vancouver, vice G. M. Hemsworth, transferred to Shanghai, China.

Canadian Pacific Ry.—JOS. BAKER, heretofore Night Foreman, Moose Jaw, Sask., has been appointed Locomotive Foreman, Field, B.C., vice M. W. Boucher, appointed General Locomotive Foreman, Edmonton, Dunvegan & British Columbia Ry., McLennan, Alta.

D. COSSAR, heretofore Locomotive Foreman, Winnipeg, has been appointed Locomotive Foreman, Strathcona, Alta.

C. A. COTTERELL, Assistant General Superintendent, British Columbia District, is acting General Superintendent, during the absence of F. W. Peters, who is on a trip to Japan and China.

H. C. P. CRESWELL, heretofore secretary to the Superintendent, has been appointed acting Superintendent, Depart-

ment of Colonization and Development, E. G. White, Superintendent, having been granted extended leave of absence. Office, Montreal.

W. H. DEACON, heretofore Travelling Passenger Agent, B.C. Coast Steamship Service, Vancouver, B.C., has been appointed General Agent, Passenger Department, Portland, Ore., vice E. E. Penn, deceased.

J. H. DUNLOP, heretofore ticket clerk, Vancouver, B.C., has been appointed Travelling Passenger Agent, B.C. Coast Steamship Service, there, vice W. H. Deacon, appointed General Agent, Passenger Department, Portland, Ore.

G. JOHNSTON, heretofore shop foreman, Winnipeg, has been appointed night foreman, Moose Jaw, Sask.

J. MCGOWAN, heretofore Locomotive Foreman, Strathcona, Alta., has been appointed shop foreman, Fort William, Ont.

J. MCKINNON, heretofore night foreman, Fort William, Ont., has been appointed shop foreman, Winnipeg, vice G. Johnston, transferred to Moose Jaw, Sask.

J. MacRAE, heretofore Locomotive Foreman, Sutherland, Sask., has been appointed Locomotive Foreman, Winnipeg, vice D. Cossar, transferred to Strathcona, Alta.

C. A. MURDOCK, heretofore Car Foreman, Three Rivers, Que., has been appointed Car Foreman, Farnham, Que., succeeding W. Sturgeon, who has been pensioned.

G. G. OMANNEY, heretofore Investigation Engineer, Colonization and Development Department, Research Branch, has been appointed Development Engineer, Colonization and Development Department, Development Branch, and his former title has been abolished, it being felt that this change indicates more clearly the nature of the work being carried on. Office, Montreal.

J. PRENTICE, heretofore carman, has been appointed Car Foreman, Three Rivers, Que., succeeding C. A. Murdock, transferred to a similar position at Farnham, Que.

C. A. STARKE has been appointed Night Foreman at Sherbrooke, Que.

W. H. WORTMAN, heretofore Division Master Mechanic, Edmonton, Dunvegan & British Columbia Ry., has been appointed Locomotive Foreman, C.P.R., Sutherland, Sask., vice J. MacCrae, transferred to Winnipeg.

J. A. YORICK, heretofore Traffic Manager, Mattagami Pulp & Paper Co., Toronto, has been appointed Travelling Passenger Agent, Ocean Traffic, C.P.R., with territory covering the Ontario District, reporting to the General Agent, Passenger Department, Ocean Traffic. Office, Toronto.

H. K. YORK, heretofore Car Foreman, Alyth, Alta., has been appointed General Car Foreman, Moose Jaw, Sask.

Edmonton, Dunvegan & British Columbia Ry.—M. W. BOUCHER, heretofore Locomotive Foreman, C.P.R., Field, B.C., has been appointed General Locomotive Foreman, E.D. & B.C.R., with supervision over Mechanical and Car Departments, and the direction of locomotive men and firemen in road service, reporting to the Superintendent on matters affecting operation, and to the Manager on matters affecting policy. The positions of Division Master Mechanic, heretofore held by W. H. Wortman, and Locomotive Fore-

man, heretofore held by W. P. Agnew, have been abolished. Office, McLennan, Alta.

G. MOTH, Division Master Mechanic, C.P.R., Edmonton, Alta., is also acting in an advisory capacity, E.D. & B.C.R., as District Master Mechanic.

Grand Trunk Ry.—F. BONANY, Supervisor of Track, London, Ont., is reported to have been appointed Supervisor of Track, Hamilton, Ont.

O. MASSE, heretofore Chief Dispatcher, Montreal, has been appointed Inspector of Terminals there, vice C. M. Walton, promoted.

J. M. SOMMERS, heretofore Chief Dispatcher, Districts 25 and 26, Battle Creek, Mich., has been appointed Trainmaster, with jurisdiction over the portion of District 26, Western Lines, Chicago to Griffith, inclusive, vice J. A. Clancey, whose appointment as Superintendent of Transportation, Western Lines, Chicago, Ill., was announced in our last issue. Office, Elsdon, Ill.

B. L. TYLER has been appointed acting Chief Dispatcher, Districts 25 and 26, Western Lines, Battle Creek, Mich., vice J. M. Sommers, Chief Dispatcher, promoted.

C. M. WALTON, heretofore Inspector of Terminals, Montreal, has been appointed Superintendent of Transportation, Eastern Lines, vice L. Harold, deceased. Office, Montreal.

H. WILKINSON, heretofore assistant to General Roadmaster, St. Thomas, Ont., is reported to have been appointed Supervisor of Track, London to Paris, Ont., vice F. Bonany, transferred. Office, London, Ont.

Michigan Central Rd.—T. COTTRELL, heretofore machinist, has been appointed Foreman, Air Brake Department, St. Thomas, Ont., vice A. Vicary, promoted.

J. I. STEWART, heretofore Production Foreman, St. Thomas, Ont., has been appointed Assistant Supervisor of Shops, with supervision over shops at St. Thomas, Ont., and Jackson and Niles, Mich. Office, Detroit, Mich.

A. VICARY, heretofore foreman, Air Brake Department, St. Thomas, Ont., has been appointed Production Foreman there, vice J. I. Stewart, promoted.

Montreal Board of Trade.—J. K. SMITH, heretofore Traffic Manager, Acadia Sugar Co., Montreal, has been appointed Manager, Montreal Board of Trade's Transportation Bureau, vice W. S. Tilston, deceased. Office, Montreal.

J. G. BOWLES, heretofore Secretary, has been appointed Assistant Manager and Secretary.

Self Propelled Cars on Canadian National Rys.—The storage battery car described in a previous issue of Canadian Railway and Marine World, is being continued in operation during the winter between Bathurst and Campbellton, N.B., and is giving satisfactory service. The gasoline motor car built by Ledoux, Jennings, Ltd., Montreal, and operated between Brockville and Westport, Ont., is undergoing repairs, and steam service is being given instead. The C.N.R. has ordered another gasoline motor car from the same company, for the Brockville-Westport run. The new car will have capacity for 30 passengers, and it is not improbable that side rod drive will be employed.

Traffic Orders by Board of Railway Commissioners.

Changes in Classifications.

General order 353. Jan. 3.—Re general order 271, Sept. 10, 1919, as amended by general order 348, Nov. 10, 1921, with respect to the Canadian Freight Classification and the Express Classification for Canada, and the Railway Act, 1919, secs. 322 and 360. Upon reading the submissions filed, the Board orders that general order 271, as amended by general order 348, be amended by striking out the words "The Ontario Grocers' Guild" in the ninth line of paragraph 5, and substituting therefor the words "Canadian Wholesale Grocers' Association," and by adding the words "United Grain Growers Limited" and "Fruit Commissioners' Office, Department of Agriculture."

Stop-over Charges on Grain in Transit.

General order 354, Jan. 4.—This order and the judgment on which it was based, are given in full on page 64 of this issue.

Alleged Excess Charges on Live Stock Shipments.

31,972. Jan. 4.—Re application of Frank Hill Cattle Co., of Calgary, Alta., and J. M. Dillon of Cayley, Alta., under sec. 389 of the Railway Act, 1919, for leave to commence an action against the C.P.R. Co. for the recovery of triple damages for excess charges on certain live stock shipments moving to Chicago, Ill., and other points in the United States in 1920. Upon hearing the application at Calgary, Oct. 31, 1921, in the presence of counsel for the applicants, and the Canadian Pacific and Canadian National Railways; and upon its appearing that the subject matter of the complaint does not fall within the Board's jurisdiction, it is ordered that the application be refused.

The foregoing order was based on the following judgment by Assistant Chief Commissioner McLean, concurred in by Commissioner Rutherford:—Two applications are involved. That of the Frank Hill Cattle Co., sets out that in respect of various shipments of live stock made during the period from Sept. to Dec. 1920, from Calgary to Chicago, Ill., and St. Paul, Minn., the total charges collected for freight, feed and services were \$6,079.60; and it is claimed that the overcharges thereon were \$804.10, which represents an overcharge, as claimed, of approximately 13%. In the case of J. M. Dillon, the shipments of live stock involved were made during Nov. 1920, from Cayley, Alta., to Chicago. It is set out that the amount collected for freight, feed and services thereon was \$5,359.24; and that the overcharge was \$663.30, which represents approximately an overcharge, as claimed, 12.3%.

The applications as launched deal with matters arising out of the adverse exchange situation. The practice of goods going forward collect, with charges payable at destination in United States funds, is not contested; but it is alleged that the Canadian carrier participating in the international haul received its share of the amount so collected in U.S. funds, and that to the extent it was paid in U.S. funds the excess over what its division of the rate in Canadian currency would represent means an excess payment to which it is not entitled. The transactions involved took place before the issuance of the Board's general order 326.

The applicant's submission was that

the contracts under which the shipments were made were Canadian contracts, entered into between the Canadian shipper and the Canadian railway, under tariffs fixed by the Canadian Board of Railway Commissioners, and that the rate was payable in Canadian currency whereas the charges were actually collected in U.S. currency. In other words, an overcharge was made. In the submission, the tariff was spoken of as having been fixed by the Board of Railway Commissioners. In another connection, applicants' solicitor spoke of the tariff having been approved by the Board, and referred in this connection to sec. 330. That section deals with standard tariffs which are required to be formally approved by the Board, and not with joint tariffs from a point in Canada to a foreign country, as dealt with in sec. 338. Here, the several companies are required to file with the Board a joint tariff for such continuous route.

Sec. 389, under which the applications are launched, deals with certain consequences of infractions of the provisions of the Railway Act, or of the Board's orders dealing with tolls. It is not alleged that there is an infraction of any order, direction, decision or regulation of the Board in respect of tolls. The complaint, therefore, to fall within the section must be concerned with an infraction by the company, or any officer, servant or agent of the company, of any provision of the Railway Act in respect of tolls. The section goes on to recite that where there is such infraction of any provision of the Railway Act the company shall be liable, at the suit of any person injured by reason of any such infraction, to three times the amount of the actual damage that such person may prove to have so sustained. It is further provided that action is not to be commenced for any such triple damages before the Board's leave has been obtained. What is pertinent, then, is what section of the act has been infringed? What is involved, as I understand the situation, is an abnormal condition arising out of depreciation in Canadian currency. The Board is given very wide powers in regard to matters of railway regulation. At the same time, it must always be borne in mind that its powers being statutory, it must find the scope of these powers being within the four corners of the Railway Act. The Board is a statutory tribunal, and its powers are tied down to the scope of matters falling within the Railway Act. It is not the Board's function to supplant or supplement the provincial courts in the exercise of their ordinary jurisdiction. The matter was most pertinently set out by the late Chief Commissioner Killam in *Duthie vs. G.T.R. Co.*, 4 Can. Ry. Cas., 304 at p. 311, when he said:—

"Occasionally one hears or reads references which suggest that misconceptions prevail in this connection. Applications or complaints are made to us which are apparently based upon a hazy notion that the Board was created for the purpose of adjudicating upon any claim against or dispute with a railway company. For two reasons we are not to begin with the assumption that such was the purpose for which the Board was established: (1) The Board is purely a creature of statute. The general prin-

ciple applicable to such a body is that its jurisdiction is only such as the statute gives by its express terms or by necessary implication therefrom. (2) Our constitution assigns to the provincial legislatures the subjects of 'property and civil rights in the province' and 'the administration of justice in the province, including the constitution, maintenance and organization of provincial courts, both of civil and criminal jurisdiction, and including the procedure in civil matters in those courts.' (See B.N.A. Act 1867, sec. 92, sub-secs. 1, 3, 14.) Corporations created by the Parliament of Canada are ordinarily subject to the provincial laws relating to property and civil rights, and prima facie, civil claims against them should be prosecuted in the provincial courts. The Parliament of Canada is empowered to provide 'for the establishment of any additional courts for the better administration of the laws of Canada,' (See B.N.A. Act, 1867, sec. 101), and in the exercise of its powers to legislate on certain subjects, Parliament may incidentally encroach upon the field of provincial legislation. Such encroachments, however, are not to be presumed, but must be clearly indicated and be limited to the extent reasonably necessary for giving effect to the enactments of Parliament upon subjects within its powers."

It seems to me that the comment of Bramwell, L.J., in passing upon the scope of the functions of the English Railway and Canal Commission, is also pertinent, as follows:—"I must say that I think one ought not to suppose that the legislature intended to give to the commissioners a jurisdiction in matters which could be quite as well exercised by the ordinary courts of justice. *Great Western Ry. Co. vs. the Railway Commissioners and James Brown*, 7 Q.B.D., 182-193.

The applicants' solicitor, although questioned at the hearing, did not refer the Board to any specific provision of the Railway Act which it was alleged covered the matter in question, and which, it was alleged, was infringed. I have given the matter careful consideration, and have been unable to find any section which by necessary inference gives the Board power to deal with the phases of contractual obligation involved, which are alleged to turn upon the question that the Canadian currency is at present depreciated as compared with the United States currency. In other words, I cannot see that the subject matter of the complaint has been brought within the scope of sec. 389, or that it falls either by explicit statement or necessary inference within the broad powers conferred upon the Board. As I read the Railway Act, it is, therefore, open to the applicant, without the intervention of the Board, to pursue his rights, if any, in a court of competent jurisdiction."

Rates from British Columbia Electric Railway Points.

31,994. Jan. 9.—Re application of Hunting-Merritt Lumber Co., Vancouver B.C., relative to the absence of a through coast rate from Marpole on the British Columbia Electric Ry. to local Milwaukee points on the Chicago, Milwaukee & St. Paul Ry.; and re application of Granite Island Quarries, Ltd., Vancouver, Albert Cotton, Eburne Saw Mills, Ltd., Dominion Timber Products, Ltd., North

Arm Lumber Co., Ltd., Dominion Creosoting & Lumber, Ltd., A. E. Ewart, Union Shingle Co., Ltd., Stoltze Manufacturing Co. Ltd., Hunting-Merritt Lumber Co. Ltd, Red Cedar Shingle Co. Ltd., and Shull Lumber & Shingle Co. regarding publication of joint terminal rates over the Canadian National and other railways to Canadian points from points on the British Columbia Electric Ry.'s Vancouver & Lulu Branch. Upon hearing the application at Vancouver, Oct. 17, 1921, in the presence of counsel for the applicants, the Canadian Pacific the Great Northern, and the Canadian National Railways, and upon its appearing that the British Columbia Electric Ry. Co., is not now under its jurisdiction—the board orders that the application be refused.

Railway Earnings.

Canadian Government Railways.

Following are total operating revenues, total operating expenses, and net operating deficits, for the Intercolonial, Prince Edward Island, National Transcontinental, and local lines in the Maritime Provinces and Quebec which have been acquired by the Dominion Government and added to the Canadian Government Rys., as far as they are available to date.

	Revenue	Expenses	Net deficits
	1921	1921	1921 1920
Jan.	\$3,527,304	\$4,347,728	\$ 820,423 \$ 508,178
Feb.	3,526,658	4,367,491	840,833 1,205,925
Mar.	3,595,144	4,538,904	943,761 1,235,265
Apr.	3,363,072	3,915,995	552,923 115,191
May	2,914,973	3,728,949	813,976 618,809
June	2,859,986	3,811,205	951,809 605,456
July	2,988,552	3,547,379	558,827 508,569
Aug.	3,366,391	3,436,475	70,084 795,428
Sept.	3,515,200	3,774,283	259,083 877,618
Oct.	3,812,673	3,533,685	278,988* 655,445
Nov.	3,830,974	3,574,632	256,342* 855,033

\$37,300,837 \$42,576,726 \$5,275,889 \$8,047,617
Decr. \$2,631,376 \$5,403,104 \$2,771,728

*Net revenue.

Canadian National Railways.

Following are approximate monthly gross earnings for the Canadian Northern Ry. System and Canadian Government Rys., the latter including the Intercolonial Ry., Prince Edward Island Ry., National Transcontinental Ry., and various local which have been acquired by the Dominion Gov- lines in the Maritime Provinces and in Quebec, ernment.

	1921	1920
January	\$8,781,839	\$7,267,562
February	8,150,341	6,516,059
March	9,497,740	7,761,326
April	8,164,955	7,937,478
May	7,794,147	8,305,850
June	7,885,548	7,776,539
July	8,837,354	9,063,674
August	8,881,530	9,582,999
September	10,548,589	9,895,681
October	11,691,881	12,351,167
December	8,475,328	10,768,115
	\$109,461,924	\$109,653,274

Canadian Northern Railway System.

Following are approximate monthly gross earnings for the Canadian Northern Railway System:

	1921	1920
January	\$5,094,100	\$4,200,700
February	4,840,500	3,862,300
March	6,119,700	4,587,700
April	4,978,500	4,732,623
May	4,742,200	4,863,500
June	4,606,800	4,427,600
July	5,506,900	5,168,500
August	5,708,500	5,899,700
September	7,057,400	6,140,500
October	7,988,030	7,620,000
November	6,978,930	7,602,700
December	5,127,653	6,336,300

\$68,748,583 \$65,439,123

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920, as far as they are available, to date, for all lines in the Canadian Northern Ry. System, except electric railways:—

	Revenue	Expenses	Net deficits
	1921	1921	1921 1920
Jan.	\$5,851,220	\$ 7,538,786	\$1,687,566 \$1,672,283
Feb.	5,575,782	6,861,337	1,285,555 1,839,756
Mar.	5,812,790	6,746,912	934,122 1,280,887

Apr.	4,994,027	6,327,739	1,333,712	911,321
May	4,427,994	5,742,052	1,314,058	1,044,273
June	4,295,881	5,536,771	1,240,890	1,084,815
July	5,027,917	5,448,014	420,097	1,603,874
Aug.	5,638,538	5,421,271	217,267*	1,454,666
Sept.	6,247,753	5,473,618	774,135*	2,180,065
Oct.	6,811,315	6,170,588	640,727*	1,001,804
Nov.	6,631,682	6,203,504	428,178*	596,025

	\$61,314,898	\$67,470,592	\$6,155,693	\$14,669,769
Incr.	\$2,748,402	.....	.....	.....
Decr.	.....	\$5,765,674	\$8,514,076	.....

*Net revenue.

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1921, compared with 1920:—

	Gross	Expenses	Net	Increases
Jan.	\$14,465,430	\$13,824,005	\$641,425	\$55,484
Feb.	12,768,987	11,955,595	813,392	99,518
Mar.	14,705,727	12,254,818	2,450,909	493,144
April	13,761,840	11,115,709	2,646,131	304,285
May	13,892,045	10,598,493	3,293,552	95,609
June	14,461,643	11,356,885	3,104,758	473,940
July	15,772,929	13,718,613	2,054,316	434,839
Aug.	17,064,266	14,488,126	2,576,140	375,327
Sept.	19,494,761	15,174,712	4,320,050	411,395
Oct.	22,089,624	15,378,137	6,711,487	*989,336
Nov.	18,787,679	15,115,878	3,671,801	401,208

	\$177,264,931	\$144,980,972	\$32,283,959	\$1,352,987
Incr.	.....	.....	\$1,352,987	.....
Decr.	\$18,772,250	\$20,125,238	.....	.....

The discrepancies between the above figures and those issued by the Dominion Bureau of Statistics are owing to the fact that the Bureau is, at its request, furnished with figures by the C.P.R., including the Esquimalt & Nanaimo Ry., and the Montreal & Atlantic Ry. earnings, as well as the C.P.R. ones. The figures supplied the Bureau are exclusive of certain income items which are included in figures supplied Canadian Railway and Marine World.

Approximate earnings for Dec. 1921, \$15,567,000, against \$20,418,000 for Dec. 1920.

Grand Trunk Railway.

Following are total operating revenue and total operating expenses for lines in Canada for 1921, also total net operating revenue or deficit for

1921 and 1920, with increases or decreases in totals, as compared with those for 1920, as far as they are available to date:—

	Gross	Expenses	Net revenue or deficit
	1921	1921	1921 1920
Jan.	\$6,187,539	\$6,886,930	\$699,391* \$624,310*
Feb.	5,468,732	5,439,039	29,693 690,857*
Mar.	6,271,921	5,684,721	687,200 398,859
Apr.	5,659,813	5,241,107	418,706 651,789
May	5,957,779	5,596,194	361,585 605,310
June	6,672,766	5,919,063	753,702 456,747
July	6,563,693	5,620,730	942,963 863,642
Aug.	7,472,694	6,084,883	1,387,811 1,345,926
Sept.	7,240,823	7,085,571	155,252 501,078
Oct.	7,132,231	6,210,919	921,312 910,012

\$64,627,991 \$59,669,157 \$4,958,833 \$4,418,196

Incr.	.....	.....	\$540,637	.....
Decr.	\$791,908	\$1,332,545	.....	.....

*Deficits.

Approximate earnings for Dec. 1921, \$7,618,869, against \$10,855,482 for Dec. 1920.

Grand Trunk Pacific Railway.

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920, as far as they are available to date:—

	Revenue	Expenses	Net deficits
	1921	1921	1921 1920
Jan.	\$1,441,225	\$1,813,982	\$ 372,757 \$ 737,357
Feb.	1,013,712	1,872,946	859,234 670,817
Mar.	1,007,499	1,664,227	656,728 655,560
Apr.	908,147	1,645,916	737,769 596,625
May	965,763	1,373,613	407,850 985,655
June	1,099,053	1,488,366	379,313 1,516,152
July	1,085,359	1,423,516	338,160 1,411,615
Aug.	1,348,912	1,488,745	139,833 1,795,380
Sept.	1,585,284	1,601,059	15,775 1,082,596
Oct.	2,146,418	2,025,705	120,713* 552,794
Nov.	2,228,943	2,186,147	42,796* 87,756

\$14,840,295 \$18,584,222 \$3,743,910 \$10,092,307

Incr.	\$2,485,146
Decr.	\$3,863,251	\$6,348,397

*Net revenue.

A Bird—And a Surprise.



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Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta & Great Waterways Ry.—The terminus of this provincially owned and operated line is at Waterways, on the Clearwater River, about 8 miles short of Fort McMurray, its final objective. Terminal yards have been laid out at this point, and shippers and others are erecting warehouses, wharves, etc., on the water front. A spur line connects these with the railway yards at the townsite. Connection is made by teams with Fort McMurray, but this is not regarded as satisfactory, and the residents are urging the completion of the line to Fort McMurray. (Jan., pg. 32.)

Canada Central Ry.—The extension of the line from Peace River to Berwin, Alta., completed under agreement with the Alberta Government by the C.P.R., which operates this line and also the Edmonton, Dunvegan & British Columbia Ry., was announced to be opened for traffic on Jan. 5. (Jan., pg. 32.)

Canadian Transit Co.—There has been deposited with the Secretary of State at Ottawa, a deed of trust and mortgage made between the American Transit Co., the Canadian Transit Co., and the Guarantee Trust Co. of Detroit, in connection with the plans for the construction of a railway and general traffic suspension bridge across the Detroit River between Windsor, Ont., and Detroit, Mich.

The company is offering for subscription \$30,000,000 of first mortgage gold bonds, bearing interest at 5% to Dec. 1, 1926, and 7% thereafter. The bonds are due for redemption Dec. 1, 1957, but may be called for payment upon 30 days notice at 102% and accrued interest. The bonds are offered at 87%. The American Transit Co. is organized under Nevada State laws, is authorized under Michigan State laws, and has obtained the Michigan Public Utilities Commission's approval for its undertaking. The Canadian Transit Co. is incorporated by the Dominion Parliament, and under that authority has entered into an agreement with the American Transit Co. for the united construction and financing of the bridge and connecting railways.

The board of engineers in charge of the project consists of C. E. Fowler, Chief Engineer and designer of the proposed structure; G. H. Pegram, and W. H. Barr, representing the United States end of the undertaking, and C. N. Monsarratt, Consulting Engineer of Bridges, Canadian National Rys. and G.T.R., Montreal; and C. R. Young, representing the Canadian Transit Co. The directors of the company are:—W. B. Gregory, President; H. H. Walker, Vice President; J. W. Austin, Treasurer; C. E. Fowler, Second Vice President and Secretary; Hon. A. A. Templeton, A. F. Healy, W. J. Pulling, C. S. King, C. E. Vandusen, J. O. Reaume, Hon. C. J. Murphy.

A press report of Jan. 13 stated that borings had been started in the river bed between 12th St. and River Rouge, on the Detroit side, and between Windsor and Ojibway on the Canadian side, to secure sites for the bridge piers. Three possible locations are stated to be under consideration. (Dec. 1921, pg. 646.)

Esquimalt & Nanaimo Ry.—The Dominion Parliament will be asked at its next session to extend the time within which the company may construct the line authorized to be built from its present line at Courtenay generally norther-

ly and northeasterly to Duncan's Bay, on the east coast of Vancouver Island, B.C.

The City Engineer of Victoria, B.C., has invited tenders for the erection of the balance of the superstructure of the railway and general traffic bridge over the harbor at Johnson St. The contract is expected to be let early in February. The Canadian Bridge Co., which has the contract to construct and erect the bascule span, is assembling its plant and material, and was expected to start construction work by the end of January. The bridge is being built by the city, the E. & N.R. Co. being a contributor to the cost. (Jan., pg. 32.)

Grand Trunk Ry.—Plans are reported to be in preparation for the construction of an extension to the company's elevator at Windmill Point, Montreal.

A press report states that it is proposed to remodel the station at East York, Toronto, and build a new freight shed and offices, and a new approach to the station this year.

The G.T.R. is reported to be preparing to put in some new sidings in connection with the building of an extension to the Goderich Elevator & Transit Co.'s plant at Goderich, Ont. (Jan., pg. 32.)

Hudson Bay Ry.—The United Farmers of Manitoba, at the annual meeting in Winnipeg recently, adopted a platform, in which they advocate that the Manitoba, Saskatchewan and Alberta Governments take up the Hudson Bay Ry. project failing action by the Dominion Government to complete the line. (Nov. 1921, pg. 583.)

Kettle Valley Ry.—The Dominion Parliament will be asked at its next session to extend the time within which the company may build its projected railway from Coalmount on the joint section operated by the K.V.R. Co. and the Vancouver, Victoria & Eastern Ry. & Navigation Co., generally southerly for 12 miles to the Granite Creek coal areas, B.C. (Jan., pg. 32.)

The Roberval-Saguenay Ry. Co. is asking the Quebec Legislature to authorize it to build a line to be operated by steam or electricity or both, from some point on its existing railway near Chicoutimi to La Malbaie, the terminus of the Quebec & Saguenay Ry., and for an extension of time to March 1928 to build authorized but unconstructed lines. (Mar. 1920, pg. 137.)

Pacific Great Eastern Ry.—Arrangements are reported to have been completed between the British Columbia Government and West Vancouver Municipality for the lease, from the former to the latter, of the section of the Pacific Great Eastern Ry. from North Vancouver to Whytecliffe for 10 years at a nominal rental. It is said the Government will contribute towards the upkeep of the line, 80% for the 1st year, 60% for the 2nd, 40% for the 3rd, and 20% for the 4th. (Jan., pg. 32.)

Timiskaming & Northern Ontario Ry.—We are officially advised that a contract has been let to Grant Smith & Co. and McDonnell Ltd., Vancouver, B.C., for the extension of the railway from the present terminus at Cochrane to near New Post, on the Abitibi River, about 70 miles. Canadian Railway and Marine World, January, pg. 22, contained a plan showing the route of the extension,

with information as to the standard of the line to be built, etc.

The contracting company is a combination of Grant Smith & Co. and of Col. the Hon. Angus McDonnell, the directors being:—Grant Smith, Spokane, Wash., President; the Hon. Angus McDonnell, Vancouver, Vice President; Jerry Sims, Secretary-Treasurer, and W. E. Hauser and E. W. Hauser, Spokane, Wash. Its head office is at Vancouver, B.C., with a branch office at Calgary, Alta. The two firms separately have handled a number of large railway and other contracts in British Columbia, Grant Smith & Co. having built one section of the Kettle Valley Ry. extension towards Vancouver in 1914 and the Hon. Angus McDonnell being associated with other works. As a combined concern, the company built the breakwater at Victoria, B.C., at an approximate cost of \$4,000,000; the Great Northern Ry. station in Vancouver, and considerable irrigation work in Alberta, which is still going on. The T. & N.O.R. extension is the first contract the company has obtained in eastern Canada.

J. A. Campbell, of the company's staff, was in Ontario in connection with the contract in January, and returned to headquarters at Vancouver, where final arrangements will be made for carrying out the work and the appointment of the construction staff. The construction headquarters will be at Cochrane.

We are officially advised that the T. & N.O.R. Commission has let the following contract for ties:—Patrick McColl, North Bay, 25,000; Harris Tie & Timber Co., Ottawa, 25,000; R. S. Potter Lumber Co., Matheson, 30,000. (Jan., pg. 22.)

Vancouver, Victoria & Eastern Ry.—W. P. McKenny, Vice President, Great Northern Ry., which owns the V.V. & E. Ry., and another line running into Vancouver, B.C., was there on Jan. 12, and was reported to have said: "Vancouver will be the greatest port on the Pacific within a few years, and when that time comes we shall be ready for it. We have already arrangements under way to this end, but the time is not opportune to make any announcements. However, we are fully alive to the situation and will have our interests fully looked after."

G.T.R. Officials and Employees Meeting. A meeting of officials and employees of G.T.R. lines centering on Belleville, Ont., was held there, Jan. 18, when Howard G. Kelley, President, and W. D. Robb, Vice President, Transportation, Construction and Maintenance, were present. Mr. Kelley spoke of the work of those who 60 years ago located and built the line, which could not be improved upon despite modern improvement in railway building, and added that it is in every respect an up to date railway. Within the last twelve years he had seen the tonnage carried by the line trebled, and this could only have been done through the entire body of employees' loyal co-operation. Practically every officer of the G.T.R. was brought up in the service, and that means that future officers are to be looked for from within the ranks of the present employees. Mr. Robb referred particularly to the welfare work, the pensions plan, and to the harmony and co-operation which had always existed between the officers and the various sections of employees.

Mainly About Railway People Throughout Canada.

Mrs. Archer Baker, widow of Archer Baker, formerly European Manager, C.P.R., London, Eng., spent some time in Canada recently partly in Montreal with her brother-in-law, W. R. Baker, C.V.O., formerly Secretary, C.P.R., and later, in Vancouver, B.C.

E. W. Beatty, K.C., President, C.P.R., was on a shooting trip in the Laurentides Mountain early in January.

William C. Bowles, whose appointment as Assistant Freight Traffic Manager, Eastern Lines, C.P.R., Montreal, was announced in our last issue, was born there, June 3, 1875, and entered C.P.R. service, Dec. 1, 1891, since when he has been, to 1896, clerk, General Freight Department, Montreal; 1896, chief clerk, General Agent, Freight Department, Chicago, Ill.; 1896 to 1897, clerk, General Freight Agent, Montreal; 1897 to 1903, chief clerk, Traffic Manager, and General Freight Agent, Winnipeg; 1903 to 1905, Assistant General Freight Agent, Calgary, Alta.; 1905 to 1907, Assistant General Freight Agent, Vancouver and Nelson, B.C.; 1907 to 1909, General Freight Agent, Winnipeg; 1909 to 1911, General Freight Agent, Vancouver, B.C.; 1911 to Dec. 31, 1921, General Freight Agent, Western Lines, Winnipeg.

F. P. Brady, Assistant to the Executive, Canadian National Rys., returned to headquarters in Toronto, Jan. 8, from his home in Winnipeg, where he was recuperating after undergoing an operation in Montreal in November.

George Alexander Brown, who has been appointed Assistant Chief Traffic Officer, Board of Railway Commissioners, Ottawa, Ont., was born at Bedford, Que., Jan. 5, 1867, and entered transportation service July 1, 1883, since when he has been, to Jan. 1, 1888, junction settlement clerk, Central Vermont Ry., Rouses Point, N.Y., and St. Albans, Vt.; Jan. 1, 1888 to Jan. 1889, chief clerk, joint freight office, Canada Atlantic Ry. and C.P.R., St. Polycarpe Jct., Que.; Jan. 1 to Apr. 9, 1889, joint agent, same roads, St. Polycarpe Jct., Que.; Apr. 9, 1890 to July 1, 1898, Claims Agent, Canada Atlantic Ry., Ottawa, Ont.; July 1, 1898 to Nov. 1, 1900, chief clerk, General Freight Department, Ottawa & New York Ry., Ottawa, Ont.; Nov. 1, 1900 to Oct. 3, 1904, Assistant General Freight Agent, same road, Ottawa, Ont.; Oct. 3, 1904 to June 20, 1921, chief clerk, Traffic Department, and from June 20, 1921, acting Traffic Officer, Board of Railway Commissioners, Ottawa.

J. P. Burns, whose appointment as Assistant Chief of Investigation Department, C.P.R., Winnipeg, was announced in our last issue, was for some years secretary to various railway officials, and at one time, Soliciting Freight Agent, Boston & Maine Rd. He entered C.P.R. service Jan. 23, 1913, as chief clerk, Investigation Department, Montreal, and later became Assistant to the Chief of the Department, at Montreal. Prior to entering C.P.R. service, he was secretary to the chief of detectives for Montreal.

A. H. Cadieux, whose appointment as Assistant to the Chief of the Investigation Department, C.P.R., Montreal, was mentioned in our last issue, was, from 1907 to June 1913, special agent, G.T.R., Montreal; July 1913 to May 1915, investigator, Investigation Department, C.P.R., Montreal; May 1915 to Dec. 1921, In-

spector, same department, C.P.R., Montreal.

James Callander, Secretary, Canadian Northern Prairie Lands Ltd., Toronto, was found dead in his motor garage at Port Credit, Ont., Jan. 3. It is surmised that he had started his car in the garage with the door closed, and there being absolutely no ventilation, his death was probably due to asphyxiation.

Chief Commissioner Carvell, of the Board of Railway Commissioners, Mrs. and Miss Carvell, spent the Christmas and New Year's holidays at Lakeville, N.B.

A. Blake Chown, whose appointment as Assistant General Western Passenger Agent, Canadian National Rys., and Assistant General Passenger Agent, Western Lines, G.T.R., Chicago, Ill., was announced in our last issue, was born at Belleville, Ont., Aug. 4, 1887, and enter-



W. C. Bowles,
Assistant Freight Traffic Manager, Eastern Lines,
C.P.R.

ed railway service, Apr. 1, 1907, since when he has been, to May, 1909, night ticket clerk, G.T.R., Belleville, Ont.; May 1909, to March 1911, day ticket clerk, G.T.R., Belleville, Ont.; March 1911 to March 1913, Soliciting Passenger Agent, G.T.R., Toronto; March 1913 to Dec. 1918, Travelling Passenger Agent, G.T.R., Pittsburg, Pa.; Dec. 1918 to March 1919, acting General Agent, Passenger Department, G.T.R., New York; March 1919 to July 1920, General Agent, Passenger Department, G.T.R., New York; July 1920 to Dec. 1, 1921, General Agent, Passenger Department, Canadian National-Grand Trunk Rys., New York, N.Y.

John A. Clancey, whose appointment as Superintendent of Transportation, Western Lines, G.T.R., Chicago, Ill., was announced in our last issue, was born at Walkerton, Ont., June 8, 1884, and entered G.T.R. service June 2, 1901, since when he has been, to Sept. 26, 1901, office

boy, local freight office, Toronto; Sept. 26, 1901 to July 1, 1902, stenographer to Terminal Superintendent, Toronto; July 1 to Sept. 23, 1902, stenographer to District Passenger Agent, Toronto; Sept. 23, 1902 to Apr. 6, 1903, stenographer and clerk, Bridge and Building Department, Durand, Mich.; Apr. 6, 1903 to Nov. 21, 1905, chief clerk to Trainmaster, Durand, Mich.; Nov. 21, 1905 to Mar. 1, 1906, clerk to Master of Transportation, Durand, Mich.; Mar. 1, 1906 to July 1, 1910, Car Distributor, Durand, Mich.; July 1, 1910 to Jan. 2, 1911, chief clerk, Car Demurrage Bureau, Detroit, Mich.; Jan. 2, 1911 to Feb. 8, 1912, Car Distributor, Durand, Mich.; Feb. 8 to Oct. 15, 1912, Travelling Car Service Agent, Detroit, Mich.; Oct. 15, 1912 to Jan. 23, 1913, Assistant Superintendent of Terminals, Detroit, Mich.; Jan. 23, 1913 to Apr. 20, 1914, chief clerk to General Superintendent, Chicago, Ill.; Apr. 20, 1914 to Feb. 1, 1918, Division Agent, Western Lines, Chicago, Ill.; Feb. 1 to Dec. 1921, Trainmaster, Districts 27 and 28, Durand, Mich., and Trainmaster, Districts 26 and 27, Elsdon, Ill.

G. C. Dew, Asiatic Freight Agent, C.P.R., Montreal, is on a business trip to Japan and China.

Sir John Eaton, director, C.P.R., spent a few days at the local winter sports at Quebec, Que., early in January, and then went on a short shooting trip in the north.

A. C. Egan, General Auditor, Canadian National Rys., Toronto, visited friends in Winnipeg, during the Christmas holiday.

J. M. R. Fairbairn, D.Sc., Chief Engineer, C.P.R., Montreal, was the recipient of a framed engrossed appreciation by the American Railway Engineering Association's Board of Direction recently, as a memento of their meeting in Montreal in July 1921, when courtesies were extended to them, by him as President, Engineering Institute of Canada.

C. E. Friend, Comptroller, Canadian National Rys., Toronto, spent a short Christmas holiday in Winnipeg.

Sir Joseph Flavelle, Chairman of the G.T.R., had a private conference with Premier King and Minister of Railways Kennedy, in Ottawa, Jan. 16. It is expected that he will retain the position for a time at least, probably until arrangements are made for full co-ordination with the Canadian National Rys., but it is said that he would not accept a position on the C.N.R. board when re-organized, even if it were offered him.

U. E. Gillen, General Manager, Toronto Terminals Ry. Co., has been appointed, by the Labor Department, chairman of the board of conciliation, dealing with the wage dispute between the Dominion Coal Co., Nova Scotia Steel & Coal Co., Acadia Coal Co., and their employees.

Mrs. E. Graham, widow of J. G. Graham, a former Manager of the Northern Pacific Ry., at Winnipeg, died suddenly at Cleveland, Ohio, Jan. 14.

Grant Hall, Vice President, C.P.R., has been elected Honorary President of Bishop's College University Alumni Association.

D. B. Hanna, President, Canadian National Rys., addressed the Young Men's Canadian Club in Toronto Jan. 9, and the Ontario Commercial Travellers Association at London, Jan. 20.

Louis Harold, Superintendent of Transportation, Eastern Lines, G.T.R., Montreal, who died there, Jan. 4, after a very short illness, was born in Jan. 1864, and entered G.T.R. service at Tavistock, Ont., in 1881, being employed first as an operator, and later as agent at various points. After some time in the Traffic Department, he was appointed Assistant Trainmaster, London, Ont., in 1912, and in the same year was appointed Special Assistant in the Transportation Department, and in 1913, Superintendent of Transportation, Eastern Lines, Montreal. The funeral, which took place at Stratford, Ont., Jan. 6, was attended by a large number of G.T.R. and other railway officials; the pall bearers being, R. H. Fish, general Superintendent, Eastern Lines, G.T.R., Montreal; W. R. Davidson, General Superintendent, Western Lines, G.T.R., Chicago, Ill.; C. R. Moore, General Superintendent of Car Service, G.T.R., Montreal; D. Lighthall, J. Scriver and G. Childs.

A. E. B. Hill, B.A.Sc., who died at Vancouver, B.C., Jan. 5, aged 76, following a paralytic seizure, was born at Hillside, N.S., was appointed to the C.P.R. engineering staff, in 1881. He was engaged on the final location and construction of the line in British Columbia through the Rocky Mountains. In 1886 he went to Coquitlam to take charge of the water works and subsequently had charge of the construction of the New Westminster water works. In 1896 he was elected an alderman in New Westminster and was chairman of the council's railway committee.

Thomas Hodgins, formerly customs clerk, G.T.R., Toronto, died there, Jan. 7, aged 74. He was born at Abbeyleix, Ireland, and was in G.T.R. service for about 50 years, retiring on superannuation about three years ago.

C. E. Jefferson, whose appointment as General Freight Agent, Western Lines, C.P.R., Winnipeg, was announced in our last issue, was presented with a silver tea service by the Freight Department staff at Montreal, recently, on his transfer from the position of Assistant General Freight Agent, Eastern Lines.

Charles Edward Jenney, whose appointment as General Agent, Passenger Department, Canadian National Grand Trunk Rys., New York, was announced in our last issue, was born at Fergus, Ont., Dec. 31, 1873, and was educated at the Southampton and Port Elgin, Ont., public and high schools. He entered railway service June 1, 1894, since when he has been, to 1895, clerk, Assistant General Baggage Agent's office, G.T.R., Toronto; 1895 to 1896, clerk, General Baggage Agent's office, G.T.R., Toronto; 1896 to 1909, clerk, District Passenger Agent's office, G.T.R., Toronto; 1909, Soliciting Passenger Agent, G.T.R., Toronto; June 1, 1909 to Dec. 1, 1912, Travelling Passenger Agent, G.T.R., Toronto; Dec. 1, 1912 to March 1913, Travelling Passenger Agent, G.T.R., Pittsburg, Pa.; March 1913 to March 1914, City Passenger and Ticket Agent, G.T.R., Toronto; March 1914 to Sept. 1920, General Agent, Passenger Department, Grand Trunk Pacific Ry., Vancouver, B.C.; Sept. 1920 to Dec. 31, 1921, District Passenger Agent, Canadian National Rys., Vancouver, B.C.

Hon. William Costello Kennedy, of Windsor, Ont., the newly appointed Minister of Railways and Canals, is a son of Wm. and Julia (Costello) Kennedy, was born at Ottawa, Ont., Aug. 27, 1868,

and educated at separate school, and De La Salle Institute, Toronto. He began his business career with the London & Canadian Loan & Agency Co., Toronto, in 1887, remaining in its service until 1897, when he engaged in gas and oil business at Windsor, Ont. He was President, Windsor Gas Co., 1903 to 1917, and is now a gas and oil operator. He was President, Windsor Board of Trade, 1909 to 1910; trustee, Windsor Board of Education, 1913 to 1918; councillor, Ojibway, 1913 to 1918. He was elected to the House of Commons for North Essex, Ont., Dec. 917, and again in Dec. 1921. He is a Liberal and a Roman Catholic. He married Glencora Bolton, of Detroit, Mich., May 8, 1907. He is a member of the following clubs:—Detroit; Detroit Athletic; Essex County Golf; Ontario (Toronto); Rideau (Ottawa); Country (Ottawa). His recreations are golf and motoring.



C. E. Jefferson,
General Freight Agent, Western Lines, C.P.R.

E. D. Lafleur, C.E., Chief Engineer, Public Works Department, who died suddenly at Ottawa, Jan. 14, was born Aug. 5, 1861. He entered the Department's service Sept. 27, 1881 and was in charge of the surveys for the proposed Georgian Bay Canal in 1904-05 and also made a report on the feasibility of a tunnel to connect the mainland with Prince Edward Island. He was appointed Chief Engineer of the Department Dec. 1, 1904.

W. B. Lanigan, Freight Traffic Manager, C.P.R., was reported in a Vancouver, B.C., paper recently, as contemplating resigning early this year, and settling on a fruit ranch near Victoria, B.C., in pursuance of a resolution said to have been made some time ago to resign on becoming 60 years of age. While no official information is obtainable in this connection, it appears that Mr. Lanigan bought a property in Uplands, near Victoria, same time ago, and that Mrs. Lanigan is living there. It is thought that he will probably retire there as soon as circumstances will permit, possibly on the completion of his 30th year

of service with the C.P.R. He was born at Three Rivers, Que., Oct. 12, 1861, entered the North Shore Ry. service, between Montreal and Quebec, in 1879, went with the G.T.R. in Jan. 1881, and to the C.P.R. in Aug. 1884.

W. B. Logan, whose appointment as acting District Storekeeper, Maritime District, Canadian National Rys., Moncton, N.B., was announced in a recent issue, was born at Amherst, N.S., July 30, 1869, and entered railway service July 4, 1887, since when he has been, to Apr. 13, 1901, clerk, Intercolonial Ry.; Apr. 13, 1901 to Nov. 1921, local storekeeper, Canadian Government Rys., and Canadian National Rys., all at Moncton, N.B.

J. M. Lyons, formerly General Passenger Agent, Intercolonial Ry., and subsequently Eastern Freight Agent, Reid Newfoundland Co., Moncton, N.B., was married at New York, N.Y., Jan. 7, to Miss N. M. Gillespie, formerly of Parrsboro, N.S. They subsequently sailed for Europe and on their return will live at Moncton.

J. L. McCloskey, whose appointment as Agent, C.P.R., Juneau, Alaska, was mentioned in a recent issue, was born there March 25, 1897, and educated in the local public and high schools. He entered C.P.R. service Dec. 21, 1918 and was to Nov. 1, 1921, clerk at Juneau.

Col. The Hon. Angus McDonnell, C.B., C.M.G. who is a partner in Stewart and McDonnell, railway and harbor contractor, etc., is on a visit to the firm's headquarters at Vancouver, B.C. The firm, the other partners in which are Major General J. W. Stewart, C.B., C.M.G., and Major General G. P. Dawney, C.B., C.M.G., D.S.O., is carrying out a large harbor and railway construction contract in the Gold Coast Colony, West Africa, in connection with which Col. McDonnell has been spending most of his time at the London, Eng. office recently. He is also one of the principals of Grant Smith & Co., and McDonnell, Ltd., Vancouver, which received a contract recently for the extension of the Timiskaming and Northern Ontario Ry. for about 70 miles northerly from Cochrane.

Sir Wm. Mackenzie, ex President, Canadian Northern Ry., has resigned from the Hudson's Bay Co. committee.

Oscar Masse, who has been appointed Terminal Inspector, Transportation Department, G.T.R., Montreal, was born at Coteau, Que., Nov. 7, 1884, and entered G.T.R. service Nov. 1 1901, since when he has been, to Feb. 25, 1903, freight clerk, Coteau, Que.; Feb. 25 to Dec. 1, 1903, operator, Coteau Jct. Que.; Dec. 1, 1903 to Aug. 10, 1905, operator, Montreal; Oct. 15, 1905 to Nov. 7, 1908, dispatcher, Montreal; Nov. 7, 1908 to April 25, 1910, dispatcher, Island Pond, Vt.; April 25, 1910 to Oct. 13, 1911, dispatcher, Montreal; Oct. 13, 1911 to Jan. 16, 1922, Night Chief Dispatcher, and Chief Dispatcher, Montreal.

R. C. Morgan, Chairman of the Railway Management Committee, Reid Newfoundland Co., St. John's, spent Christmas at his home in Winnipeg.

Lord Mount Stephen's benefactions to the King Edward Hospital Fund in England were referred to by the King recently, who wrote:—"The fund has lost one of its earliest and greatest benefactors by the lamented death of Lord Mount Stephen, who, by his gifts, amounting to £500,000, many years ago, laid the foundation of its endowment, and who has

bequeathed to it the residue of his estate. His Majesty desires to record his most grateful appreciation of the noble generosity ever displayed towards the fund, and to the hospital world generally, by his old and valued friend."

Hon. Jas. Murdock, following his recent appointment as Dominion Minister of Labor, resigned as Canadian Vice President of the Brotherhood of Railway Trainmen, and has been succeeded by W. J. Babe, whose appointment is effective to July 31, but may be extended at the Brotherhood's convention at Toronto in May. Mr. Babe was born at Cataract, Ont., in 1874, and began railroading on the Michigan Central Rd. at St. Thomas, Ont., in 1895 and has since been employed as brakeman and conductor with the exception that for the past 10 years, while holding rights as a M.C.R., conductor, he has been General Chairman of the Brotherhood of Railroad Trainmen on President of the same organization for the past two years.

C. Murphy, General Manager, Western Lines, C.P.R., returned to Winnipeg, recently, from Hot Springs, Ark., where he had been staying for the benefit of his health.

John Murphy, C.E., Electrical Engineer, Railways and Canals Department, and Board of Railway Commissioners, Ottawa, read a paper before the American Association for the Advancement of Science, Engineering Section, at its recent meeting in Toronto.

Sir Augustus Nanton, of Winnipeg, one of the C.P.R. directors, and Lady Nanton, sailed from St. John, N.B., Jan. 13, by the s.s. Metagama, for Liverpool, Eng.

G. G. Ommanney, who has been appointed Development Engineer, Development Branch, Department of Colonization and Development, C.P.R., Montreal, entered C.P.R. service in 1907, making preliminary reports and surveys regarding the development of the company's lake terminal at Port McNicoll, Ont., and subsequently was in charge of construction there until 1911, when he was placed in charge of exploration and reconnaissance work in connection with harbor developments on the Pacific coast. In 1912 he was appointed Special Engineer to the President, and later was assigned to the duties of Investigation Engineer of the Research Branch of the Department of Colonization and Development, which title has now been abolished, as it is felt that the new title indicates more clearly the nature of the work being carried on by him.

F. W. Peters, General Superintendent, British Columbia District, C.P.R., sailed from Vancouver, early in January, accompanied by Mrs. Peters and his niece, Miss Dorothy Langford, on the s.s. Empress of Russia, for the Orient. The trip is mainly on account of his health, which has been indifferent for about a year, but he will combine business with pleasure, and visit the company's agencies in China and Japan.

W. C. Riddell, who has been appointed Advertising Agent, from Quebec, Que., to Port Arthur, Ont., Canadian National Rys., Toronto, was born at Port Dover, Ont., Oct. 27, 1867, and was for many years in newspaper work at various points in Ontario. He entered railway service in 1902, since when he has been, to July 1918, chief clerk to General Advertising Agent, G.T.R., Montreal; July 1918 to Sept. 1, 1920, Advertising Agent,

Grand Trunk Pacific Ry., Winnipeg; Sept. 1, 1920 to Jan. 1, 1922, Advertising Agent, Western Lines, Canadian National Rys., and Grand Trunk Pacific Ry., Winnipeg.

Brig.-Gen. H. N. Ruttan, formerly City Engineer of Winnipeg, who was connected with railway construction work for many years, starting on the Intercolonial Ry. location surveys in 1868, was given his insignia as Commander of the Order of St. Michael and St. George, at Government House, Winnipeg, recently.

Major J. L. Retallack, at one time Manager, Kaslo and Slocan Ry., left Vancouver, B.C., recently, for the Gold Coast, West Africa, to take an appointment under the British Colonial Office.

Robert James Sloane, whose appointment as station ticket agent, Canadian National Rys., Brandon, Man., was announced in our last issue, was born at



Hon. Wm. C. Kennedy, M.P.,
Minister of Railways and Canals.

Winnipeg, March 31, 1893, and entered railway service, March 21, 1911, since when he has been, to Jan. 1913, junior clerk, Passenger Department, Grand Trunk Pacific Ry., Winnipeg; Jan. 1913 to Apr. 1916, ticket clerk, Union Station, Canadian Northern Ry. and Grand Trunk Pacific Ry., Winnipeg; Apr. 1916 to Jan. 1917, ticket clerk, city ticket office, Canadian Northern Ry., Winnipeg; Jan. to June 1917, ticket stock clerk, General Passenger Department, Grand Trunk Pacific Ry., Winnipeg; Sept. 1917 to Dec. 1918, train auditor, Canadian Northern Ry., Calgary, Alta.; March 1919 to Sept. 1920, ticket clerk, city ticket office, Grand Trunk Pacific Ry., Winnipeg; Sept. 1920 to Oct. 1921, chief clerk to District Passenger Agent, Canadian National Rys., Winnipeg.

Ernest A. Snell, whose appointment as stores inspector, Canadian National Rys., Leaside, Toronto, was announced in our last issue, was born at Bath, Eng., June 15, 1880, and entered railway service, June 1, 1907, since when he has been, to Oct. 1, 1907, storeman, C.P.R., West To-

ronto, Ont.; Oct. 2, 1907 to Feb. 15, 1909, stockkeeper, C.P.R., West Toronto, Ont.; Feb. 16, 1909 to Oct. 1, 1914, storekeeper, C.P.R., London, Ont.; Oct. 1, 1914 to Nov. 30, 1916, storekeeper, C.P.R., Ottawa, Ont.; Dec. 1, 1916 to June 1, 1918, Assistant Division Storekeeper, C.P.R., West Toronto, Ont.; June 1, 1918 to July 25, 1920, store inspector, Canadian Northern Ry., Toronto; Aug. 1, 1920 to Aug. 1, 1921, chief clerk, Stores Department, Canadian National Rys., Leaside, Toronto.

Capt. J. Springett, Agent, C.P.R., Rotterdam, Holland, and a captain of the Royal Army Service Corps during the war, has been gazetted a captain, with seniority from Nov. 24, 1920.

William Sturgeon, Car Foreman, C.P.R., Farnham, Que., was retired on superannuation Jan. 1, after 48 years continuous service, and was presented, by the staff, with a chest of silver.

Roland Edward Swain, whose appointment as Liverpool Passenger Agent, C.P.R., Liverpool, Eng., was announced in a recent issue, was born at Birkenhead, Eng., Feb. 23, 1882, and entered transportation service, Dec. 20, 1894, since when he has been, to Sept. 14, 1898, stores clerk, Engineering Department, Mersey Ry., Birkenhead; Sept. 16, 1898 to Jan. 31, 1903, passenger and freight clerk, C.P.R., Liverpool; May 4 to June 30, 1903, assistant cashier, C.P.R., Liverpool; July 1, 1903 to June 1, 1906, chief cashier, C.P.R., Liverpool; June 2, 1906 to July 31, 1909, saloon passenger clerk, C.P.R., Liverpool; Aug. 1, 1909 to Feb. 8, 1916, clerk in charge, Passenger Department, C.P.R., Liverpool; Feb. 9, 1916 to Apr. 3, 1921, chief clerk to European Passenger Manager, C.P.R., London; Apr. 4, to Sept. 30, 1921, clerk in charge, Passenger Department, C.P.R., Liverpool.

Charles Marshall Walton, who has been appointed Superintendent of Transportation, Eastern Lines, G.T.R., Montreal, was born there, Jan. 24, 1884, and entered G.T.R. service June 1, 1900 as assistant clerk, Stationery Department; Jan. 1 to May 3, 1900, clerk to Superintendent; May 3, 1900 to March 11, 1901, clerk; March 11, 1901 to Oct. 25, 1905, clerk to Superintendent of Transportation; Oct. 25, 1905 to Oct. 20, 1906, out of service; Oct. 20, 1906 to Aug. 6, 1907, timekeeper, Transportation Department; Aug. 6, 1907 to May 1, 1911, clerk, Transportation Department; May 1, to Jan. 21, 1913, car distributor; Jan. 21, 1913 to Nov. 1, 1915, chief clerk, Transportation Department, all at Montreal; Nov. 1, 1915 to Nov. 18, 1917, Assistant Trainmaster, Island Pond, Vt.; Nov. 18, 1917 to Dec. 1, 1918, chief clerk to General Superintendent of Transportation, Montreal; Dec. 1, 1918 to Feb. 1, 1920, chief clerk to General Superintendent of Car Service, Montreal; Feb. 1, 1920 to July 19, 1921, Terminal Inspector, Transportation Department, Montreal; July 19, 1921 to Jan. 16, 1922, acting Superintendent of Terminals, Transportation Department, Montreal.

F. L. Wanklyn, C.E., General Executive Assistant, C.P.R., Montreal, has, with some others, retired from the Windsor Hotel directorate there, owing to the control of a majority of the stock having been secured by D. Raymond, of the Queen's Hotel.

W. H. Winterrowd, Chief Mechanical Engineer, C.P.R., gave an illustrated address to the Argonauts Young Mens Club, of Emmanuel Church, Montreal.

Jan. 13, on how Canadian railways deal with snow removal. He has been elected Vice Chairman of the executive committee of the American Society of Mechanical Engineers' Railroad Division.

John Alfred Yorick, who has been appointed Travelling Passenger Agent, Ocean Traffic, C.P.R., Toronto, was born at London, Ont., May 7, 1872, and entered transportation service in May 1888, since when he has been, to Sept. 1894, assistant ticket agent, G.T.R., Stratford, Ont.; Sept. 1894 to May 1901, assistant ticket agent, G.T.R., Hamilton, Ont.; May to July 1901, assistant ticket agent, G.T.R., Buffalo, N.Y.; July 1901 to Jan. 1905, joint ticket agent, C.P.R. and Toronto, Hamilton & Buffalo Ry., Hamilton, Ont.; Jan. 1905 to June 1918, General Agent, Chicago, Burlington & Quincy Ry., Toronto; June 1918 to June 1920, in Traffic Department, Riordon Pulp & Paper Co., Hawkesbury, Ont., Timiskaming, Que.; July 1920 to Jan. 1922, Traffic Manager, Mettagami Pulp & Paper Co., Toronto.

Henry K. York, who has been appointed General Car Foreman, C.P.R., Moose Jaw, Sask., was born at Victoria Corner, Carleton County, N.B., Mar. 20, 1881, and entered C.P.R. service, Dec. 3, 1903, since when he has been, to June 30, 1904, car repairing, Fort William, Ont.; June 30, 1904 to Feb. 28, 1905, air brake tester, Fort William, Ont.; Feb. 28, 1905 to May 20, 1906, car inspector, Fort William, Ont.; May 20, 1906 to May 1, 1908, Assistant Car Foreman, Fort William, Ont.; May 1, 1908 to June 30, 1910, Car Foreman, Ignace, Ont.; June 30, 1910 to Apr. 27, 1914, Car Foreman, Kenora, Ont.; Apr. 27, 1914 to Nov. 30, 1917, Car Foreman, Transcona, Man.; Nov. 30, 1917 to March 31, 1918, Car Foreman, Swift Current, Sask.; March 31, 1918 to Dec. 1921, Car Foreman, Alyth, Alta.

The Bad Order Car Situation.

The Railway Association of Canada has issued a statement showing that the total number of cars on Canadian lines for the 15 day period ended Jan. 1, 1922, was 208,025. The allowance for bad order cars on the A.R.A. basis, which assumes a total of 7% of the cars in bad order, works out to 14,562, while the actual number of cars in bad order was 18,966, an excess of 4,404 on the 7% basis. Of surplus cars in good order there were 45,333, making a total number of cars not in use of 64,299, or a total of 49,737 idle cars on the basis of 7% of the cars being in bad order.

Comparing the car performance for the period ended Jan. 1, 1922, with the 15 day period ended Dec. 15, 1921, it is seen that in the period ended Jan. 1 there were 9.12% of the cars in bad order and in the period ended Dec. 15, only 7.85%. The number of surplus cars in good order for the period ended Jan. 1, 1922, was 21.79% of the total cars on line, while for the period ended Dec. 15, 1921, the number of surplus cars in good order was but 15.62% of the total. These figures show that the bad order car situation became worse in the latter part of December than in the first part, and also make it plain that the amount of traffic offering in the latter part of the month was less than in the first part. It would naturally be expected, however, that there would be a greater number of surplus cars on hand in the latter part of the month, on account of the seasonal

falling off which sets in when the bulk of the grain crop has been handled.

While the figure of 9.12% of cars in bad order would indicate that maintenance of equipment fell behind to some extent, Canadian railways are nevertheless in a good position in this connection as compared to the majority of the U.S. railways. Freight equipment was in a worse condition on U.S. railways during all of 1921 than for many years. At the beginning of the year, the cars were still badly scattered following the period of Federal control. The extent to which car ownership was disregarded during that period is indicated by the fact that when the U.S. railways were returned to private operation only 21.9% of the cars were on home lines. At the beginning of 1921 there were 191,000 bad order cars on U.S. lines, representative of 8.5% of the total, and by July 1, 1921, the number had increased to 15.4% of the total. The peak was reached in the middle of August, when the number of bad order cars was 382,440. Some decrease has since taken place and by Oct. 15 the number was down to 354,996, or 15.5%, and at the end of Nov. 1921, the number had been further reduced till only 14% of the total freight equipment remained in bad order.

The financial plight of U.S. railways during 1921 has been described in previous issues of Canadian Railway and Marine World, and our readers will be in a position to form their own opinion concerning the connection between the above noted bad order car record and the financial results attending U.S. railway operation during the past year. It is a recognized fact that, despite all rules, the tendency in car maintenance is to maintain cars better when on the home line, and various suggestions have been put forward having to do with changes in the interchange rules so as to promote better maintenance of foreign cars, but the underlying fact remains that if railways are limited in their net earnings, equipment maintenance is bound to suffer. Although the Canadian railways had 9.12% of their cars in bad order during the period ended Jan. 1, 1922, they were in a fortunate position compared to U.S. railways, but that fact should not be taken as indicating that there is any room for the slackening of the effort to keep bad order equipment reduced to a minimum.

Exchange and Surcharges on International Traffic.—In accordance with the Board of Railways Commissioners' judgment and order of Jan. 14, 1921, the rate of exchange in connection with shipments of freight between points in Canada and the United States from January 1 to 14, was 4 15/16%, and from Jan. 15 to 31 it was 5 9/16%. The surcharge on the said traffic was 3%. The rate of surcharge on international passenger business from Jan. 1 to 14 was based on 5% exchange, and from Jan. 15 to 31 on 6%.

Railway Cottages Taxable.—The Timiskaming & Northern Ontario Ry. owns a number of cottages at Cobalt, which are occupied by its employees. Hitherto these properties have been held to be exempt from taxation as being owned by the Crown, but in a recent case, District Judge Hartman decided that the tenants may be assessed on the cottages occupied by them. The Cobalt Town Council will, it is reported, endeavor to collect municipal taxes from the occupants during the year.

Railway Finance, Meetings, Etc.

Algoma Central & Hudson Bay Ry.—The report of the bondholders' committee of the A.C. & H.B.R. Co. and Algoma Central Terminals Co. for the year ended June 30, 1921, states that receipts were \$2,819,892, and net earnings \$159,425. As the amount required to pay full interest on both railway and terminal bonds at 5% is \$753,635, the deficit for the year was \$594,209. The debit brought forward was \$74,488, leaving a balance of net earnings carried forward \$84,937. The company is not in a position to pay interest to either railway or terminal bondholders in respect of the year. \$119,966 has been added to depreciation reserve, making a total of \$836,660, which has been charged to revenue since June 30, 1914.

Canadian Pacific Ry.—The National City Co., New York, offered for subscription in Dec. 1921 \$25,000,000 of C.P.R. 4% coupon consolidated debenture stock at 78, yielding 5.13%. This stock is perpetual and non-callable and is secured by a first charge on the entire undertaking, subject to certain priorities. Interest is payable in U.S. gold coin in New York, Jan. 1 and July 1. The issue was oversubscribed quickly.

Cape Breton Coal, Iron & Railway Co. The report for the calendar year 1920 shows a balance at debit of profit and loss of \$703,876, against \$624,058 for 1919.

Board of Railway Commissioners' Traffic Department.—G. A. Brown, heretofore chief clerk, who has been acting as Traffic Officer since the death of Jas. Hardwell in June, 1921, has been appointed Assistant Chief Traffic Officer. His rate of pay, as fixed by order in council of Dec. 5, 1921, is \$3,000 for the first year, advancing \$120 a year for five years until it reaches \$3,600, this being subject to revision on the appointment of a Chief Traffic Officer. Other members of the staff are:—Principal Traffic Clerk, C. E. McManus, annual salary \$1,920, advancing \$120 a year until \$2,400 is reached; senior traffic clerks, F. Lalonde and J. R. Usher, salary \$1,560 a year, advancing \$120 a year until \$1,800 is reached; traffic clerks, L. L. Brethour, A. B. Drum and H. W. Messenger, salaries \$1,200 a year, advancing \$60 a year until \$1,599 is reached. The rates of pay as revised by the Civil Service Commission and approved by order in council of Dec. 5, 1921, are effective from April 1, 1919, as the incumbents of the positions have been performing the duties since that date.

Stimulating Dairying, Etc., in Alberta.—To stimulate an interest in dairying and in the production of bacon type pigs, the Alberta Department of Agriculture arranged with the C.P.R. for the operation of a demonstration train over its lines in the province from Jan. 24 to about March 1. The train carries exhibits of dairy cattle, pigs, etc., and lectures are given at various points every afternoon and evening by lecturers under the direction of S. C. Carlyle, Provincial Live Stock Commissioner.

U.S. Railway Mileage Decreased.—The Interstate Commerce Commission reports that during the year ended Oct. 31, 1921, it authorized the abandonment by 25 railway companies of 701.93 miles of railway, and the construction by 20 companies of 404.70 miles of new lines.

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Unfounded Attacks on Railway Managements.

It is not long since Ontario's Prime Minister stated in the Dominion general elections campaign that the earnings of Canadian Government Railways have a strange way of becoming very favorable just prior to elections, and President Hanna, of the Canadian National Rys., at once made it clear that the Canadian National Rys. net earnings, which began in Aug. 1921, were genuine net earnings, and not "paper" earnings made possible by a skillful manipulation of figures. It seems that the efforts of some people to drag the C.N.R. into politics will never cease, despite the efforts of the management to keep them out, and it also seems that some people derive genuine pleasure from making discouraging statements concerning the results obtained by the high grade railway men who are operating those railways, and who are getting results which, in relation to the difficulties to be overcome, merit praise and helpful encouragement.

The latest "helpful encouragement" given Mr. Hanna was an article in the Toronto Globe of Jan. 21, by a writer styling himself "A student of railway finance," who said: "The official statement for October was encouraging, in that it showed net earnings for the first time by all four divisions of the Canadian National group. That result must, however, be understood in the light of an important qualification. In order to meet conditions as to unemployment, the Government authorized the transfer of certain operating expenses from the latter part of 1921 to the year 1922. That was an open channel for shoving ahead charges which properly attached to 1921, and beyond question enabled a more favorable statement to be made for September and October than would otherwise have been possible. For example, it created net earnings which may not be entirely real, and probably were not. It lowered the operating ratio quite materially."

On the strength of this the Globe published an editorial headed "Prosperity by Bookkeeping," the tendency of which was to discredit the Canadian National Rys. management. It would naturally be thought that a newspaper which professes to be such a champion of public ownership would have ascertained the facts before doing this. However, Mr. Hanna replied promptly and said: "What actually happened was this. In view of the widespread unemployment in Canada, and the fact that railway car plants were closed, I made representations to the Government that, instead of handing out cash doles to the unemployed, it would be a good idea to give us the money to spend in effecting repairs to some 2,000 freight cars and thereby provide employment for many men. An order in council, passed Oct. 6, 1921, for this purpose, specifically states: 'It is only fair to the National Railways that any expenditure so incurred shall not be charged against the current year's operating or financing.' As a matter of fact it was not found necessary to make any car repairs other than our regular staff could handle from the date of this order in council until the end of 1921. Consequently, there was no expenditure on this account during 1921, although such was permitted by the Government if it had been found necessary."

Canadian Railway and Marine World

holds no brief for public ownership of railways, but we have faith in the ability and integrity of the managements of the Canadian railways, and therefore find no pleasure in contemplating the above example of the kind of proposition railway managements are up against. The same article stated that the Canadian Northern, when taken over by the Government, was such that "every total in its annual report placed it at the foot of the list among all the large railways in the world." It also stated: "It was not only unsound in every department, but at every angle it suggested bad administration." We do not know where the "student of railway finance" got this information, but we do know that the old Canadian Northern lines in western Canada were operated just about as efficiently and economically as they could be, having in mind the adverse conditions which inevitably beset a pioneer railway. We do not venture an opinion as to whether the fact of the same person having been the former operating head of the Canadian Northern and now of the Canadian National Rys. had anything to do with the statement last quoted, but we state as a general principle that the criticisms of executives of publicly owned railways, so prevalent in Canada in late years, is entirely unwarranted and very undesirable. Further, it is to be regretted that criticism is made anonymously. It is not probable that the series of articles in the Toronto Globe excite a great deal of interest except in cases such as the one herein discussed, but if the author of them were to give his name in connection with them, they would carry either more, or less—probably less—weight.

President Beatty's New Year's Message.—E. W. Beatty, K.C., President, C.P. R., issued the following telegraphic message Dec. 31, 1921:—"In wishing the officers and employees of the company, and the members of their families, the greatest measure of health and happiness during the come year, may I express the hope that the same good will, co-operation, enthusiasm and loyalty which have marked the career and inspired the success of the Canadian Pacific during the 40 years of its existence will be continued in 1922, and that above and beyond all else, our chief aim be to promote the best interests of the Canadian people, and, by our united efforts and efficient service, accelerate the development and progress of our great Dominion."

The Freight Rates Agitation.—Howard Elliott, Chairman, Northern Pacific Ry., in testifying before the Interstate Commerce Commission recently, said: "The present uncertainties and the constant talk about reduced rates are having a very substantial effect in keeping business back and preventing the employment of labor—much more so, in my humble opinion, than the rates themselves."

Timber Preservation.—There is apparently great room for expansion in the timber preservation business. In the best year the industry in the U.S. ever had, the total material treated, including railway ties, was less than 2% of the timber being used annually in that country, which could have been economically treated.

Proposed Amendments to United States Transportation Act.

The U.S. Transportation Act of 1920 gives the Interstate Commerce Commission power to exercise supervision over intrastate rates, and to alter any intrastate rate causing discrimination against interstate commerce. The Act to Regulate Commerce, sec. 15A, as amended by the Transportation Act, gives the I.C.C. power to prescribe what rate of return the railways shall be allowed to earn; and the rate was set at $5\frac{1}{2}\%$, with an additional $\frac{1}{2}\%$ to provide for needed improvements, this rate to be applicable up to March, 1922. The law also provides that anything over 6% earned by the railways shall be divided with the Government. Contrary to the opinion held by a large part of the public, there is no guarantee attached to this legislation. During 1921 the railways earned at the rate of about 3%, but neither the Government nor any one else will make up the difference. However, many people feel that the rate clauses are objectionable, for the reason that they are intended to allow the railways to earn 6%, whether they actually earn that or not. The various states, and particularly the state commissions, have fought the law giving the I.C.C. power to interfere in intrastate rate matters.

Agitation concerning the rate clauses of the act and the I.C.C. powers finally came to a head by the State of Texas attacking the constitutionality of the Transportation Act and asking that the I.C.C. and the Labor Board be restrained from enforcing it, and by the introduction of a bill by Senator Capper of Kansas, representing the agricultural interests generally, which would allow the individual states to reduce rates as they see fit, and which would repeal the rate making clauses of the act. Hearings on this bill before the Senate Committee on Interstate Commerce have been progressing for some time. J. E. Benton, Counsel for the National Association of Railway and Utilities Commissioners, was the first witness, and claimed that the I.C.C.'s power to regulate intrastate rates resulted in too great degree of centralization of authority. Later, many state commissioners appeared before the committee, all stating that the I.C.C.'s orders requiring advances in state rates have practically taken away from the state commissions the power to regulate local rates. Further witnesses in support of Senator Capper's bill were B.C. Marsh, representing the Farmers' National Council, S. W. Cowan, representing Texas cattle raisers, and Clifford Thorne, Counsel for the American Farm Federation.

The railways opposed the bill, and F. H. Wood, Counsel, Southern Pacific Rd., pointed out the undesirability of the removal of a measure of adequacy of railway earnings, and also indicated how chaotic conditions would become if rate regulation was again placed in the hands of about 40 state commissions. A. P. Thom, Counsel for the Association of Railway Executives, also appeared against the proposed amendments. E. E. Clark, formerly Chairman of the Interstate Commerce Commission, spoke against the amendments. He pointed out that the law is such as to permit any public utility an opportunity to earn a fair return on the money invested and devoted to the public service, and further made it clear that the act's rate making clauses

furnish only a statutory declaration of a provision of the national constitution which provides against property confiscation. H. A. Scandrett, Counsel, Union Pacific Rd., spoke against the bill. S. D. Warfield, President, National Association of Owners of Railroad Securities, told the committee that if the bill passed, it would likely result in bankrupting all the U.S. railways and leading to Government ownership. The U.S. Chamber of Commerce indicated that it is opposed to the amendments. W. D. Hines, formerly Director General of Railroads, appeared before the Senate Committee and pointed out that the passing of the amendments would be disastrous to U.S. railways and ultimately to the country. A. B. Johnson, President of the Railway Business Association, and Prof. E. R. Johnson, a writer on transportation subjects, also testified against the amendments.

While it appeared in the early stages of the hearings that the amendments were likely to be adopted, further evidence has apparently made clear the fact that legislation along the lines suggested would be a distinctly backward step. An idea of what a return to state regulation independent of the I.C.C. would be like may be formed by imagining what conditions in Canada would be if, in addition to the Board of Railway Commissioners, there was an independent commission in each province exercising supervision over railway rates and operations of the railways now subject to regulation by the Board of Railway Commissioners. It can readily be imagined that railway regulation would be characterized by confusion, rather than by efficiency, and that discrimination would be the rule rather than the exception. It is difficult for one acquainted with railway regulation in Canada to understand why a proposal should be seriously entertained in the U.S. to return to such conditions by taking from the I.C.C. the power to remove discriminations caused by state commissions insisting on creating and maintaining them. And why U. S. agricultural and other interests are so insistent on the removal of the Transportation Act's rate clauses is also difficult to comprehend. As stated above, these clauses constitute no guarantee, but merely state a measure of adequacy of railway earnings, necessary to ensure good transportation. It is surely a recognized principle that public utilities are entitled to charge such rates as will enable them to exist, and the mere removal of a stated desirable return to the railways would not benefit the country. The idea of those proposing the amendment is, apparently, that the removal of the stated measure of adequacy of earnings would encourage the regulating authority to regulate the railways into bankruptcy, giving the proposers of the amendments lower rates for the time being, regardless of the fact that this would ultimately cause large loss to the public.

The Delaware & Hudson Co. has arranged with an assurance company, for free life assurance for \$500 for all employees who have been in its service two years or more, and that such employees may take additional insurance up to an amount equal to their yearly salary, at very low rates.

Timiskaming & Northern Ontario Railway Operating Results, Etc.

Following are particulars of earnings and expenses for the year ended Oct. 31, 1921.

Earnings.	
Freight	\$3,047,925.57
Passenger	1,223,387.14
Express	150,072.29
Telegraph and telephone	105,457.23
Mail	42,399.38
Switching	23,659.76
Demurrage	35,586.90
Rents	15,319.48
Station and train privileges	12,846.20
Miscellaneous	23,961.47
	<hr/>
	\$4,680,615.42
Expenses.	
Maintenance of way and structures \$	960,483.34
Maintenance of equipment	735,799.62
Traffic	25,120.34
Transportation	2,233,312.73
Hire of freight cars	310,342.72
Rent of passenger cars	34,994.27
General expenses	198,783.51
	<hr/>
	\$4,498,836.53
Net earnings	\$181,778.89

In issuing the foregoing figures, the Commission made some comments which are summarized as follows:—Taking into consideration the extra amount spent on track and equipment during 1921, the year was one of the most successful the railway has had. The Commission undertook some heavy expenditures during the year, including tie renewals, \$167,414.97; rail renewals, \$127,141.97; track material other than rails, \$36,556.38; ballast and surfacing, \$307,824.51, with the result that the track is in first class condition. Old equipment and structures to the amount of \$63,000 were retired during the year. The Commission adopted all awards by the U.S. Labor Board, and gave increases in pay to employees, which necessitated the paying of considerable back time. The equipment has been well maintained, and is up to date, all necessary safety appliances having been applied. The Commission is the first railway management in Canada to adopt the locomotive booster, which is reported to have proved a success.

A cheque for \$200,000 from net earnings was paid the Ontario Government on Oct. 31, 1921. The Commission states that the railway is in excellent financial and physical condition, and that its prospects are very bright. Canadian Railway and Marine World must, however, point out that the cost of the line from North Bay to Cochrane up to Oct. 31, 1920, was \$19,207,201.94, and its equipment \$2,990,413.04, a total of \$22,197,614.98, on which only \$181,778.89 was earned during the last fiscal year.

Live Stock Shipping Facilities at St. John.—We are officially advised that the Public Works Department is fitting out shed 15D, West St. John, N.B., for storage of cattle for shipment to Europe. The facilities when completed will be used by both the Canadian National and Canadian Pacific Railways. The work is in charge of Alex. Gray, the Department's engineer at St. John.

Mechanical Convention at Atlantic City.—The American Railway Association, Mechanical Division, which embraces the former Master Car Builders and Master Mechanics Associations, will hold a convention at Atlantic City, N.J., from June 14 to 21, in connection with which the Railway Supply Manufacturers Association will have an exhibit.

The Fallacious Cry of High Freight Rates.

By Edwin Winfield, Assistant Editor, Canadian Railway and Marine World.

Ever since the Board of Railway Commissioners granted the railways an increase of freight rates, effective Sept. 1920, and even since the reductions ordered by the Board effective Jan. 1 and Dec. 1, 1921, a great majority of the people and most of the daily newspapers have contended that the rates are killing business, and they have been blamed for under-production, under-consumption, over-production, the low price of wheat and cattle, the high cost of living, unemployment, and practically everything else except possibly the condition of crops and the state of the weather. As an example of this, reference may be made to a Toronto Mail and Empire editorial of Jan. 7, which said, in part:—"The first thing to be done is to bring about a sharp reduction in the freight rates. The producing interests of the country cannot stand the present transportation charges." This statement is typical of the many that are made concerning the freight rate situation. If there is any truth in the statement that freight rates are too high, and are acting as a restraint on the carrying on of the country's commerce, the situation is serious indeed. On the other hand, if the people of this country are harboring an economic fallacy concerning transportation costs, it would be well if it could be shown that such is the case, to the end that the fallacy might be cast aside, and that business might go forward unhampered by the bad psychological effects which the entertainment of such fallacious ideas inevitably causes. An attempt to determine the truth or fallaciousness of the claim that freight rates are too high will be embodied in this article.

In demonstrating the truth or falsity of any proposition, it is necessary to have some basis on which to proceed. It does not seem unreasonable to take as a basis in this case the relation which freight transportation costs bore to the value of commodities in pre-war times. That freight rates were not unreasonable then and that they were not such as to prevent a satisfactory rate of progress in Canada's agricultural and industrial development is to be found in the fact that in the years preceding the war the country's development proceeded in a satisfactory way, while the people, whether engaged in agriculture or in other industry, enjoyed what may be described as a fair measure of prosperity. If it can be shown that at present the costs of freight transportation do not take from the producer or creator of wealth, individually, any more of his product, as determined on a dollars and cents comparison, than they did in 1913, it is at once evident that the demand made on the country for the payment of freight transportation costs is, proportionately as between the value of the wealth produced in 1913 and that being produced now, no greater than then. And if the transportation costs borne by the public are no greater today than they were in 1913, in proportion to the value of the products transported, it follows that present freight rates are just as suitable for the existence of economic prosperity in this country as they were in 1913, and that if that economic prosperity is now non-existent, it certainly is not the fault of the present scale of freight rates.

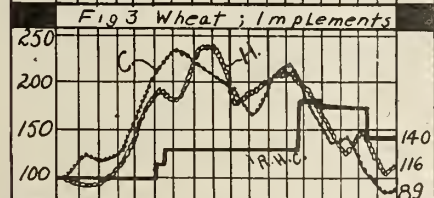
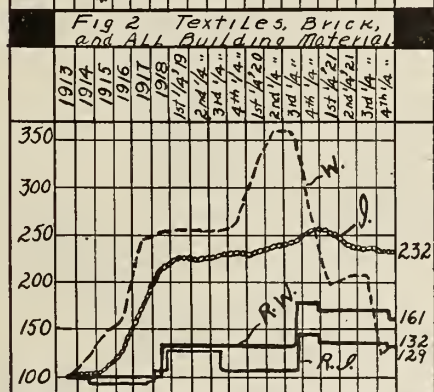
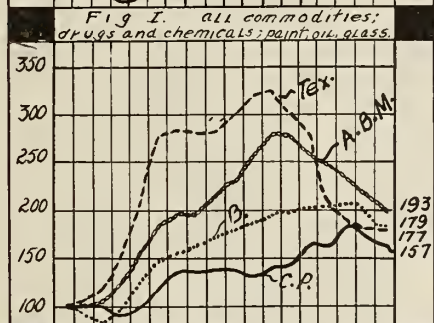
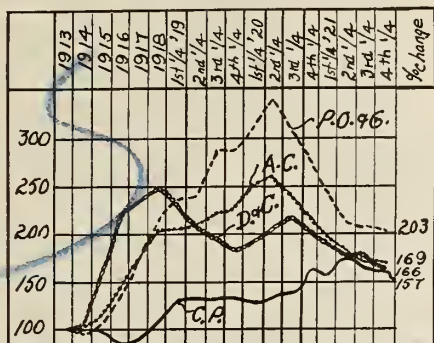
Further, if it can be shown that freight transportation costs are today lower in proportion to the value of products transported than formerly, it immediately follows that if we are not enjoying the degree of economic prosperity we would like to enjoy, it is not because of transportation costs, but on the contrary it is

a few of the rates in effect on the two largest railways of the country with the exchange value of some of the most important commodities used and transported. Let us, first, compare the fluctuations in the wholesale price of practically all commodities, grouped together, with the variation in the average charge per revenue ton mile of freight hauled by the C.P.R.

In the accompanying fig. 1, the line marked A.C. shows graphically the fluctuation in the wholesale price of these commodities. For 1913 to 1918 inclusive, the figures used represent the average of the prices in February, May, August and November. For 1919, 1920 and 1921, fluctuations are given by quarters, with the prevailing price in the middle month of each quarter taken to establish the point on the chart. This line showing price fluctuation is based on the figures dealing with wholesale prices issued by the Dominion Labor Department. The Department's index numbers were based on prices 1890-1899, but by taking the Department's index number for the year 1913 as equal to 100, to form the basis of a new series of index numbers, it has been possible to similarly assign a corresponding index number to the prices in succeeding years. For example, the Department's index number of wholesale prices in 1913, taking the average of May, Feb., Aug. and Nov., was 135.3. Making this 100 as the basis of a new series of index numbers, the Department's index number of 136.7 in 1914 becomes 101 in the new series; the Department's index number of 278.6 in 1918 becomes 206 in the new series, while the Department's index number of 356.6 in May, 1920, becomes 263 in the new series, and so on. By this means, an accurate comparison of prices as between 1913 and succeeding years, and quarter years, is made possible, and this is what is wanted. The line A.C. in fig. 1 shows accurately the fluctuations from 1913 to the end of 1921 on the basis of this true comparison.

The line C.P. in fig. 1 shows the fluctuation in the receipts per ton mile of revenue freight handled by the C.P.R. In 1913 that company was paid an average of seventy-seven hundredths of one cent for hauling one ton of freight one mile. Making that figure equal to 100 as the base of a series of index numbers, the average charge of 0.85c. per ton mile in 1918 becomes 110; the average charge of 1.059c. in the third quarter of 1920 becomes 138, and so on. By this means, an accurate comparison of freight rates as between 1913 and succeeding years and quarter years is made possible, and this is what is wanted. While the average freight receipts per ton mile for the last quarter of 1921 are not available at the time of writing, the figure has been approximated on the basis of conditions in the industry and with regard to the rate reduction effective Dec. 1, 1921, and it is felt that the figure is not far out.

By looking at fig. 1 it will be seen that in 1916, when wholesale prices as a whole were 37% above what they were in 1913, C.P.R. rates were 17% less than they were in 1913. In the middle of 1920, when wholesale prices as a whole were 163% above what they were in 1913, the rate decision effective Sept. 13, 1920, had



in spite of the fact that the demand made by transportation upon our national annual production of wealth is smaller, proportionately, than when we were enjoying that much desired prosperity.

Leaving the discussion of generalities at this point, and coming to a review of concrete facts, some of the fluctuations in prices and freight rates which have taken place between 1913 and the end of 1921 will be examined. Let us compare

not been given, and yet there were men supposed to be rational human beings who went to Ottawa and fought the proposed rate increases, but how they expected a railway to do business when its materials had gone up in price as indicated by the line A.C., and when wages had been advanced proportionately, without some increase in rates, is beyond all comprehension. The lines C.P. and A.C. in fig. 1 show that in the second quarter of 1921, when the average rate was 84% above that of 1913, the wholesale price of all commodities was 82% above 1913. The point worthy of note is that the line C.P. rose up to this point for a few months only, while the line A.C., coming down from the dizzy heights of inflation, happened to temporarily strike the level of the line C.P. But the line C.P. soon got below the line A.C. again, ending 1921 at the level of 157, or 57% above 1913, while the line A.C. shows a wholesale price for all commodities in Nov. 1921 which was 69% above the 1913 level. According to figures presented by Prof. Michell, of McMaster University, Toronto, a recognized authority in these matters, in the Toronto Globe's recent Annual Financial Review, wholesale prices were 1.2% higher in Dec. 1921 than in November.

The line P.O. & G. in fig. 1 shows the fluctuation in the wholesale price of paint, oil and glass, considered as a group, from 1913 to 1921. This line was drawn in accordance with figures compiled in the same way as those for the line A.C., with the Labor Department's figures as the basis. It is worth noting that at a time when the wholesale price of paint, oil and glass was 241% above the 1913 price, C.P.R. freight rates were 36% above the 1913 level. At the end of 1921, the wholesale price of paint, oil and glass was 103% above the 1913 prices, while freight rates were 57% above.

The line D. & C. in fig. 1 shows the fluctuations in the wholesale price of drugs and chemicals from 1913 to Nov. 1921, and was also drawn on the basis of the Labor Department's figures. While inflation was not so pronounced in this line as in the other two, it is evident that the price of drugs and chemicals advanced much more than did the price of freight transportation during and following the war period, and it is also evident that at the end of 1921 the price of drugs and chemicals was 9% greater than the price of freight transportation on the 1913 basis.

In fig. 2, the line Tex shows the fluctuations in the prices of 20 lines of textiles, including woollens, cottons, silks, jutes, flax products and oilcloths. In May, 1920, these prices were 221% greater than they were in 1913, while freight rates were 36% greater. At the end of 1921 the wholesale price of textiles was still 20% higher than the average C.P.R. freight rate on the 1913 basis. The difference in the amount of inflation in textile costs and transportation costs during and after the war is astonishing, and the same remark applies to practically every class of articles of human consumption as compared to freight transportation.

The line A.B.M. in fig. 2 shows the fluctuation in the price of all building materials. This line is drawn on the basis of figures furnished by the MacLean Building Reports, of Toronto, which were checked with the Labor Department's figures and found to practically coincide. The prices figured on include

those of several kinds of lumber, brick, cement, paint, roofing and 18 lines of building accessories. In the second quarter of 1920, when the cost of all building materials was 178% above the 1913 cost, the average C.P.R. freight rate was 36% above the 1913 rate, and at the end of 1921, the cost of building materials was 36% higher than the average C.P.R. freight rate, on the 1913 basis.

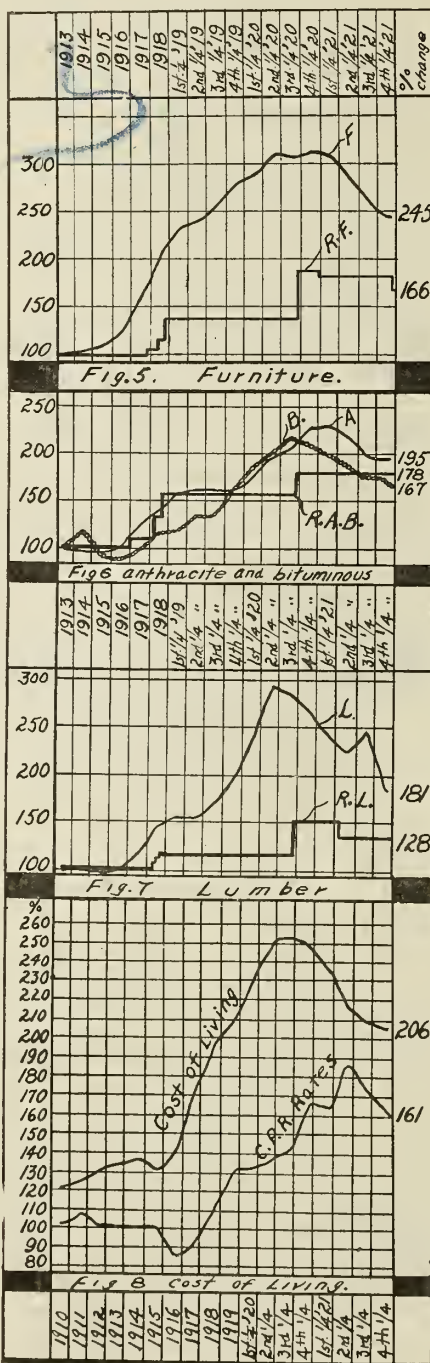
The line B in fig. 2 shows the fluctuations in the price of brick. This line also was based on figures compiled by the MacLean Building Reports, with the

brick in the last quarter of 1921 was much higher on the 1913 basis.

Now let us take a few specific commodities, and compare the fluctuations in their prices with the fluctuations in the freight rate applying to the movement of each individual commodity. In this process, it will be made plain that the agricultural interests of the country are the only ones with any excuse for complaint in connection with railway rates, so far as the few commodities chosen, and taken at random, will indicate. That is to say, they have some reason for complaint if the fact of rates having become relatively slightly higher than the prices of some of their products during the last few months, after the price of all of their products had been relatively much higher than rates for the last few years, will afford any basis of complaint against rates. It is true that Canadian farmers are badly situated economically at this time; it is obvious that a restoration of their purchasing power is needed to restore good business conditions in this country. The railways know this well, and have made all the concessions in rates in favor of the farmers which it is possible to make. A little clear thought will show that there is a lot of deflation needed in things other than transportation costs to set things right.

The line W in fig. 3, representing the fluctuation in the price of no. 1 northern wheat at Winnipeg, is drawn from figures supplied by the Canadian Bank of Commerce statistical department, with the price in 1913 of 88c. a bushel, as equal to 100 for the base of the system of index numbers. In 1914 the price was \$1, making the index number 114; in 1918 and 1919 the price ran at \$2.22, making the index number 252; in 1920 the price got up to \$3.15, making the index number 358. But freight rates did not increase by 258%. The line R.W. in fig. 3 shows the fluctuations in the rate on wheat. To begin with, the rate in carloads, Regina, Sask., to Port Arthur, Ont., was 18c. per 100 lb. Equating this to the index number 100, on June 1, 1918, after the price of wheat had gone from 88c. to \$2.22 a bushel, the rate was raised to 20c. per 100 lb. by the Board of Railway Commissioners' general order 212 (C.R.C. tariff W-1976, C.R.C. W-1059), making the index number for the purpose of constructing the line R.W. in fig. 3 equal to 111. On Aug. 12, 1918, the rate was increased by order in council 1863 to 24c. (C.N.R. tariff W-2136, C.R.C. W-1142); on Sept. 13, 1920, by the Board of Railway Commissioners' general order 308 the rate was increased to 32½c. per 100 lb. (C.N.R. tariff W-2198, C.R.C. W-1164); on Jan. 1, 1921, the rate was reduced, by the terms of the same order, to 31c. per 100 lb. (C.N.R. tariff W-183, C.R.C. W-129), and on Dec. 1, 1921, by the Board of Railway Commissioners' general order 350, the rate was further reduced to 29c. per 100 lb. (C.N.R. tariff W-183, supp. 12, C.R.C. W-129). The line R.W. shows all these rate changes.

A comparison of the lines W. and R.W. tells the whole story. While, on the basis of price and rate relationship as of 1913, the price of wheat was about 150% higher on the average than the rate on wheat, during 1918, 1919 and 1920, it is seen that in the latter part of 1921 the price line fell a little below the rate line. After three months of this condition, following seven years and nine months of the reverse condition, the Canadian Coun-



price in 1913 made equal to 100, the price in the first half of 1921 was equal to 204, and it is evident that the average cost of freight transportation was never advanced in proportion to the cost of brick. As a matter of fact, the rate on brick itself has been advanced more in proportion to the advance in the cost of the commodity, but so far as the average freight rate is concerned, the price of

oil of Agriculture, as shown by the passing of a resolution at a recent meeting in Winnipeg, wants to practically throw out the Board of Railway Commissioners and make all the railways of this country the instrument of politics.

The line I in fig. 3 shows the fluctuation in the price of implements from 1913 to Nov. 1921. Labor Department statistics covering various classes of implements form the basis for this line, the index numbers being determined in the same way as for the commodities in figs. 1 and 2. In Nov. 1921 the price index number for implements was 132% greater than in 1913. The line R.I. shows the fluctuation in the rate on implements per 100 lb. from Toronto to Winnipeg, with the rate of 64c. in 1913 equal to 100. The rate changes have been as follows:—Sept. 1, 1914, rate 62c. (C.N.R. no. E-550, C.R.C. no. E-485); Sept. 1, 1917, rate 63c. (C.F.A. 5, C.R.C. 4); April 1, 1918; rate of 68½c. (C.F.A. 5-A, C.R.C. 8, general order B.R.C. 212); Aug. 20, 1918, rate 82½c. (C.F.A. 4-B, C.R.C. 16, order in council 1863); Sept. 1, 1919, rate 67½c., a voluntary reduction by the railways (C.F.A. 5-B, C.R.C. 19); Sept. 20, 1920, rate 92½c. (C.F.A. 5-C, C.R.C. 52, general order B.R.C. 308); Jan. 1, 1921, rate 68½c. (C.F.A. 5-A, C.R.C. 8, general order B.R.C. 308); Dec. 1, 1921, rate 82½c. (C.F.A. 5-E, C.R.C. 88, general order B.R.C. 350). The line R.I. shows all these changes, and the lines R. and R.I. show that while the Canadian National Rys. rate on implements was 29% greater at the end of 1921 than in 1913, the price of implements was 132% greater than in 1913.

In fig. 4, line H shows the fluctuations in the price of hogs, fed and watered, at Toronto, and the line C shows the price of cattle, choice butchers, at Toronto, from 1913 to the end of 1921, and the Canadian National Rys. rate on same, Winnipeg to Toronto. Canadian Bank of Commerce statistics form the basis of the lines H. and C., with the price of \$6.99 per 100 lb. for 1913 cattle, and \$9.06 per 100 lb. for 1913 hogs used as 100 in the index numbers supporting the lines. The line R.H.C., showing the fluctuation in the freight rate, is based on the rate of 60½c. per 100 lb. Winnipeg to Toronto in 1913, and all rate changes are shown by the line. It will be seen that the prices of hogs and cattle were relatively higher than the rate on them, on the 1913 basis, until the last quarter of 1920, when the rate became relatively higher. The last rate change was a voluntary reduction made by the railways Aug. 15, 1921, reducing the rate from \$1.05 to 85c. per 100 lb. (supp. 37 C.N.R. tariff W-1595 C.R.C. no. W-861), showing that the railways were willing to take a loss to help out the national live stock industry, whether anyone else was or not. At the end of 1921, the rate was 40% higher than in 1913, the price of hogs was 16% higher, and the price of cattle 11% lower.

In fig. 5, line F. shows the fluctuation in the wholesale price of furniture, and the line R.F. shows the fluctuation in the C.N.R. rate on furniture in carloads per 100 lb. from Toronto and Ontario points to Winnipeg, with the rate of 83c. in 1913 as equal to 100. The line F is based on the Labor Department's figures, with the 1913 figure equal to 100. The highest rate was \$1.55½, effective Sept. 17 1920 (supp. 10 C.F.A. tariff 4-B, C.R.C. 16, B.R.C. general order 308). This rate was reduced to \$1.50 Jan. 1, 1921, and

to \$1.38½ Dec. 1, 1921, leaving it 66% higher at the end of 1921 than in 1913. The wholesale price of furniture, after being up almost out of sight for two years, had come down somewhat, but at the end of 1921, was 145% greater than in 1913.

Fig. 6 tells the story about coal. The line A starts in 1913 with the wholesale price of egg anthracite in Montreal of \$6.74 equal to 100, and finishes at the end of 1921 with the price of \$13.13 a ton equal to 195. The line B starts in 1913 with the average price of screenings, pea and nut bituminous f.o.b. Nanaimo, B.C., of \$4.19 a ton, equal to 100,

Montreal 95% higher.

In fig. 7, the line L. shows the fluctuations in the wholesale price of lumber, based on the Labor Department's statistics, with the average of Feb., May, Aug. and Nov. in 1913 of 180.6 equal to 100 as the basis of the new series of index numbers. In May 1920, the Labor Department's index number of 533.9 is equivalent to 295 in the index number series supporting the line L. The line R.L. shows the fluctuation in the rate on lumber in carloads from Vancouver, B.C., to Montreal, Que., with the rate of 70c. (C. P.R. tariff W-3380, C.R.C. W-2061) in 1913 equal to 100. On Sept. 21, 1920

Expecting too much of him.



"Excuse me, lady, that's a hefty load to ask a guy to carry in one trip."—Reproduced from Toronto Globe.

and finishes with the price of \$7 a ton at the end of 1921, equal to 167. The figures for coal prices are from information supplied by the Canadian Bank of Commerce statistical department. The line R.A.B. shows the variation in the rates on anthracite and bituminous coal from Buffalo, Black Rock and Suspension Bridge, N.Y., to Brantford, Ont.; the rate of 70c. as shown by G.T.R. tariff C.C. 21, C.R.C. 2534 in 1913, being taken as 100, and the rate of \$1.25 as shown effective in 1921 by G.T.R. tariff C.C. 76, C.R.C. 4327 figuring out to 178. While the rate at the end of 1921 was 78% higher than in 1913, the price of bituminous f.o.b. Nanaimo was 67% higher, and of anthracite in

(supp. 21 to C.N.R. W-2156, C.R.C. W-1157) the rate was \$1.06½, equivalent to an index number of 152. A voluntary reduction was made by the railways on April 21, 1921 (C.N.R. W-150 B, C.R.C. W-148), which brought the rate down to 95c., and a further voluntary reduction on Dec. 27, 1921 (C.F.A. 113, C.R.C. 30) brought the rate down to 90c., leaving it but 28% greater than in 1913, while the wholesale price of lumber remained 81% greater than in 1913.

Some may object to taking 1913 as the basis of comparison, as between freight rates and commodity costs, but if so they should realize that the further back a year is taken for the basis of comparison,

the more in favor of present freight rates will the comparison be. It may be said that back in 1905 the country was undergoing favorable development, that the people enjoyed prosperity, and that the costs of transportation, in view of these facts, were reasonable. If the costs of transportation at present are as low in relation to the cost of living now as they were in 1905, it is evident that transportation is not now putting a greater tax on industry than it was then. Fig. 8 shows a comparison of the cost of living and the C.P.R. receipts per ton mile of revenue freight handled from 1910 to the end of 1921, on the 1905 basis. The cost of living figures are from the Labor Department, and cover the costs of food, fuel, lighting, rent, etc., for a family, averaging the prices in various cities. In Dec. 1905, the family budget was \$10.50 a week; making this equal to 100, the figure of \$12.79 in 1910 was 122, the figure of \$26.60 in Aug. 1920 was 253, and the figure of \$21.60 in Nov. 1921 was 206. The average receipts per revenue ton mile of freight handled by the C.P.R. during a year before, and a year after Dec. 1905, was three quarters of a cent. Making this 0.75c. equal to 100, the receipt of 0.77c. in 1910 was 102, while the approximate receipt of 1.208c. in the last quarter of 1921 was 161. That is to say, while the cost of living in Canada at the end of 1921 was 106% greater than in 1905, the average C.P.R. freight rate was only 61% greater than in 1905.

It is desirable that freight rates in Canada be low, and so far as the general level of freight rates is concerned, they are low. It is possible for freight rates to be made too low; they were so made in the United States over a period of years, and the result was a great ultimate loss to the people of that country. After all is said and done, after proper wages and a proper return to capital are figured on, there are only two things which can give this country lower transportation costs. The first is increased efficiency in railway operation; the second is greater population, and consequently increased traffic for the railways. So far as increased efficiency in operation is concerned, it may be stated that operation is now highly efficient in so far as the handling of the existing facilities is concerned; increased efficiency in operation great enough to be of importance can be obtained only by making capital expenditures for the improvement of the properties, or for the adoption of economy devices or of more economical equipment as they are developed and appear from time to time. If rates are too low, the ultimate result is that these capital expenditures cannot be made. Rates, considered in relation to expenses, are now dangerously close to the line, the crossing of which means ultimate national loss. So far as increased population and greater traffic are concerned, the railways are doing their share in making this possible, creating prosperity, and eventually, lower transportation costs, for the people who now accuse them of charging too high rates.

While rates generally speaking are low, the agricultural interests are not without justification in their complaint, and those settlers who are getting out pulpwood are in the same class as the farmers in this connection; pulpwood is their main "crop" in the early years. It is questionable whether a reduction in transportation rates will have any effect in creating additional demand for the

product of any industry, but the view is not unreasonable that, it being finally decided that the railways could stand a small reduction, the 10% rate reduction of Dec. 1, 1921, should have been made in favor of these basic products, ultimately having a beneficial effect on industry throughout the whole country by thus contributing to the restoration of the purchasing power of the producers of such commodities into line with that of other classes, instead of being spread out so thinly that the saving has been absorbed, in many cases, before goods reach the ultimate consumer, with no appreciable advantage to any producer.

It has seemed to many that rates have been too high because they were increased, not when they should have been, but after commodity prices had reached and passed their maximum. To others they seem too high merely because they are subject to governmental regulation, while

prices are not. But to say that freight rates as a whole are too high, and are killing business, is to make a statement absolutely without foundation; it is an economic fallacy, pure and simple. The Canadian people are today paying a smaller average sum per unit of freight transportation bought, in proportion to the exchange value of the commodities transported, than in 1913, or in any time prior to 1913. The impression that freight rates are in any way responsible for business depression is due solely to the psychological effects of a combination of circumstances, and is wrong. In relation to costs and prices generally, freight rates are entirely reasonable, and it is time that the economic fallacy which represents freight rates as hampering business be placed on the scrap pile with the idea that the earth is flat, and the other fallacies and exploded theories of the past.

The United States Railways' Financial Position.

U.S. railways, as a whole, still continue to earn a net operating income lower than that prescribed by the Transportation Act. The nearest approach to the 6% maximum return was in Oct. 1921, when the earnings were at the rate of 5.4% annually. In that month the net operating income slightly exceeded \$105,000,000. Although October is usually a month of heavy traffic in the U.S. as in Canada, and although traffic was increased in Oct. 1921 by the strike threat, the number of ton miles of revenue freight handled by the railways was less than in any October since 1916, and 14% less than in Oct. 1920. Total operating revenues for the month were \$535,135,000, a decrease of over 16% from Oct. 1920; but total operating expenses, \$397,000,000, were 24½% smaller, resulting in an improved net. The operating ratio was 74.2, compared with 82 in Oct. 1920. In Nov. 1921, U.S. roads had a less favorable month than in Oct. 1921, the net operating income being approximately \$66,000,000, representative of an annual return of 3.9%. With the removal of the strike threat, traffic fell off to a larger extent than it usually does. Total operating revenues were \$465,000,000, a decrease of 21.4% from Nov. 1920, but operating expenses, \$368,000,000, decreased 28.4% from Nov. 1920. The net operating income for the month was over \$37,000,000 short of the amount which should have been earned to allow the railways the return prescribed by the Transportation Act. In November, 49 class 1 roads had operating deficits, and the operating ratio for the railways as a whole was 79.06.

For the first 11 months of 1921 the net operating income was \$561,411,608, representative of an annual return of 3.3% on the value of the railways, as determined by the Interstate Commerce Commission for rate making purposes under the act. To earn at the rate the Transportation Act prescribed, the net operating income should have been \$464,605,000 greater.

Details have been given in Canadian Railway and Marine World of the funding legislation in connection with U.S. railways which had passed the House of Representatives but which had been held up in the Senate. After considerable argument in the Senate concerning amendments, one being that the bill

should not be passed unless the railways put into effect the reduction in grain rates ordered by the Interstate Commerce Commission, and another that no railways be given the benefit of the legislation while having contracts with foreign shipping lines, the bill was shelved for some time, and efforts to secure its passage now seem to have been abandoned. The agricultural interests represented in the Senate were greatly opposed to its passage.

According to a report of J. C. Davis, Director-General of Railroads, the U.S. Government owed the various railways on Dec. 1, 1921, a total of \$750,670,589, on accounts growing out of Federal control, while the railways owed the Government \$507,628,508 on account of unfunded additions and betterments made by the Railroad Administration, a balance in favor of the railways of \$243,042,080. At that time, the report stated, the Railroad Administration's available cash assets were \$152,380,880, but it holds equipment trust certificates which could be sold in the open market, the proceeds from such sales being available for settlement of railway claims. Over \$1,000,000,000 worth of these securities have already been sold, and if the balance could be sold the Railroad Administration would be enabled to meet all its obligations to the railways, provided, of course, none of the remaining debt of the railways is funded instead of being set off against the debt of the Government to the railways. With the funding legislation defeated, the prospects are that railways owing the Government for additions and improvements made by the Railroad Administration during the period of Federal control will have to issue their own securities covering these, to enable them to complete their settlements, although it is probable that in some cases some of these debts owed by the railways will have to be funded by the Railroad Administration, which will dispose of the securities without dealing with the War Finance Corporation.

\$429,808,649 has been paid to various U.S. railways on account of the guarantee applying to the 6 months period following the period of Federal control, and it is estimated that an additional \$105,000,000 will be required to settle all claims which originated in this period alone.

Steam Railway Operating Revenues, Expenses and Other Statistics for October, 1921.

The following comparative table for October, 1921 and 1920, has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics' Transportation Branch.

The figures in the column headed "All railways," include all steam railways with an annual operating revenue of \$500,000 and over, except the St. Lawrence and Adirondack Ry., which is not able to give the 1920 figures, and is therefore being omitted from 1921 reports, as its inclusion would not show a true comparison. The 1921 figures, however, will be available for comparative purposes for 1922.

	All railways		Canadian Government		Canadian Northern		Canadian Pacific etc.		Grand Trunk		Grand Trunk Pacific	
	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920
Operating revenues	\$36,030,136	\$40,113,115	\$2,883,564	\$3,617,094	\$5,373,921	\$5,670,443	\$16,977,177	\$18,518,870	\$5,423,845	\$6,312,419	\$1,845,562	\$1,310,280
Freight	6,848,809	9,292,339	563,189	829,115	848,438	1,016,018	3,280,924	4,635,646	1,083,636	1,516,978	211,695	228,604
Passenger	602,552	294,447	78,684	39,757	75,973	37,802	281,029	129,495	100,183	45,670	23,595	11,835
Mail	1,394,202	1,418,076	121,618	110,884	212,104	125,604	684,615	806,582	264,978	256,305	35,000	29,997
Express	2,024,206	2,138,861	165,715	186,649	295,876	359,297	1,084,574	1,065,721	259,586	254,460	30,564	31,963
All other	\$46,899,907	\$53,256,369	\$3,812,672	\$4,783,391	\$6,811,315	\$7,209,166	\$22,278,321	\$25,156,322	\$7,132,231	\$8,385,834	\$2,146,417	\$1,612,681
Total railway operating revenues	\$86,663,408	\$10,205,370	\$995,310	\$1,520,791	\$1,689,862	\$2,115,026	\$3,346,595	\$3,307,716	\$1,273,034	\$1,282,714	\$481,916	\$813,326
Operating expenses	8,652,545	10,795,362	722,865	1,349,738	1,345,516	1,997,476	3,689,709	4,041,265	1,503,767	1,734,532	445,359	424,045
Maintenance of way and structures	998,176	835,886	36,402	60,425	120,205	133,471	564,794	460,727	147,803	119,652	34,578	16,041
Traffic	17,570,544	22,467,448	1,665,553	2,402,640	2,946,267	3,764,957	7,326,554	9,025,780	3,021,854	4,064,107	1,046,815	868,422
Transportation	450,137	565,715	51,067	62,460	91,261	123,373	212,075	296,868	29,228	23,787	6,704	11,485
Miscellaneous operation	993,094	999,584	38,463	66,804	161,791	143,592	357,680	341,495	235,737	231,916	58,890	32,152
General	231,134	69,403	.....	.....	Cr. 182,316	Cr. 66,927	.....	.....	Cr. 508	Cr. 890	Cr. 48,059	.....
All other	\$37,096,772	\$45,803,964	\$3,538,685	\$5,438,897	\$6,170,588	\$8,210,970	\$15,497,339	\$17,473,853	\$6,210,918	\$7,475,822	\$2,025,704	\$2,165,474
Total railway operating expenses	9,803,135	7,452,904	278,987	655,446	640,726	7,682,468	6,780,981	7,682,468	921,312	910,012	120,712	552,793
Net operating revenue	.....	.....	.....	655,446	.....	1,001,803	.....	.....	.....	.....	.....	.....
Net operating deficit	.....	.....	.....	113.70%	90.59%	113.89%	69.56%	63.46%	87.08%	89.14%	94.38%	134.28%
Ratio of operating expenses to revenue	79.10%	86.01%	92.68%	113.70%	90.59%	113.89%	69.56%	63.46%	87.08%	89.14%	94.38%	134.28%

Mileage and operating statistics

Average no. of miles of road operated

Tons moved (revenue)

Tons moved one mile (revenue)

Tons moved (all freight)

Tons moved one mile (all freight)

Passengers carried

Passengers carried one mile

Freight train miles

Passenger train miles

Mixed train miles

Loaded freight car miles

Empty freight car miles

Passenger car miles

Total amount of pay roll

Averages per mile of road operated

Operating revenue

Operating expenses

Net operating revenue

Net operating deficit

Tons moved one mile (revenue)

Tons moved one mile (all freight)

Averages per freight and mixed train mile

Freight receipts

Tons of freight (revenue)

Tons of freight (all freight)

Loaded freight cars

Empty freight cars

Averages per passenger and mixed train mile

Passenger receipts

Passengers carried

Passenger cars

Averages per freight, passenger and mixed train mile

Operating revenue

Operating expenses

Aver. length of haul (rev. freight) miles

Average passenger journey, miles

Average tons per loaded freight car

Ratio loaded to total freight car

Ratio of pay roll to operating revenue

Ratio of pay roll to operating expenses

Aver. freight receipts per revenue ton mile

Aver. passenger receipts per pass. per mile

continental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.

The column headed "Canadian Northern," includes the lines operated as the Canadian Northern Ry. System, prior to

its acquisition by the Dominion Government.

The column headed "Canadian Pacific, etc.," includes also the Montreal and Atlantic, and Esquimalt & Nanaimo Rys.

The column headed "Grand Trunk" includes its Canadian lines only up to Sep-

tember. The October figures are for all the company's lines. The revenues of these additional lines located in the United States averaged for the first nine months of 1921 less than one third of 1% of the revenue for October. Their inclusion will, therefore, have little effect on the report.

The Railways' Operating Results for October, 1921.

The figures of Canadian railway operation in Oct. 1921, show the kind of results the railways are able to obtain when they are afforded a volume of traffic which is more nearly in proportion to their carrying capacity than that which they had been securing in preceding months. On a volume of traffic almost as large as that handled in Oct. 1920, the gross operating revenues were necessarily reduced because of rate reductions, the reduction in revenue for all railways being about 12%, but a larger reduction in expenses resulted in greatly improved net earnings. Freight revenue decreased slightly more than \$4,000,000 for the railways as a whole, all the railways experiencing a decrease except the Grand Trunk Pacific, which had a very substantial increase. Passenger revenue decreased considerably, owing to a large reduction in fares and also decreased travel.

Operating expenses for the railways as a whole decreased 19%; good reductions were made in maintenance of equipment and maintenance of way and structures, but the most outstanding reduction was in the transportation account. Even with allowances made for the inclusion of somewhat over \$1,000,000 back pay in the Oct. 1920 expenses, the reduction in transportation expenses for the railways as a whole from the Oct. 1920 level is particularly gratifying. The reduction in maintenance expense does not reflect any restriction of maintenance as compared with the 1920 basis, the lower wages and decreased material prices prevailing, adequately accounting for the smaller sum spent in Oct. 1921. The operating revenues decreased, owing to lower rates and therefore benefited the country, while the decreased operating expenses were of great benefit to the railways which serve the country, resulting in an operating ratio of 79.10 for all railways, by far the best figure which has been attained since Jan. 1921.

The most noticeable thing in the operating statistics is the relationship between revenue ton mileage and freight train miles, and a little examination will show that operation in Oct. 1921 improved over that of Oct. 1920, for with a decrease in revenue ton mileage of less than 1%, train mileage decreased 4%. Total train mileage decreased 6%. A great aim in efficient railroading is to move the maximum number of ton miles in the minimum number of train miles, and the figures quoted show that Canadian railways have been obtaining improved results.

Passenger traffic for all roads was much lighter than freight traffic during the month, on the Oct. 1920 basis. As the freight traffic increase was largely seasonal, however, it must be recognized that passenger traffic was not extraordinarily light, and it is probable that the figures covering passenger traffic more accurately convey an idea of the traffic trend than do the freight traffic

figures. Revenue passenger mileage decreased 16.8% from Oct. 1920.

The total pay roll for Oct. 1920 included \$1,141,389 of back pay, but after deducting that from the Oct. 1920 figure, it is evident that the pay roll for Oct. 1921 represents a large decrease. While the greater part of this decrease is accounted for by the wage cut of July 16, 1921, the wage cut does not account for all of it, the remainder being accounted for by economy in maintenance and in operation.

The improvement evident in the train mileage figures is supported by the figures for freight train loading, which show that a substantial increase was secured in the number of revenue tons of freight per train, and also by the figures for cars per train, there being an average of 1.3 more cars hauled per train than in Oct. 1920. Despite the greater revenue tonnage in individual freight trains, the freight receipts per train mile decreased, but this was to be expected, owing to decreased rates, the average receipt per revenue ton mile being reduced from 1.166 to 1.055c. Receipts per passenger train mile show a much greater falling off, accounted for not only by the fare reductions, but by the decrease in passengers carried per passenger train mile. The average receipts per passenger mile decreased 11.4%.

October was the first month in which the Canadian Government Rys. earned operating expenses. While revenues were smaller than in Oct. 1920 by 20%, expenses were decreased materially, and an operating ratio of 92.68 resulted. The ratio of 90.59 for the Canadian Northern was slightly higher than for Sept. 1921, but well below that of Oct. 1921. The large increase in freight traffic dwarfed the small decrease in passenger traffic into insignificance; incidentally, the larger freight traffic offering, allowed much better car loading and train loading, which goes far to explain the remarkable improvement made in C.N.R. operating in Oct. 1921, compared with Oct. 1920. The operating ratio of 69.56 for the Canadian Pacific was the best since the beginning of 1921; and its figures for the month were reviewed in Canadian Railway and Marine World for January, pg. 12. The detailed figures of operating expense show that maintenance was well kept up during the month as compared to 1920, while the decrease in transportation expenses was large.

Freight traffic on the Grand Trunk was almost equal to that of Oct. 1920, but passenger traffic fell off about 6.5%, which, in conjunction with reduced rates, meant a considerable falling off in revenue, but with the reduction in operating expenses, the operating ratio was decreased from 89.14 to 87.08.

The greatest improvement of all was on the Grand Trunk Pacific. Contrary to the predictions that this property would not be able to pay operating ex-

penses within the next 20 years, the G.T.P. in Oct. 1921 had an operating ratio of 94.38 and net operating revenue of \$120,712. This was accounted for by an increase in freight traffic of 33%, which, combined with a slight increase in the average freight rate, brought about an increase in freight revenue of over 40%. The average receipt of 0.769c. per revenue ton mile is low compared to the average on other railways, but this is explained by the class of traffic handled. The passenger traffic on this road increased by 5%, but the lower passenger rate caused a decrease in passenger earnings of 7%. Transportation expenses increased about 20%, but this was not nearly so large proportionately as the increase in the amount of traffic handled, and with a substantial decrease in maintenance expenses, total expenses decreased 6%, resulting in the comparatively favorable operating ratio noted.

Leaving the review of a single month's operations at this point, and viewing the whole subject of Canadian railroading broadly, it would be idle to maintain, merely on the basis of the October results, that Canadian railways, taken as a whole, have permanently reached an almost self-supporting basis. It must be recognized that October is the best traffic month of the year, and that the grain traffic which contributes so largely to the freight movement can be handled in heavy trainloads, making for economical operation. With some contraction in traffic in following months, accompanied by the reduction in rates effective Dec. 1, 1921, such good operating ratios as those secured in October cannot logically be expected. The October results do make plain, however, that with good traffic Canadian railways are able to do a lot better than with the comparatively light traffic experienced during preceding months. The results on the National lines show conclusively that an increase in traffic is all that is needed to make them able to pay their way; they have shown the ability to handle the traffic economically once it is secured. Before the railways as a whole can be permanently on a sound financial basis, however, it is probable that some further reduction in expenses will be necessary to balance the recent cut in rates as it cannot be expected that a permanent increase in traffic will be evident in the near enough future to compensate the railways for this loss in revenue.

Certain observers have expressed a great measure of dismay in connection with the performance of Canadian railways during 1921, to the end of October, but taken on the whole there seems no justification for great pessimism. It must be recognized that the year was a difficult one for every line of business, and it is probable that the railway industry has come through the deflation which has so far taken place in as good shape as any other industry. The year has seen a substantial reduc-

tion in expenses brought about; it has seen the Canadian Pacific with better net earnings than in 1920, even though not as large as in preceding years, and not as large as they well might be, having in mind the necessity of extending railway facilities which will face Canada in the future; and it has seen the Canadian National Rys. with net earnings in place of the large operating deficits of the past. It must be borne in mind that the expectation concerning Canada's newer railways has been that they would not be commercially self-supporting for some time, and the fact of them securing net earnings in some

months in 1921 is therefore gratifying. Taken on the whole, maintenance conditions are good, the proportions of cars and locomotives in bad order is not abnormally high, and the track, generally speaking, is in good condition. While undoubtedly 1921 was a year in which strict economy had to be exercised in the Canadian railway industry, the fact remains that it was a year in which much economy had to be exercised in any business undertaking which desired to survive, and while undoubtedly the recent rate reduction, without compensating expense reduction, does not help the situation any from a purely railway viewpoint,

we can see no reason for viewing the situation pessimistically, or for attempting to picture, for the benefit of all who care to look, Canadian railways as surrounded by a cloud of blue ruin. The past has been hard, and there will be more hard going in the future, but Canadian railways may be looked to to grow and prosper, and to serve a growing and prosperous country, altogether independently of any pessimist who, by painting a back picture of the Canadian railway industry, cannot fail to produce in the minds of those who gaze upon it an equally black picture of the country and of its future.

Railway Wages and Working Conditions in Canada and the United States.

The Canadian Association of Railway Enginemen is a new organization formed recently among Canadian National Rys. locomotive men. Its headquarters are in Winnipeg, the officers being, President, W. B. Best, formerly General Chairman of the Brotherhood of Locomotive Engineers' C.N.R. membership; Vice President, Jas. McLeod, Dauphin, Man.; Vice President and Insurance Secretary, S. E. White, Montreal; General Secretary, S. T. Starr, Winnipeg. The membership is stated to be now about 500. The reason for the breaking of international ties by the formation of this purely Canadian organization is that the former members of the Brotherhood of Locomotive Engineers who joined it were dissatisfied because they could not settle their disputes without appealing to the B. of L.E. headquarters in the United States. Mr. Best had previously withdrawn from the B. of L.E. because of differences with grand lodge officers.

The Railway Association of Canada, representing the member railways, early in January acquainted the representatives of railway shopmen, members of the organizations making up the American Federation of Labor, Railroad Department Division 4, with its desire to make standard the rates of pay agreed upon tentatively following the application of the 1921 wage reductions. The Railway Association's attitude was that it was undesirable for the employees to continue working at rates which were but tentative, and that conditions were such that it was advisable to have the present rates incorporated into the existing schedules. Following the announcement by the Railway Association, the matter was put to a vote of all the employees concerned, about 30,000 in number, and including machinists, boiler-makers, blacksmiths, electrical workers and sheet metal workers. The result of the vote was that the majority of the shopmen agreed to accept the wage cut of 12½%, amounting to 8c. an hour, which has been in effect on Canadian railways since July 16, as permanent. The vote was taken among the membership of the various organizations and final compilation was in the hands of Chas. Dickie, Secretary of the American Federation of Labor, Railroad Department, Division 4. The agreement by which the reduction was accepted as permanent does not involve any changes in rules or working conditions, but merely incorporates the present rates into the schedule under which the employees of the various railways are now working, with such rates subject to further enquiry on 30 days notice from either the railways or the

employees.

Similar action was taken by the railways in connection with the five organizations with which tentative agreements concerning wages had been drawn up previously, as described in Canadian Railway and Marine World from time to time. The organizations concerned were, the Brotherhood of Locomotive Engineers, the Brotherhood of Locomotive Firemen and Enginemen, the Order of Railway Conductors, the Brotherhood of Railroad Trainmen, and the Order of Railroad Telegraphers. In a conference at Montreal about the middle of January, the joint conference committee representing these organizations met railway representatives, and the following agreement was signed: "It is agreed between the above named railway companies (the C.P.R., Can. Nat. Rys., G.T.R. lines in Canada, and T.H. & B.R.) and their employees in engine, train and telegraph service, that the rates of pay made effective July 16, 1921 (Aug. 1, 1921 for engineers and firemen on the G.T.R.), and existing schedules of rules governing working conditions, shall continue in effect subject to 30 days notice, excepting where existing agreements show a longer period, from either the railways or their employees named herein, to the other. The terms of the agreement dated Oct. 8, 1921, in so far as that agreement affects working conditions and the effective date of any changes in any such working conditions, shall continue in effect. It is understood and agreed that the rates provided for by this agreement shall be inserted in existing schedules on the individual railways party to this agreement, to govern the several classes of employees named herein. It is further understood and agreed that, based on the number of positions, the amount arrived at in the aggregate will be applied to adjust the rates for the same number of positions of agents and operators, assistant agents, and train dispatchers, respectively, on each general superintendent's district, as may be agreed upon mutually by the district officers and representatives of the employees. For line-men the rates will be similarly adjusted between the superintendents of telegraphs and representatives of the employees. The decrease applying to assistant agents in the so-called tentative agreement appears to be greater than the wage order which has been used by the railways as a basis for this decrease would show. This matter will be adjusted between the managements and representatives of the men concerned."

The agreement was signed for the C.P.R. and T.H. & B.R. by Geo. Hodge, As-

sistant to Vice President, Eastern Lines, C.P.R.; for the Canadian National Rys., including the Grand Trunk Pacific Ry., by A. J. Hills, Assistant to President, C.N.R.; for the Grand Trunk by C. F. Needham, Assistant to General Superintendent, Motive Power and Car Departments, G.T.R.; for the Brotherhood of Locomotive Engineers by Ash Kennedy; for the Brotherhood of Locomotive Firemen and Enginemen by G. K. Wark; for the Order of Railway Conductors by S. N. Berry; for the Brotherhood of Railroad Trainmen by W. J. Babe; for the Order of Railroad Telegraphers by M. J. Mein, and for the employees' conference committee by W. G. Chester, chairman. The effect of the agreement was merely to incorporate the reduced rates of pay into the existing schedules, with the usual proviso that both rates and rules may be given further consideration after the expiration of 30 days notice by either party.

The maintenance of way employees having accepted the reduced rates of pay as permanent some time previously, and the other employees' organizations having done so as above noted, the situation now is that all the railway employees' organizations in Canada have entered into agreements recognizing the reduced rates as permanent, except the Canadian Brotherhood of Railway Employees. Details of how this organization signed an agreement with the G.T.R. concerning wages, only to afterwards reject the terms of the agreement, were given in a previous issue of Canadian Railway and Marine World. According to a recent statement by A. R. Mosher, Grand President of the Brotherhood, the members of his organization are "still working on the 1920 schedule, subject to the 12½% wage cut which was put into force last July, but are still pressing for a modification of the 12½% cut for the poorer paid grades." Details of the arbitrations covering the wage relations between members of this organization and the G.T.R. and Canadian National Rys. were also given in previous numbers of Canadian Railway and Marine World. Further action to be taken by the Brotherhood regarding wages will be decided, according to Mr. Mosher, at the meetings of the general committees for the G.T.R. and Can. Nat. Rys. memberships respectively, which were scheduled for the last week in January.

Canadian Railway Board of Adjustment has heard and decided a few disputes recently. A case heard in Montreal Dec. 20, 1921, concerned a disagreement between the G.T.R. and the Brotherhood of Maintenance of Way Employees

and Railway Shop Laborers, over the method of paying signal maintainers in Toronto terminals. The employees contended that the payment of signal maintainers was governed by wage agreement 5, sec. 22, clause E, and the company contended that it was not for the reason that signal maintainers are not in road service. The employees' contention was upheld.

A case, also heard at Montreal Dec. 20, 1921, concerned a dispute between the G.T.R. and the Brotherhood of Maintenance of Way Employees and Railway Shop Laborers, in connection with the payment of crossing watchmen at Hamilton, Ont., for Sunday work. The company claimed it could have the work performed on Sunday by the regular man, or another if it so desired, and that some of the men had requested to be allowed to work on Sunday at straight time. The employees contended that this was a violation of the agreement, which prescribed time and one half for Sunday work. The decision was that crossing watchmen who worked on Sunday without being allowed a day off during the week be paid time and one half for such work, and be paid back time at this rate from the date when crossing watchmen were included in the schedule agreement.

A case heard in Montreal Dec. 20, 1921, concerned a dispute between the G.T.R. and the Brotherhood of Railroad Trainmen, over wages paid train baggageman H. B. Thompson, who was held in his car after arrival at Point Edward dock for 85 minutes on one occasion and an hour on another occasion. The company contended that since the baggageman had been paid on the 20 mile an hour basis in accordance with schedule art. 3, clause B, he had been sufficiently paid, but the employees contended that he should have been paid extra compensation for being required to remain on duty after the completion of the trip, as set forth by rule 11 of the Trainmen's agreement. The employees' contention was upheld.

A case, heard at Montreal, Dec. 22, 1921, concerned a dispute between the C. P.R. and the Order of Railway Conductors, in connection with the discharge of trainman Bourgeois for violation of rule G. The employees' application for his reinstatement was denied.

All decisions were signed by Geo. K. Wark, Chairman of the Board, and Geo. Hodge, Vice Chairman.

United States.—A development worthy of note in the wage and working condition situation in the U.S. was a hearing before the Labor Board, in the latter part of December, concerning the right of railways to contract with independent contractors for equipment repairs and track maintenance. A representative case was that of the Indiana Harbor Belt Rd., which had contracted with an independent company for the repair of its cars and the operation of its repair shops. Complaint was lodged with the Labor Board by the American Federation of Labor, Railroad Department, represented before the Board by F. P. Walsh, who charged that the railway's aim was to avoid paying its car repairers the wages determined as just by the Labor Board. The General Manager of the company, in rebuttal, pointed out that the company to which the work was given had previously done contract work of various kinds for the railway, and he also said that the annual saving to the road would

be about \$75,000. Counsel for the company expressed the opinion that the Board had absolutely no jurisdiction in the matter; in his opinion, the Board was there to decide disputes between railways and their employees, and not between contractors doing work for the railways and the employees of such contractors. The contractor's employees were not railway employees, he said, even though they might have been before the contractor took over the work. He pointed out that no part of the law gave the Labor Board jurisdiction to determine at what time and under what conditions a railway may employ independent contractors to do work for it. The labor representative, in his argument, said that the case involved the fundamental principle underlying the Board's creation, viz., the securing of justice for railway employees. He asked the Board to declare the contractor's employees to be still employees of the railway, and thus still under the Board's jurisdiction, and he also asked that the Board declare such contracts illegal. Many other railways have been contracting for various portions of their repair work, some giving contractors charge of the operation of large repair shops at terminals, and in practically all cases the employees have lodged protests with the Labor Board. Other cases were dealt with at the same time that the Indiana Harbor Belt case was argued, and the Board reserved decision.

In an article in Canadian Railway and Marine World for May, 1921, dealing with the sections of the Transportation Act covering the regulation of railway labor, it was pointed out that the law provides for the formation of regional boards of adjustment. After the Transportation Act was passed, the labor organizations refused to join the railway managements in the formation of such regional boards, and none were formed till the latter part of 1921. In the latter part of that year, however, the labor organizations receded from their original position and expressed a willingness to join the managements in the formation of regional boards, with the result that a board was formed by the Baltimore & Ohio Rd. and the New York Central Rd. and the train service employees of those railways; another was formed to look after disputes between the train service organizations and a large number of southwestern roads, another for the same organizations and a number of western roads, and still others on the Pennsylvania Rd. The formation of such regional boards of adjustment should relieve the Labor Board at Chicago of a great mass of detail work. Judging by the number of reports of cases decided by the Labor Board received by Canadian Railway and Marine World, it is difficult to comprehend how the members of that body are able to find time for a proper study of all factors in the more important cases.

The Labor Board has recently been considering the formation of rules governing the service of clerical labor. U.S. railway clerks secured a national agreement during the Federal control period, and many disagreements have sprung up between the clerks' organizations and individual railway managements, in the attempt to negotiate rules and working conditions to replace the national agreement.

Although there has not been much action taken during the last month in connection with the efforts to be made by the railway executives to have wages fur-

ther reduced, to the end that the public may be given lower rates, it is evident that the U.S. Administration at Washington is somewhat concerned over the possibility of industrial strife in this connection, as shown by the Secretary of Commerce, Herbert Hoover, inviting several railway executives and the presidents of the train service brotherhoods to a dinner and conference at which it is presumed different aspects of the situation were discussed, although no details were given out.

Proposed Electrification of Timiskaming & Northern Ontario Railway.

In connection with the repeated reports that the Ontario Government proposes to electrify the Timiskaming & Northern Ontario Ry., either in whole or in part, we are officially advised that the T. & N.O.R. Commission's engineers are investigating the entire question of electrification, and the probable sources of hydro electric power. On previous occasions the question of electrification has been carefully considered under the Commission's direction, as there are many conditions met with in the operation of the railway that are favorable to it. During the war, and the readjustment period immediately following, it was considered that such large expenditure as would be involved, was not opportune, and that a decision regarding electrification should be based on more stable post-war conditions. The Commission was requested by the Ontario Government recently to report upon the question of electrification in particular reference to the sources of hydro electric power that are available. The investigation is being made by the Commission's Engineering Department, in which J. G. G. Kerry is Consulting Engineer, and S. B. Clement, Chief Engineer. A. L. Mudge is assisting as special electrical engineer, and A. T. McMaster, as special hydraulic engineer. It is expected that the report will be ready about the end of March.

Steps to Caboose Platforms.

The Board of Railway Commissioners passed general order 356, Jan. 12, as follows:—Re general order 102, dated Feb. 17, 1913, prescribing rules and regulations respecting safety appliances on trains. Upon reading the submissions filed on behalf of the Order of Railway Conductors of America, the Brotherhood of Railroad Trainmen, the Railway Association of Canada, and the Michigan Central and the Wabash Railroads; and upon the report and recommendation of the Board's Mechanical Expert, concurred in by its Chief Operating Officer, the Board orders that the provision covering caboose platform steps, under the heading, "Caboose Cars with Platforms," in general order 102, Feb. 17, 1913, be struck out and the following inserted in lieu thereof, viz.:—

"Caboose Platform-Steps: "Safe and suitable open, or box, steps leading to caboose platforms to be provided at each corner of caboose. Where open steps are used, the bottom tread of said steps to be provided with a right and left foot stop at each end of tread, made of angle iron $3\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{4}$ in.; the $2\frac{1}{2}$ in. face of angle iron to be bolted to the step."

Senator G. D. Robertson's Future Activities.

Canadian Railway and Marine World wrote Senator G. D. Robertson, the ex-Minister of Labor, recently, asking if he intended returning to the Order of Railroad Telegraphers' work, and has received a reply from him as follows:—"When I entered Sir Robert Borden's Cabinet on Oct. 23, 1917, it was intended by me to remain only during the duration of the war. I continued until Dec. 1919, after the Prime Minister returned from the Peace Conference and then tendered my resignation. Sir Robert was then in ill health and was leaving for the south. He asked that I continue, at least until his return. Upon his return, he himself retired and Mr. Meighen was called upon to form an administration. Mr. Meighen saw fit to ask me to remain. Because of my unbounded admiration for, and confidence in, him, and his ability, integrity, capacity and industry, I remained to aid him as best I could during a somewhat trying and difficult period. When I joined the Government in 1917, the Order of Railroad Telegraphers, of which I was the Canadian Vice President, granted me leave of absence. At their biennial convention held in May 1919, though not in attendance, I was re-elected by acclamation and the leave extended. At the next biennial convention in May 1921 the same courtesy was renewed. I have given four years of fairly strenuous effort to public service, during difficult times, and now propose to enjoy a little respite until after the next session of Parliament, after which I expect to return to my former and more congenial position as Vice President of the Order of Railroad Telegraphers."

Telegraph, Telephone and Cable Matters.

The Naval Service Department announced, Jan. 12, that 31 certificates of proficiency in radiotelegraphy were issued during December, distributed over all parts of the Dominion and Newfoundland.

E. G. Davies, who was elected mayor of the boys' council at Toronto, Jan. 16, which is said to be the first election of the kind on the continent, is a son of J. Davies, Traffic Superintendent, Canadian National Telegraphs.

James Tucker, night receiving clerk, Montreal, died in the General Hospital there, Dec. 23, aged 51, after a short illness. He had been in the company's service for about 18 years, and prior to that was with the Great North Western Telegraph Co.

Senator Gideon Robertson, formerly Minister of Labor, will, after the next session of Parliament, return to active work in connection with the Order of Railway Telegraphers, of which he is still Vice President, having retained that position during his term as a member of the Dominion Government, as Minister of Labor.

Negotiations for the settlement of the dispute between the Western Telegraph Co., which is British controlled, and the All America Cable Co., regarding the landing of a cable at Miami, Florida, to connect with the Barbados line and link up with the Brazilian cable system, are stat-

ed to be proceeding. The Western Telegraph Co., with which is affiliated the Western Union Telegraph Co., has a monopoly of the cable business on the Brazilian coast, and the American company desires to enter the field. The negotiations are being conducted on the basis of a mutual surrender of certain exclusive cable landing rights.

The Canadian National Telegraphs have opened offices at Grand Falls, Tracadie, N.B.; Chaleurs, St. Poycarpe Jct., Que.; Baptiste, Beardmore, Breakyville, Brucefield, Dona, Gooderham, Highland Grove, Irondale, Kemptville, Mumfords, Pagwa River, Pass Lake, Richmond Hill station, St. Yvon, Tory Hill, Wilberforce, Ont.; Delmas, Demaine, Eldersley, Lintlaw, and St. Walburg, Sask.; Beynon, Leslieville, Rowley and White Court, Alta. Offices have been closed at Abenakis Springs Hotel, Delorme, Little Metis lighthouse, South Quebec, Que.; Merrickville, Mowat, Richmond Hill, Ont.; Camper, Man.; Dunvegan, Rocky Mountain House, Alta. The names of the offices at James Bay Jct., Ont., and Lochearn, Alta., have been changed to James Bay and Rocky Mountain House respectively.

Frederic Roper, Secretary-Treasurer, Dominion Telegraph Co., died at Toronto, Jan. 19, from heart failure. He was born in London, Eng., in 1840, and came to Canada in 1846 with his parents, who settled in Stratford, Ont. He entered Great Western Ry. service at the age of 14, and worked through various positions in the Auditing Department, becoming Chief Travelling Auditor. In 1861 he was appointed Chief Accountant, Prince Edward Island Ry., at Charlottetown, P.E.I., and in 1862 was appointed Secretary, Dominion Telegraph Co., Toronto, which position he held until his death. In 1880 and 1881, he was also auditor and Superintendent of Supplies, American Union Telegraph Co., and from 1881 to 1891, Secretary and Auditor, Great North Western Telegraph Co., now Canadian National Telegraphs. He was buried at Hamilton, Ont.

The Canadian Government Merchant Marine s.s. Canadian Conqueror, which is fitted with a standard Canadian Marconi 2 k.w. transmitter and crystal receiver, type 2846A, established the following ranges of communication during a recent voyage to Australia and New Zealand.

Received time signals for chronometer rating from Hector Observatory, Wellington, New Zealand, at a distance of 1,800 miles. The Wellington station is fitted with a 2½ k.w. transmitter.

Handled traffic to Auckland at a distance of 1,200 miles and also relayed for R.M.S. Athenic, which was 850 miles astern. The Auckland station is fitted with 2½ k.w. transmitter and single valve detector receiver.

Handled traffic with Sydney, N.S.W., in daylight at a distance of 450 miles. Sydney has a 5 k.w. set.

Handled traffic with Awanui, N.Z., at a distance of 1,000 miles, when between Adelaide and Wellington. Awanui station is fitted with 2½ k.w. transmitter and single valve receiver.

Communicated with s.s. Port Napier, about 1,100 miles. Communicated with s.s. Marama, about 1,300 miles. Communicated with several other ships at ranges around 800 miles, being generally informed that the note and strength of signals were good.

Among the Express Companies.

The Interstate Commerce Commission has postponed the effective date, from Jan. 1 to May 1, for the American Railway Ex. Co.'s schedule of rates on fish shipped from Canada to the U.S., the increases ranging from 2 to 20%, according to distance between points.

One of the largest consignments of pedigreed silver black foxes to leave Prince Edward Island, consisting of 300, was sent by express recently, to points in New York, Colorado, Wisconsin and Washington. They occupied two express cars, and were accompanied by a caretaker, carrying certificates and the necessary exportation permits.

Canadian National Express Co.

Lintlaw, Sask., has been made an open office.

The office at Imperoyal, N.S., has been closed, and the place is now a star point.

The Canadian National Ex. Co.'s offices at Petite Riviere, Les Eboulements and Ste. Irene, Que., have been closed and the stations made star points.

The Canadian Ex. Co. was given judgment in Montreal, Jan. 11, on an appeal against a decision of the trustee in the bankruptcy of Standard Imports Ltd., Montreal, whereby the express company's claim of \$633.05 for money due on express money orders, issued by the bankrupt company's secretary, with the company's assent, was held to rank with ordinary creditors' claims. The express company claimed payment in full by privilege. The judgment held that the money received for express money orders was trust money, and the claim was not affected by the bankruptcy. The assignment did not vest the funds in the trustee, and the general creditors were not entitled to rank upon them, but as the bankrupt company became financially embarrassed, it did not, during the last few days preceding the assignment, set aside, or retain sufficient cash to pay for the money orders, the total cash in the bank, for such purpose, at the date of the assignment, being \$347.42, instead of \$633.05. The evidence did not disclose what became of the balance, which should have been set aside. Only such money of the express company as could be identified was free from the claims of general creditors, and in these circumstances the express company was entitled to receive from the trustee, \$347.42 as trust funds held by the bankrupt company for it, and to rank as an ordinary creditor for the balance of its claim. Costs were assessed against the trustee.

Dominion Express Co.

A. W. Hodgson has been appointed agent, Weyburn, Sask., vice A. McMahon, transferred.

H. J. Cole, chief clerk, Calgary, Alta., died in the hospital there, Dec. 20, from injuries received through falling from a window on the third floor of the Customs Building.

The Dominion Ex. Co., and the C.P.R., have been given judgment on the appeal of three residents of Quebec, against a judgment on their claim for damages through the loss of a quantity of intoxicating liquor shipped from Montreal to Ontario, part of which was stolen in transit, part destroyed in a collision, and the balance delivered. The companies' defence was that as the importation into Ontario was made for illegal purposes they were not liable for damages.

Electric Railway Department

Gasoline-Electric Motor Bus, Toronto Transportation Commission.

The motor bus is rapidly establishing a field of usefulness for itself in urban transportation, chiefly as a feeder for electric street railway lines. The Toronto Transportation Commission, in recognition of this fact, has for some time been furnishing a bus service in the western portion of the city, the equipment used being motor busses secured from the Fifth Avenue Coach Co., New York, a detailed description of which, with an illustration of one of them, was given in Canadian Railway and Marine World for Oct. 1921, pg. 551. Recently, two more busses have been acquired by the Commission, one from Tilling-Stevens Motors, Ltd., Maidstone, Eng., and one from the Leyland Co., also an English concern. In addition, a bus is being secured from the Associated Equipment Co. in England, and another one from the Eastern Canada Motor Co., Hull, Que. The Tilling-Stevens and Leyland busses are being used on the Mount Pleasant Road run at present, pending the delivery of the trackless trolley busses ordered, and which were described in Canadian Railway and Marine World for January, pg. 39.

The Tilling-Stevens bus is a gasoline-electric powered unit, i.e., power is primarily developed by means of a gasoline engine, and drives an electric generator, the electric power thus developed being used through a motor, for the propulsion of the vehicle. It is thus evident that there is no mechanical connection between the engine and the driving mechanism; mechanically, the gasoline engine is absolutely isolated from the differential gear and back axle. The body of the bus is arranged for passengers both inside and on the top. Following are the chief dimensions:—

Length over all	25 ft. 3 in.
Wheel base	15 ft. 9 in.
Height over all	12 ft. 6 in.
Width over all	7 ft. 0 in.
Inside length, interior passenger compartment	13 ft. 8 in.
Inside width, interior passenger compartment	6 ft. 6 in.
Inside height, interior passenger compartment	6 ft. 0 in.
Width between frames inside frame	3 ft. 1 1/4 in.
Width between frames, outside frame	3 ft. 7 in.
Rear axle, hub cap to hub cap	7 ft. 0 in.
Height of chassis frame above ground line, loaded	2 ft. 10 1/4 in.
Diam. front wheels, outside tires	2 ft. 11 1/2 in.
Diam. rear wheels, outside tires	3 ft. 4 1/2 in.

The chassis is designed for a maximum load, including body, of 4 tons 10 cwt. for passenger work, or a gross weight of 8 tons 8 cwt. The frame is of pressed steel throughout, strongly braced by cross members which have large gussets formed solid with them. The dynamo and motor are carried on two longitudinal sub-members. Each of the main side members is pressed from one solid steel plate.

The engine, of 45 h.p., is of the 4-cylinder enclosed vertical type, with 5 in. diam. cylinders and 6 in. stroke. The cylinders, which are water jacketed, are cast in pairs with the inlet and exhaust valves on the near side. The valves are of large diameter, are operated by a single cam shaft, and are easily accessible, while the inlet and outlet valves are interchangeable. The camshaft is driven from the crank shaft by a silent chain.

The valve springs and adjustable valve tappets are enclosed in dustproof covers. The bottom half of the crank case is easily removable, without interfering with the fixing or alignment of the engine in the chassis.

For lubrication, the oil is circulated by a gear pump which draws oil from a sump formed in the bottom half of the crank case. The oil is delivered direct to the main bearings, and to troughs fixed directly below the connecting rods, which are provided with dippers to pick up the oil from the troughs, thus lubricating the big ends and providing enough splash to lubricate the other working parts of the engine. The surplus oil returns to the sump, which is provided with a large strainer. The lubrication of the engine

motor, the yokes are of high permeability magnet steel, supported by brackets from the sub-frame of the chassis, in such a way that the machines can be easily removed from either above or below. The main poles are built up of soft annealed iron laminations, "insulined" on one side. The interpoles are of high permeability steel, and both main and interpoles are securely bolted to the yoke in such a way as to ensure good magnetic joints. The field coils are of high conductivity copper, double cotton covered, and former wound. They are insulated with cloth and tape, and thoroughly impregnated with insulating varnish by the vacuum process, thus rendering them damp-proof. The armature shafts are designed to withstand severe working conditions, and



Gasoline-Electric Motor Bus, Toronto Transportation Commission.

is entirely automatic, and is in no way dependent upon the driver.

The ignition for the gasoline engine is by means of a high tension magneto, which is driven from the cam shaft by an enclosed screw gear. The magneto is easily removable by loosening two nuts, and can be replaced without disturbing the timing. As the magneto is running at right angles to the engine, the contact breaker is very accessible for inspection.

For cooling, a centrifugal water circulating pump is applied, and is driven from the same screw gear as the magneto. The water pipes are of large diameter, and large water outlet heads are fitted on top of the cylinders. The radiator is of the plain and grilled tubular type, with large water tanks, and the whole system is free from pockets in which steam or air might collect. A fan, mounted on ball bearings, and belt driven, is fitted between the front of the engine and the radiator, to assist cooling by induced air draft.

In connection with the dynamo and

the armature cores are built up of special stampings of high permeability, every stamping being secured by a feather extending the whole length of the core. Ventilating ducts are provided in the core, to ensure efficient ventilation. The core stampings are clamped under hydraulic pressure, between aluminum end plates, which also serve to support the windings. The copper armature windings, double cotton covered, are secured in place by steel binding wires, having a layer of mica underneath. The commutator is built up of hard drawn copper segments, insulated from one another by pure mica, and carried on cone rings which are bolted up under hydraulic pressure. The steel sleeve supporting the commutator is keyed to the shaft. The brushes are of carbon, carried in box type holders having adjustable spring pressure. Each brush is provided with a flexible connection, so that the sliding contact between the brush and the brush holder is not relied upon for carrying current. The insulation resistance of the armature and field coils of both genera-

tor and motor is not less than 2 megohms, and before being put into service are tested at a pressure of 2,000 volts a.c. between windings and frame.

The controller and speed regulator are carried in separate aluminum cases. The controller is of the tramway type, with screw adjustment to the contact fingers. The speed regulator is of the multiple contact type, and operates by varying the resistance in the shunt field of the generator, and by shunting the series field of the motor. Easily renewable resistance units are fixed on the base of this controller. The switches are made entirely of metal and micanite, no insulating compounds being used. The insulation resistance is not less than 2 megohms, and before being put into service is tested as above.

The drive from the electric motor to the back axle is by means of a propeller shaft, fitted with a universal joint at each end. The back axle is worm driven, the worm being placed above the worm wheel. The central portion of the axle consists of a steel case, with a large opening at the top. The worm casing carrying the worm wheel and complete differential, with its journal and thrust bearings, forms, when placed in position, a covering for this opening. Steel tubes are pressed into the back axle case, and over the tubes are pressed steel castings, which form seatings for the springs, and provide the brackets to which the brakes are anchored. The steel tubes project through these castings and form the journals for the rear wheels. By securely bolting the spring bracket castings to the back axle case, the torque is transmitted through them to the springs. By this means the complication of torque or radius rods is entirely eliminated. The road wheels are driven from the differential bevel wheels, by means of cross shafts passing through the axles tubes. These cross shafts, of high quality steel, are castellated at each end, engaging the differential bevels, and the other ends are secured to the driving dogs. This construction allows the whole worm gear and differential, as a complete unit, to be lifted out of the axle case for inspection, by simply removing the nuts holding the driving dogs, and drawing driving dogs and cross-shafts out together.

The road springs are of oil tempered spring steel, the rear springs being specially designed to take both the torque and thrust of the drive. The road wheels are of cast steel, of the dimensions given above. Solid tires are used, double on the rear wheels. Both front and back wheels are provided with case-hardened renewable centers, which run on phosphor bronze floating bushes.

Two entirely independent brakes are provided, both operating on drums fixed securely to the back wheels, thus relieving the transmission of all braking stresses. Both brakes are of the internal expanding type, and are operated by pedal and hand lever respectively, the largest diameter brake being operated by the pedal. The brakes can be readily adjusted from the rear of the chassis, and the back wheels can be removed without interfering with the brakes in any way.

The steering gear includes an irreversible worm and sector, which are enclosed in a dust proof and oil tight casing. All of the joints are of the ball and socket type, provided with powerful springs to take up any wear, and all

wearable parts are case hardened.

The front axle is of H section, and is a solid steel drop forging in one piece. The 25 gall. gasoline tank is carried under the driver's seat, enabling the gasoline to be fed by gravity to the carburetor through an efficient filter. The engine speed is controlled by a pedal operated throttle.

The accompanying illustration shows the bus body construction. The passenger entrance is at the rear, from the right side. The total seating capacity is 48, viz., 22 in the interior, and 26 on top. The interior is finished in natural wood, with walnut trim. The large window space affords adequate natural lighting. Vertical brass stanchions, on each side of the central aisle in the interior, provide a hand hold for passengers entering or leaving the bus. Two longitudinal seats, one on each side of the aisle, are located at the rear, and forward of these are 8 transverse seats, 4 on each side of the central aisle. All seats in the interior are covered with red plush cushioning.

Canadian Electric Railway Association.

Honorary President, Thomas Ahearn, President, Ottawa Electric Railway.

Honorary Vice President, George Kidd, General Manager, British Columbia Electric Railway.

President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Vice President, Major F. D. Burpee, Manager, Ottawa Electric Railway.

Treasurer, A. Gaboury, Superintendent, Montreal Tramways Company.

Executive Committee, E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electric Co.; W. S. Hart, Managing Director, Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Auditor, H. E. Weyman, Manager, Lewis County Railway.

Secretary, L. E. Moreland, Chief Clerk, Hull Electric Co., Hull, Que.

Official Organ, Canadian Railway and Marine World, Toronto.

ions, removable for cleaning. The floor is corrugated, to provide for drainage of moisture, the corrugations being not only in the central aisle, but also between the seats. The driver, who enters the bus by a separate door in the front, is separated from the passengers by a wood partition, fitted with plate glass panels. Artificial lighting for the interior is provided by three globes in the ceiling on each side of the central aisle, current being supplied by a C.A.V. lighting system, including a dynamo driven from the engine, and storage batteries.

The outside panel enclosing the stairs leading to the top, is of wood, surmounted by a brass hand railing, the inside panel being of metal. The stairs are of wood, with metallic corrugated strips on the steps. The floor of the top section is also corrugated. The seats on the top are arranged transversely, there being 7 on the right side of the central aisle and 6 on the left. On account of exposure to the weather, no cushions or upholstery are provided for these seats. The lower band encircling the top portion is of sheet steel, and the middle band is of wood, while at the top a brass railing encircles the top of the bus.

The bus service furnished by the Toronto Transportation Commission has been well patronized, and is deservedly popular. To date it has been reliable and characterized by freedom from accident, and no delays of consequence have been experienced on account of mechanical troubles, or weather conditions.

Electric Railway Freight and Passenger Rates.

British Columbia Electric Ry. — See under "Traffic Orders by Board of Railway Commissioners," order 31,994, Jan. 9, on an earlier page of this issue.

The B.C.E.R. Company, on Jan. 1, began enforcing the terms of the contract on its 50-ride books of tickets on the Central Park interurban line between Vancouver and New Westminster. The terms are that books must be used within 30 days or they become void and that they are not good for any person other than the buyer. These rules have not been enforced for several years and were grossly abused. Fares on this line work out at less than 1c. a mile. There is no change in the regulations governing the 10-ride books of tickets.

Hamilton Street Ry.—Under a bylaw passed by the Hamilton, Ont., City Council, Dec. 8, 1921, the following question was submitted to the ratepayers on Jan. 2:—"Are you in favor of the council granting to the Hamilton Street Ry. Co. permission to charge a fare of 5c. where tickets are now used; the fares for children to remain unchanged?" The vote on the question was:—For, 7,588; against, 9,614. We are advised that about 18,000 voters did not vote. The effect of this vote was that the permission which the council gave the company on Dec. 8, to put the new fare into effect on Dec. 15, ceased, in accordance with the provisions of the bylaw 2592, which read:—"Provided that should the question be answered in the negative, the privilege hereby granted to the company shall cease and determine on Jan. 3."

We are officially advised that as a result of the vote the company has reduced its service by about 20%, necessitating laying off about 50 men.

The New Brunswick Power Co. put into operation recently a weekly pass system on its electric railway in St. John. The pass is sold at \$1, and is good for as many rides during the week as its owner desires to take. We are officially advised that the pass is sold on Mondays only, and is good for the bearer to travel on any car, up to and including the following Sunday. The sales have been as follows:—1st week, 609; 2nd week, 1,184; 3rd week, 1,532; 4th week, 1,368; 5th week, 1,392; 6th week, 1,597. The two off weeks of 1,368 and 1,392 were the Christmas and New Year weeks, when school children were not travelling. A census of the using of the passes which has been taken shows that the average is about five trips a pass on a week day. The system was introduced on account of the bus competition, and had something to do with killing it. Another reason for its introduction was to bring out the people to travel on the cars. The car service had been dislocated all summer, largely on account of paving operations, and the people had got out of the habit of travelling on the cars. The value of the pass system as a revenue maker is expected to be demonstrated in a short time, when the matter of its continuance

at the present or an increased rate will be determined. The color of the pass is changed each week, and each bears a large figure, showing the number of the week during which the pass holds good.

In addition to the passes the company has three other rates of fare, viz., cash 10c., three tickets for 25c., and 14 tickets for \$1.

St Thomas St. Ry.—A press report states that a proposal is being consid-

ered to increase the cash fare on the municipally owned electric railway in St. Thomas, Ont., to 9c.

The Waterloo-Wellington Ry. Co. will apply to the Ontario Legislature at its next session for power, among other things, to increase the fare on its electric railway extending from Kitchener to Bridgeport, Ont., subject to the Ontario Railway and Municipal Board's approval.

Ottawa Electors Vote for Extension of Street Railway Franchise.

On Jan. 3 Ottawa electors voted on three proposals laid before them for the settlement of the local street railway question, viz., municipal ownership, extension of the present franchise, or service at cost. The three questions submitted, with the vote on each, were as follows:—

1. Are you in favor of the city giving the Ottawa Electric Ry. the required notice to take over the street railway at a price to be fixed by arbitration, as provided by the agreement between the city and the company? Yes, 6,003; no, 8,430.

2. Are you in favor of the present franchise of the Ottawa Electric Ry. being extended for a further period of 30 years? Yes, 8,415; no, 6,070.

3. Are you in favor of the city entering into an arrangement with the Ottawa Electric Ry. for service at cost? Yes, 3,345; no, 10,639.

The vote cast was about 1,000 short of the vote in the mayoralty contest. Although the company's proposal of service at cost was decisively negated, the defeat of municipal ownership was complete, and the confidence shown in the present management by the large majority for the extension of the franchise is regarded as a testimony to the fair way in which the Ottawa Electric Ry. Co. presented the facts of the case during the last two years. This evidenced by the surprising reversal of the municipal ownership vote taken three years ago, before the company had done any work in the way of publicity. In 1919 the vote on a proposal to buy the railway in 1923 stood: for, 8,770; against, 2,309. In 1921 the question came before the property owners alone, on a bylaw to buy the road. The result was: for, 2,326; against, 4,438. By comparing these figures with this year's vote it will be seen that not only the property owners, but also the other electors, are opposed to city ownership and operation.

The vote on service at cost is not, perhaps, a fair indication of the electors' opinion on this phase of the question, as the contest narrowed down, as it so often does in three cornered contests, to between two of the three proposals. The company's frank statement that it would consider a renewal of its franchise only on terms involving a readjustment of fares, whenever economic conditions demand such, enabled those who approved the service at cost plan to vote also for the franchise extension. The educational campaign carried on in connection with service at cost has, therefore, borne good fruit in helping the electors to reach a sane decision on the merits of public as compared with private operation.

Mayor Plant, in his inaugural address to the Ottawa City Council, on Jan. 9, said: "No delay will be made in giving

effect to the will of the people, but before you are called upon to vote on the question, you should carefully study the three propositions. Paradoxical as it may seem, the most important question to study is the one which received the smallest vote for its adoption. The fundamental principle of service at cost, as I take it, is that the fares charged shall be such as to provide for all expenses, salaries, etc., and also a fair dividend to the shareholders. This was voted down by an overwhelming majority. It is safe to say that a very large percentage of those who voted for an extension of the franchise did so because various candidates emphasized that an extension of the franchise would mean a continuance of the 5c. fare. True, the company did not say so, but many people had that impression. If the franchise is to be extended by an agreement which will provide for an increase in fares just as soon as the operation of the system does not provide for all expenses, any salaries which may be paid for management and a satisfactory dividend to the shareholders, the company would have an agreement very much similar to service at cost, which was voted down by the people.

"The first step in negotiating for a new agreement, I take it, will be for the city to ask the company what it is prepared to do in the way of extensions of its lines, improving the service as regards equipment on some of the best patronized lines, the continuance of the present fares, and annual payments to the city. The Board of Control asked the company these questions last year, but the answer was indefinite. Now that the people have shown that they favor an extension of the franchise, the company will naturally co-operate to a greater extent. Regarding the extensions, these must be worked out on a double basis, viz., to better serve some of the outlying sections of the city such as Ottawa East and Ottawa South, to relieve the congestion on Sparks, Bank and Somerset Sts., and to give a shorter cross town line to connect with Sandy Hill. A more direct route from the western part of the city might also be worked out. For some time past the company has frankly admitted that its equipment is inadequate, but with good reason argued that it should not be expected to build new cars in view of the expiring franchise. The number of cars required will have to be looked into, but it would seem that 25 to 35 should be put on as soon as they can be built. At present the city receives from the company an annual mileage rate for the use of our city streets. T. U. Fairlie, in his report, claimed that the city has an equity of \$827,137 in the street railway system, i.e., the value of the roadbed

constructed at the city's expense. Some arrangement may be worked out by which the city will participate in the company's annual profits in return for granting the exclusive use of the streets to the company."

Hamilton, Grimsby & Beamsville Electric Railway Passenger Service.

John Hunter, and others, of North Grimsby and vicinity, applied recently to the Ontario Railway and Municipal Board, under the Ontario Railway Act, sec. 106, sub-sec. (3), for winter service on the Hamilton, Grimsby & Beamsville Electric Ry. at Grimsby East spur. A. B. Ingram, Vice Chairman of the Board, heard the matter at Grimsby on Dec. 2, 1921, and made the following report Jan. 11, 1922:—After taking considerable evidence it was agreed that the cars should be run to the end of the spur at Grimsby East, starting Dec. 5, and concluding on Jan. 5, a count of the passengers boarding and alighting to be taken by the company, and should the petitioners feel disposed to check up the count they were to be at perfect liberty to do so. The company started to make the count on the morning of Dec. 5, and continued to the evening of Jan. 5, filing with the Board each week a copy of the count taken from day to day. The number of passengers boarding is given as 1,941, and passengers alighting, 1,750, total 3,691. The ordinary schedule during week days was 18 cars in and out, and on Sundays 14 in and out. Owing to interruptions to the service by storms on Dec. 18 and 21, I have deducted from the total number of cars in the ordinary schedule on account of these interruptions, making the total number of cars in and out 1,122. This number of cars, divided into the total number of passengers carried, would average about 3 1/3 passengers per car. A count was taken on behalf of the petitioners from Dec. 5 to 10 inclusive, and from Dec. 18 to Jan. 4, inclusive, 24 days in all, the figures being, passengers boarding 1,484, passengers alighting 1,363, making a total of 2,847. Applying the same rule to a reduction of the total number of cars in a schedule for those days as I did to the company, about 834 cars went in and out of the spur; this total divided into 2,847 would average about 3 1/2 passengers to the car. After analyzing these figures and taking into account the length the spur, viz., 1,500 ft., and the limited patronage, I am of the opinion that the Board should not insist on the company providing a winter service at this point. The Board's Inspector, E. A. Crosland, has devoted considerable attention to the working of the cars at this spur and the service generally, and he fully agrees with my views in this regard.

The total number of passengers carried by this company during the years 1917 to 1920 inclusive, were as follows: 1917, 660,420; 1918, 739,386; 1919, 886,406; 1920, 882,099. The last time table filed with the Board, effective Sept. 11, 1921, shows the running time eastbound between Hamilton and Beamsville to be 1 hr. and 30 min., and westbound between Beamsville and Hamilton 1 hr. and 35 min., a distance of 22.6 miles, a speed at the rate of less than 15 miles per hour. I am of the opinion that the Board should require the company to

shorten the running time between the above named points, in order that the hundreds of thousands of passengers travelling between Hamilton and Beamsville shall be accommodated with greater

speed than at present, and in order to do this I recommend that the company be instructed to file with the Board forthwith a time table that will carry out the objects south by this recommendation.

Electric Railway Employees' Wages, Working Conditions, Etc.

British Columbia Electric Ry. — As World for January, the company gave notice that it would accept the majority award of the Board of Conciliation, authorizing a reduction of wages by 10%, instead of the 15% proposed by the company. The men voted on the matter Dec. 23, and by 1,039 to 311 refused to accept the majority finding. Some negotiations followed, but neither side would recede from the position taken up, the company giving notice that the new scale of wages based on the majority award would be put into effect Jan. 1, and the men threatening a strike. On a vote being taken on Dec. 31 on the strike issue, 503 voted to strike, and 814 against it. A new agreement was entered into Jan. 5, between the company and the Amalgamated Association of Street and Electric Railway Employees of America, representing the employees, and including all employees except conductors, motormen and trainmen on the Lulu Island Branch, Fraser Valley line and Saanich Division. The rates on city and suburban lines are as follows per hour. Conductors and motormen, 1st 6 months, 48½c.; 2nd 6 months, 53c.; 3rd 6 months, 56c.; thereafter, 58½c. One-man car operators, 64½c. Conductors and motormen in work train service, 2c. an hour extra. On interurban lines, District 1, District 4, 16th St. yard and Carroll St. yard the rates per hour are: passenger conductors and motormen, 1st 6 months, 48½c.; 2nd 6 months, 54c.; 3rd 6 months, 57½c.; thereafter 60½c. Freight conductors and motormen, 1st 6 months, 51½c.; 2nd 6 months, 56½c.; 3rd 6 months, 60½c.; thereafter, 63c. Passenger brakemen, 1st 6 months, 48½c.; 2nd 6 months, 52c.; 3rd 6 months, 55c.; thereafter, 57½c. Freight brakemen, 58½c. Trolleyman, 56½c. Sunday work to be paid at rate of time and a quarter, holidays, time and a half. Extra men to be guaranteed a minimum monthly earning of \$87.50.

The Hamilton St. Ry. is reported to have advised its employees Jan. 13 that a cut of 13% would be made in their wages from Feb. 15. The present wage schedule, which was fixed by a majority report of a board of conciliation as from April 1, 1920, is as follows per hour: 1st 6 months, 38c.; 2nd 6 months, 40c.; 2nd year, 45c.; 3rd year, 50c. The men were reported to have decided Jan. 14 to fight the reduction. A conference between a committee representing the men and E. P. Coleman, General Manager, Dominion Power & Transmission Co., is reported to have taken place Jan. 16. An application is expected to be made by the men for the appointment of a conciliation board.

Hull Electric Co.—The board of conciliation appointed in connection with the dispute between the company and its employees, arising out of the company's notice that wages would be reduced by 10% from Dec. 1, 1921, consisted of W. F. O'Connor, K.C., chairman; G. D. Kelley, Ottawa, representing the company, and F. Bancroft, Toronto, representing the men. On Jan. 9, the chairman and Mr. Bancroft sent a report to the Minis-

ter of Labor, pointing out that the board did not have authority to deal with the complaint of the men that on Dec. 23, 1921, the company had paid the men on the basis of the 10% reduction of which notice had been given, while the matter was being considered, thus it was alleged contravening one of the provisions of the act. After reviewing the evidence given and the statement submitted by the company and the men, the majority report concluded with the following recommendations:—"That from Dec. 1, 1921, until July 1, 1922, the wages continue as recommended under the award made under the Industrial Disputes Act, on Aug. 26, 1920, by W. P. Grant, chairman, and G. D. Kelley, and subsequently accepted by the company and the employees, and likewise that in all other respects the terms of the said award be continued in effect for the like period. "That the company pay its employees any difference between wages payable under the immediately preceding recommendations, and wages paid or earned or which may be paid or earned on any lower scale imposed by the company on its employees or on any of them at any time or times between Dec. 1, 1921, and the first day of July, 1922."

A minority report dated Jan. 11 was submitted by G. D. Kelley, who gave his reasons for dissenting from the other members of the board. He stated that the facts disclosed to the board did not bear out the men's arguments that the rate of wages paid had not been and was not now commensurate with the cost of living; that the employees wages were lower and had been for some time lower than the wages of men engaged in similar classes of work elsewhere, and that the financial condition of the company justified its paying liberal wages. Mr. Kelley showed in regard to the latter point that no dividend had been earned or paid on capital investment since 1902; and that the company was a heavy borrower for capital account, and that there was no immediate prospect of liquidating the arrears of interest on its \$1,300,000 of borrowings. Under the circumstances, he considered that the working conditions and scale of wages in force are fair and equitable.

The following is the scale of wages per hour for motormen and conductors put in effect under the award of Aug. 26, 1920, which the majority report recommends should be continued in force until July 1:—First six months, 41c.; second six months, 44c.; second year, 46c.; third year and thereafter, 48c. Under the reduction put in effect by the company the maximum rate is 43c. an hour.

We are advised that in view of changed conditions, the company cannot agree to the board of conciliation's majority report, recommending that wages be continued until July next on the present high basis.

The London St. Ry. management states that it is using every available car during the rush hours, and that the service cannot be improved without the purchase of additional cars.

Mainly About Electric Railway People.

Alderman W. Douglas has been elected Chairman of the Winnipeg, Man., City Council's public safety committee, which deals with electric railway matters.

W. Caryl Ely, from 1904 to 1906, President, American Electric Railway Association, died suddenly in New York, Dec. 14, 1921, from heart failure. He was born at Middleford, N.Y., Feb. 15, 1856, and was educated for the legal profession, being admitted to the bar in 1882. He gave up law practice in 1899 and became President, International Traction Co. and International Ry., Buffalo, N.Y. In 1899 he was active in combining into one system, the electric railways in and between Buffalo, Niagara Falls, Tonawanda, Lockport and adjoining towns and uniting them with the Niagara Falls Park & River Ry. in Canada, by a steel arch bridge at Niagara Falls, and a suspension bridge between Lewiston, N.Y., and Queenston, Ont. He retired from the Presidency of the International Traction Co. and International Ry. in March 1905.

Maurice C. Gilman, whose appointment as Sales Manager, Electric Utility, Winnipeg Electric Ry., Winnipeg, was announced in our last issue, was born at Houlton, Me., May 13, 1887. He has been, from July 1907 to July 1910, Power Engineer, Brooklyn Edison Co., Brooklyn, N.Y.; July 1910 to Aug. 1911, Power Engineer, Public Service Electric Co., Newark, N.J.; Aug. 1911 to Oct. 1912, Power Engineer, Toronto Electric Light Co., Toronto; Oct. 1912 to Nov. 1913, Assistant Chief Engineer, Toronto Electric Light Co., Toronto; Nov. 1913 to July 1, 1918, Sales Manager, Toronto Electric Light Co., Toronto; July 1, 1918 to Nov. 1, 1921, Special Agent and Research Engineer, Montreal Light, Heat & Power Co., Montreal.

A. G. Graves, who retired from the position of City Commissioner of Calgary, Alta., at the end of 1921, was presented with an address and a cabinet of silver, by the heads of departments. He was elected City Commissioner in 1906, and held the position continuously until his retirement.

Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry., and Mrs. Royce, are visiting Florida.

J. F. Saint Cyr, Chairman, Montreal Tramways Commission, addressed the Chambre de Commerce, there, Jan. 11, on the economical aspects of the Montreal Tramways Co.'s contract.

Angus Smith has succeeded A. G. Graves as City Commissioner of Calgary, Alta., and has charge of the municipal street railway.

Voting on Toronto Eastern Ry. Purchase.—The voters of the City of Toronto, and of a few of the municipalities interested in the proposal to purchase the uncompleted Toronto Eastern Ry. from the Dominion Government, voted on Jan. 2 on a bylaw favoring the purchase of the line without a guarantee of bonds by the Ontario Government. The vote in Toronto was 18,532 for and 16,766 against; Scarboro Tp., 4,933 for, 827 against; Pickering Tp., 302 for, 55 against. The Ontario Government intimated, prior to the voting, that the matter was irregular and that it would not consider itself bound by the vote.

Flat Wheels on Street Railway Cars.

The Toronto Transportation Commission experienced during Nov. and Dec. 1921, and the early part of Jan. 1922, a large number of flat wheels, particularly on the new cars. This was due in part to the motormen not being acquainted with the brake equipment on these cars, the wheels skidding frequently after brake applications, until the men had learned to handle the air correctly. The condition of the rails in November is always such that a certain amount of skidding is difficult to avoid, and in Dec. 1921 these conditions continued, there being just enough snow to make the rails very greasy. As a general rule, the trouble with flat wheels in Toronto usually ends with November, December generally being so wet that the rail is

are operating is new or rehabilitated. With the old track, which, generally speaking, was in poor line and surface, and full of low joints and high centers, the sound made by a slight flat spot in a wheel was completely drowned in the confusion of noises incidental to the passing of a street car; now, however, with the track in first class line and surface, and the joints all in good shape, the slightest flat spot immediately attracts attention. Still another feature of this flat wheel epidemic worthy of mention is the fact that on the streets where the track has been rehabilitated, or new track laid, the roadway between and adjacent to the tracks has been resurfaced and put in good condition, which attracts trucks, automobiles, and horse drawn ve-

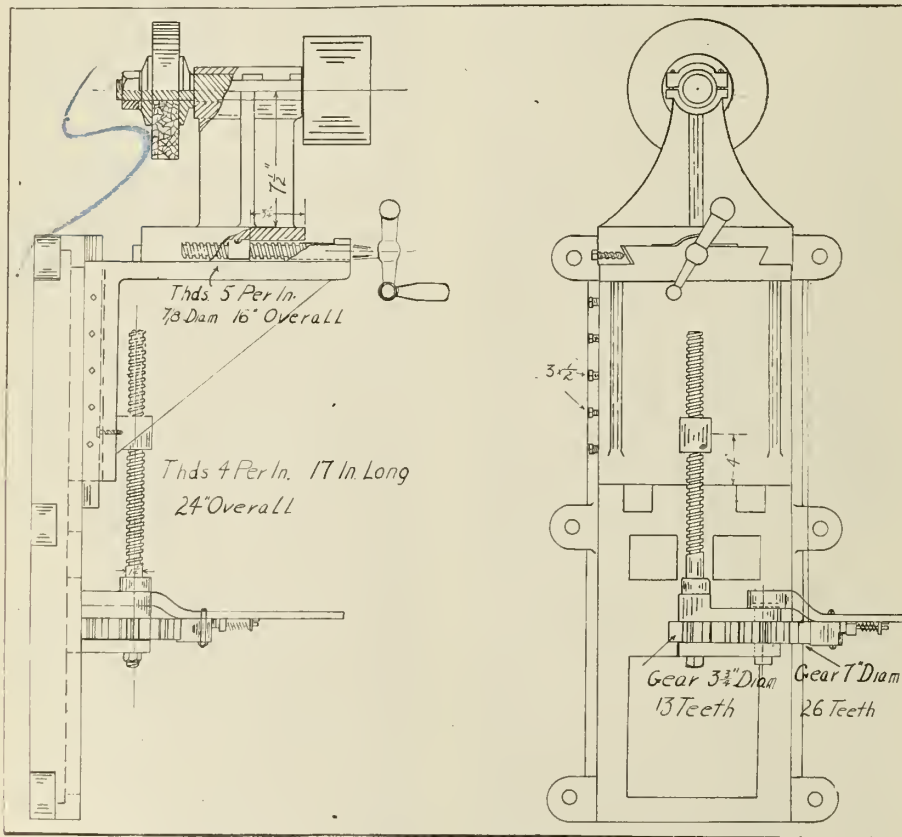
arranged that the stone, either emery or carborundum being used, is supported near the top of the repair pit, one under each rail. The rails in the proximity of the grinding wheels are short lengths, and provision is made, by recesses in the walls of the pit, so that the short lengths of rail can be moved aside. The grinding wheels are operated by a 25 h.p. motor located in the pit, and are belt driven. They can be adjusted for position both horizontally and vertically by the two adjusting screws shown in the accompanying plan, which gives the details of half the grinder installation.

When a car comes into the shop with wheels slid flat, it is placed on the pit in which the grinder is located, and the car body is jacked up till the weight is off the truck containing the defective wheels. The truck is jacked up, lifting the wheels off the rails. The short sections of rail are then moved outward from the wheels, and the truck is let down on two supports placed across the pit, leaving the defective wheels free to revolve. The grinding wheels are then adjusted to position against the skidded wheels. In the grinding operation, power is supplied to turn both the grinding wheels and the car wheels, the grinding wheels being run from the motor in the pit, as mentioned, and the car wheels as follows:—Each car has four motors, one connected to each axle, and operating in pairs. The pair which does not include the one connected to the defective wheels it cut out; the carbons are taken out of the machine coupled with the one driving the defective wheels, and this latter is operated by power cut down by a special rheostat.

The wheels of the car and the grinding wheels turn in opposite directions, and at different speeds. Flat spots 3 in. long can be taken out of a pair of wheels in less than an hour. The immense saving which this device makes possible is realized when one considers the labor cost of changing a pair of wheels, or turning up wheels to take out skid-flats.

Detroit United Railways' Affairs.

It is reported that something like a settlement of the negotiations between the Detroit, Mich., City Council, and the D.U.R. Co. for the purchase of the electric railways in the city, will be reached after the annual meeting of shareholders, called for Feb. 7. In 1919, the company offered to sell its entire city lines to the city for \$31,500,000, and since then there has been much negotiation, two or three votes of the ratepayers, some sales, and considerable litigation. The city has acquired for \$2,300,000 certain of the company's lines, referred to in negotiations as the "day to day lines." It is reported that the company has offered to sell its remaining lines in the city for \$24,500,000. A press dispatch of Jan. 12, said that after a conference the Mayor stated he had no desire to take an unfair advantage of the company and he would permit the situation to continue unchanged until the annual meeting. A. J. Ferguson, Vice President, D.U.R. Co., is reported to have stated Jan. 16, that the arrangement to sell the company's lines to the city in 1919 for \$31,500,000 was not completed because the City Council endeavored to put it through without



Device for grinding flat spots out of car wheels.

thoroughly washed and ceases to be greasy. As a matter of fact, conditions in the usual December are such that a certain amount of wet grit is to be found on the rail, and the action of this is to reduce any flat spots caused previously. November conditions continuing in Dec. 1921, however, flat spots in wheel treads started in November had an opportunity to grow more pronounced during December.

Flat spots in wheels are ground out at the Commission's car houses, but the facilities for doing this work were limited owing to the St. Clair and Danforth car houses being under construction, with no facilities available until recently, and also on account of the fact that until Dec. 25, 1921, there was not sufficient track clearance at the Yorkville car house to get the large new cars in for wheel grinding or changing.

Another thing which made the flat wheels so noticeable was that a great deal of the track on which the new cars

were in greater number than when the roadway was of the corduroy variety. This condition calls for frequent application of the brakes on the street railway equipment, many of them necessarily being emergency applications, causing skidding when the rail is bad.

Contrary to the statements of some of the daily newspapers, flat wheels were not caused by negligence of the Transportation Commission in leaving the heavy new cars standing too long in one place when out of service. At present, the motormen have become trained in the proper use of the brake, and with more favorable weather conditions prevailing, skid flats are becoming rare on the Commission's lines.

A device which is very efficient in operation, and which does away with a lot of work and handling of wheels, is a grinder used in the Commission's shops, to take the flat spots out of wheels without the necessity of removing the wheels from under the car. The grinder is so

first having a vote of the ratepayers thereon, and that when the matter was voted on it was defeated by a large majority. The company and the city had

failed to come together in the recent negotiations, and when the reasons for this were made known at the annual meeting the whole matter would be cleared up.

Electric Railway Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—A press report states that to assist in relieving unemployment in Victoria, the company has decided to start work at once upon the construction of a second track on Cook St., from Rockland Ave. to Pakington St., which was intended to be done next summer. (Nov. 1921, pg. 601.)

Calgary Municipal Ry.—As a result of a small fire at the car barns, it is reported that some alterations are to be made there, and that towers are to be erected in various parts of the barn and yards from which streams of water could be thrown over the cars and other property. (Nov., 1921, pg. 601.)

Fort William Municipal Ry.—The Fort William City Council will apply to the Ontario Legislative Assembly to validate a bylaw to raise \$30,000 by debentures for street railway purposes; to authorize the council to use the \$30,000 previously voted for street railway extension and now on hand for the purposes mentioned in the bylaw above mentioned, instead of issuing the debentures therein authorized; declaring that the right of way for the Mission Park street railway extension recently arranged for with the Fort William Indian mission band shall form part of the City of Fort William as soon as the same has been acquired, and declaring that the city has the right to construct and maintain the projected Mission Park street railway extension. (Jan., pg. 42.)

Guelph Radial Ry.—We are officially advised that during 1921, one mile of track in Guelph, Ont., was rebuilt, and that it is proposed to build about 0.4 of a mile of new track this year.

Kitchener & Waterloo Electric Ry.—Kitchener, Ont., voters, on Jan. 2, passed a bylaw authorizing the issue of \$63,000 of debentures for building about a mile of double track line on King St., from Albert St. to the city limits, and for the payment of the city's portion of the cost of a station on King St. east (Jan., pg. 42.)

Nipissing Central Ry.—The surveys made recently for an extension from New Liskeard were, we are officially advised, under the charge of A. L. McDougall, locating engineer. The route surveyed is approximately 16 miles long from New Liskeard, Ont., to North Timiskaming, and a route thence to Quinze Lake, Que., would be approximately 14 miles long.

G. W. Lee, Chairman of the Timiskaming & Northern Ontario Ry. Commission, which operates the line for the Ontario Government, is reported to have said in North Bay, Jan. 13:—"We have the railway laid out and surveys have been completed in North Timiskaming. We are going to complete them to Lock's Depot. We have filed our application with the Quebec Government, and are waiting for its decision, and if this is favorable, consideration will be given to commencing the work on the extension at once."

Ontario Hydro Electric Ry.-Essex Division.—We are officially advised that arrangements are being made for rebuilding the interurban track, about 5 miles, between Windsor and Amherstburg, and for the rearrangement of the car barn layout.

The Hydro Electric Power Commission of Ontario invited tenders recently for the purchase of \$500,000 of 6% hydro electric railway bonds guaranteed as to principal and interest by the Ontario Government, the bonds to be redeemed July 1, 1961. The proceeds of the sale will be utilized for rebuilding track and other rehabilitation work on the Essex Division. (Jan., pg. 42.)

Regina Municipal Ry.—A special committee of the City Council has recommended that the West End Electors' Association's application for an extension of the Blue Line be not entertained. The County Commissioners in their report on the matter stated that to extend the Thirteenth Ave. track westerly the city would have to comply with the Board of Railway Commissioners' order to instal a half interlocking plant at the steam railway crossing. The city's share of the cost of this installation would be close to \$4,000. The derrails are in stock, and the Superintendent understands that the railway company, which would be responsible for the diamond, have it in stock. Even if the city were able to supply all the materials required from stock, or by lifting existing trackage, the cost of hauling and labor for installing approximately 2,680 ft. of track with the necessary overhead would entail a cash outlay of \$4,000. To operate the extension would require placing another car on the blue line service, and in order to pay a proper return on this additional service and expense there should be an additional daily patronage of at least 350.

Waterloo-Wellington Ry.—The Ontario Legislature will be asked at its next session to amend the letters patent incorporating the company under the name of the Berlin & Bridgeport Electric Street Ry. Co., by authorizing it to build an extension of its railway from Bridgeburg through Waterloo and Guelph Townships to Guelph, and for other purposes. (Jan. 1921, pg. 36.)

Windsor, Essex & Lake Shore Rapid Ry.—We are officially advised that the company is contemplating building a siding into its proposed freight terminal at Leamington, Ont., and erecting a freight shed and office. A. Eastman is Vice President and General Manager, Kingsville, Ont. (Dec., 1921, pg. 660.)

Electric Railway Notes.

The International Transit Co., Sault Ste. Marie, is contemplating ordering 5 one-man safety cars.

The New Brunswick Power Co. is negotiating with car manufacturers in Europe for new cars for its electric railway in St. John, and hopes to have them in operation by the spring.

Winnipeg City Council's public safety committee is reported to have approved of the operation of one-man cars by Winnipeg Electric Ry. on Euclid Ave., from Main St. to Sutherland Ave., and from Sutherland Ave. to Higgins Ave.

The Cape Breton Electric Co.'s ferry service between Sydney and North Sydney, N.S., in connection with its electric railway service, is reported to have been operated at a loss during 1921, the fares

received falling about \$500 short of the operating cost.

The British Columbia Electric Ry. is reported to be considering the setting apart of the rear end of cars on its Victoria lines for the smokers. The Calgary, Alta., City Council has been asked to pass a bylaw to prevent smoking on the municipal railway cars.

The St. Thomas, Ont., City Council's railway committee took up the question recently of providing a motor bus service on the streets in conjunction with the municipal railway service. Alderman Jagoe, who advocated the plan, was authorized to prepare figures of the cost of operation.

The Toronto Transportation Commission's order given the Canadian Car & Foundry Co., Montreal, for 140 motor cars and 60 trailer cars has been completed, and the cars delivered. Of the 50 motor cars ordered from Canadian Brill Co., Preston, Ont., 8 were delivered by Jan. 14, and further deliveries are being made at the rate of 4 or 5 a week.

The Montreal Tramways Co. was reported recently to have notified conductors and motormen that cars must not be heated during the evening rush hours, from 5 to 7. Lt. Col. J. E. Hutcheson, General Manager, on Jan. 13, issued the following explanation:—"In the rush hours, between 5 and 7, every evening the cars are not heated because of the crowds in them. This is not effective on very cold nights, but only when the temperature is reasonable and warrants it."

The Fort William, Ont., Municipal Ry. is, we are officially advised, ready to start converting its present cars for one-man operation, but will not do so until the Port Arthur Civic Ry. is ready to start converting its cars. The City of Port Arthur has made application to the Board of Railway Commissioners and to the Ontario Railway and Municipal Board for permission to operate one-man cars over the Canadian National Rys.' crossing at Inter City.

The Ontario Railway and Municipal Board is reported to have given judgment on an appeal as to the assessment of the Ottawa Electric Ry.'s fixed machinery in the power plant and substations. The machinery was assessed at \$392,350 by the city, which assessment was sustained by the court of revision. The company appealed to the County Judge, who held that the fixed machinery was exempt under the franchise. The Ontario Railway and Municipal Board disagrees with this and restores the court of revision's decision.

Answers to Questions on Electric Railway Topics

The following answers have been sent, by Canadian electric railway officials, to questions addressed to the American Electric Railway Association's question box:—

Welding Hard Centers.—Have any companies had any experience in welding hard centers with electric welder; if so, what is the method of doing the work?

John Whitsell, Manager, Winnipeg Electric Ry., Winnipeg.—We have been using the Lincoln welding machine type W in welding rail joints, building up cupped rail ends also in recovering frogs, crossings, etc. We are using this machine for welding hard centers and are getting fairly good results. Our method is to weld a thin ribbon of high carbon

steel on the outside edge of flangeways, then fill in first with the low carbon steel for a base and high carbon steel for wearing surface.

F. D. Burpee, Manager, Ottawa Electric Ry., Ottawa.—We have had some success in this work. First, Swedish iron is welded to manganese, as we believe it amalgamates better than harder steel. Next we lay on a very high grade of carbon steel, followed by a high grade of carbon steel but a shade milder than the first. This is laid on in alternate rows. As a filler, Swedish iron is used as the occasion presents itself.

Bolts for Crossings.—What has been the experience of member companies with bolts for railway crossings? Is a special high power bolt used, or an ordinary machine bolt? If a high power bolt is used, what is the reason?

John Whitsell, Manager, Winnipeg Electric Ry., Winnipeg.—We have not used high power bolts in railway crossings; only plain forged machine bolts.

Air Compressor Repairs.—(a) Is it the practice of member companies to put air compressors into service after bushing and reboring the cylinders without grinding? (b) Do any companies use over-size pistons where cylinders have worn, or are they brushed?

D. E. Blair, Superintendent Rolling Stock, Montreal Tramways Co., Montreal.—(a) We have tried both grinding and reboring of worn air compressor cylinders. We find that a completely rebored cylinder is not only cheaper but better. (b) Our original practice was to use over-size pistons in rebored cylinders. We now find it more economical to bore out all bushings, making the bore of bushing 0.030 mills smaller than the original size, using the old pistons, trimmed to size. When these are worn they will be bored to standard. When new standard pistons with proper jigs are provided, the cost of reboring and bushing is very small.

John Whitsell, Manager, Winnipeg Electric Ry., Winnipeg.—(a) We have not rebushed any air compressors. (b) Where cylinders are worn, we bore and grind same, and use over-size pistons.

F. D. Burpee, Manager, Ottawa Electric Ry., Ottawa, Ont.—(a) We install compressors after bushing and reboring the cylinders without grinding. We have used over-sized pistons where cylinders have worn, with success. However, we understand that recently the Westinghouse Co. is sending out all new cylinders already bushed, and we believe that this should meet with success.

Drafting Offices.—Do member companies maintain individual drafting departments for several branches of their organization, or is all drafting work handled by a central department?

D. E. Blair, Superintendent Rolling Stock, Montreal Tramways Co., Montreal.—It is this company's practice to have separate drafting rooms for the track and car departments.

Track Spiral Standards.—(a) Have you adopted and do you now use the Association's standard track spiral, if not, please state your reasons. (b) Have you permitted track manufacturers to specify other types of track spirals in preference to the Association's standard, and if so, for what reason?

John Whitsell, Manager, Winnipeg Electric Ry., Winnipeg.—

(a) We have not as yet adopted the Association's standard track spiral, because we have not designed any new track intersections or curves since the

Association spirals were adopted, and I think it would be essential for the trade manufacturers to adopt these spirals or the cost would be prohibitive.

Instructing Platform Men.—What methods of instructing trainmen have proved most effective in improving their efficiency, courtesy, etc., and in arousing their interest in their work?

F. D. Burpee, Manager, Ottawa Electric Ry., Ottawa.—By the publication of a monthly employees' paper; by training employees to give unfailing courtesy and attention to passengers and impressing on them the importance of winning and retaining the good will of our patrons.

John Whitsell, Manager, Winnipeg Electric Ry., Winnipeg.—We find that the maximum efficiency has been gained by the following method: When a motorman or conductor is employed he is first put through an eye-color test; he then has to pass the company doctor. If he

is found to be physically fit he is placed with one of our instructors, who outlines to him our rule book, bulletins and schedules. The student is then taken on an instruction car and shown the proper way to operate same, first with no power on, and then on the road under actual running conditions. He is then furnished with a letter of introduction to a regular trainman, who takes him over a route. This trainman is paid 5c. an hour extra during the time he is instructing the student. The trainman notes, on a form provided for that purpose, the time student reports to him, and the time he leaves him, and whether in his opinion the student will make a competent trainman or not. The student receives a letter of introduction covering every route on the system, and by the time he has completed this course we have a thorough idea of whether he will make a competent man.

Proposed Equipment of Electric Railway Cars with Drop Fenders and Pilots.

The Board of Railway Commissioners issued a circular to electric railway companies, a short time ago, as follows:—

"Equipment of cars with drop fenders in addition to pilots; drop fenders to be used while running through cities. Referring to the above matter, I am directed by the Board to enclose you herewith a copy of a blue print showing four different kinds of fenders and their application to the cars, and to ask for such comments or criticisms as you desire to make regarding the utility of the device and the advisability of its adoption."

The matter having been considered by the Canadian Electric Railway Association's executive committee, a circular was sent from the Association's office to all member companies, following receipt of replies to which the Association's President, G. Gordon Gale, wrote the Board of Railway Commissioners' Secretary as follows:—"On receipt of your letter re fenders or wheel guards on electric cars, a circular letter was sent out to all the Association's members, together with copies of the blue prints supplied by you, asking for comments, criticisms and suggestions regarding the use of this appliance on cars fitted with pilots. Very complete replies have been sent in, and I have summarized them as follows:—

"1. The advantage in having a fender, in addition to the pilot, is the protection the device might afford to the pedestrian while the car is travelling on a city street. In rare cases the fender would carry the body and prevent it from passing under the wheels. It is pointed out, however, that the large majority of accidents occur with vehicles, and a projecting fender is not without objection. It is, in itself, on occasion, a cause of accident, particularly when the car is on a curve. The number of pedestrians struck by the front of a car and thrown on the fender is very small. The pedestrian is usually struck by the corner of the car, outside the fender area, and the body is usually thrown clear of the track. It is therefore questionable whether the addition of such a fender would be more of a protection than an additional hazard. A point of interest indirectly related to this matter is the fact that large and heavily laden trucks operate through the city streets without pilots, fenders or air brakes, at comparatively high

speeds, and without being restricted to the definite area of the track allowance.

"2. While the value of the fender on the city streets is questionable, it is felt that the use of this device on an interurban car would be a menace to the passengers on the car, on account of the possibility of derailment. The protection to the passengers on a high speed interurban car is more important than the possible protection afforded to the individual who might be struck by the car. Even if the individual was caught on the fender, the car would probably be derailed, and injury result to a number of passengers. Very rugged construction would be necessary to ensure safety. On many lines interurban cars are fitted with nose-ploughs during the winter. It would be impossible for the crew to remove these ploughs and place the fenders at the city limits.

"3. The danger of operating with a fender on interurban sections would necessitate the application of the fender before entering a town, and its removal when leaving the town limits. This is not considered practicable, as the delay to the service would be considerable, and it would hardly be possible for the crew to handle a fender which was built heavily enough to afford the required protection. Where an interurban line passed through a number of towns it would be necessary to have a stock of fenders at the town limits.

"4. In order to provide clearance for the fender under the pilot, the space between the pilot and the rail would be excessive and the protection afforded by the pilot would be reduced considerably. The space available at the end of an interurban car for air brake attachments, radial draft rigging, and pilot, is now fully taken up, and it would not be easy to introduce a suitable fender in addition to this apparatus. The fender could not be used on cars operated in multiple.

"It would appear, therefore, that the fender is not particularly necessary in city operation, that it is undesirable on interurban sections, and that the use of the fender and pilot would involve practical difficulties, many of which could not be satisfactorily taken care of. We are of the opinion, therefore, that the proposed fender and pilot arrangements should not be adopted."

Change of Rule of Road in British Columbia.

British Columbia's coastal region changed to the right hand rule of the road on Jan. 1 at 6 a.m. with practically a total absence of traffic accidents of any kind. Details of the work which had to be done by the B.C. Electric Ry. Co. in this connection in Vancouver, Victoria and New Westminster were given in previous issues of Canadian Railway and Marine World. In practically every particular the anticipated problems were fully met and the change was made in what is admitted by the public as a marvel of smoothness and safety. It was not expected that all the cars would be changed over on the mainland in time for the first day of 1922, but work had been so organized in the Prior St. shops, under G. A. Dickie, Master Mechanic, that not only had most of the single end cars had right hand steps cut in them, but five had been completely changed and 20 double-end cars had also been completely and permanently transformed.

The company's greatest problem was in Vancouver, where it operates 206 cars in regular service. On Sunday, Jan. 1, only 160 cars were required and on Monday only 170. It thus had two full days to prepare for the first rush hour on Tuesday, Jan. 3. On New Year's Eve, the car shops began work as soon as cars came off the afternoon runs. It was not expected that the full equipment would be finished until about 10 the next morning, 15 crews working, but they were finished at 6 a.m. and the men then started refitting the temporary sides, taken from the right hand openings, to the old exits and entrances on the left side. Each part was numbered and made so that it would change over with the least possible handling. Battens were provided for fastening up rear gates and front doors. Rails had been removed from the rear platform some days before. Cards were tacked to the new entrances and exits, so that passengers would not be confused. Other cards were nailed at the front exits reading: "Out opposite door," to remind passengers who from force of habit would go to the left.

At midnight on New Year's Eve, the track gangs set out. Vancouver was divided into four districts, to each of which was assigned a crew with an automobile. There were 125 separate operations to perform, such as blocking up cross-overs, taking out and replacing springs in switches, and so forth. This work was completed before morning. The line crews had five additional tower wagons built on motor trucks, making seven in all. To them fell the work of connecting the new electric switches, changing the position of frogs and the curves of trolley wire. Seven of the 17 electric switches had been installed in new positions, duplicate equipment having been used for the purpose, so that the only operation needed was to make the electrical connection. Five more required only the installation of coils from the old switches.

The company anticipated trouble from its trolley wires. Some weeks previously a car was run around the city on the right hand tracks before cars began operating on the Sunday morning and the defects of right hand operation were noted. On Sunday and Monday, cars maintained their schedules, but fell down badly on Tuesday, many lines running half an hour late. This was on account

of trolley trouble, and the slower speed made on curves. It was found that with switches and crossovers worn with left hand traffic, there was danger of a car leaving the track. Considerable grinding was necessary before this danger was overcome. In addition to that, all traffic was involuntarily slowed up, due to motormen and drivers taking extra precautions, but it is expected to be back to normal very soon.

On the interurban lines, there was little or no trouble. Most of the stations on the Central Park line, on the mainland, were changed to their new positions. No changes were necessary in rolling stock on this line. Some difficulty was experienced in getting cars out of the barns, owing to switches and tracks being set for left hand operation, but this was rectified as quickly as possible.

Leading up to the change, the company did considerable publicity, and the newspapers credited the absence of accidents largely to this campaign. This included a booklet to school teachers for instruction of children, a safety essay competition, an issue of 29,000 leaflets to automobile owners printed by the company and distributed by the B.C. Government; car cards and full page advertisements in the newspapers. The slogan "Safety First" was used continuously. The company is now devoting its publicity to inducing passengers to speed up their service to their old standards.

The Winnipeg Electric Railway's Relations with the City.

The Mayor of Winnipeg, in his inaugural address on Jan. 2, dealt with the city's relations to the Winnipeg Electric Ry. Co. He expressed satisfaction with the avoiding of wasteful expenditure on litigation and the adoption of a policy of negotiation with the company. After alluding to a number of matters settled or in process of settlement between the city and the company, he said:—"The several outstanding matters have all converged to the point where they become purely a matter of finance, and the city and company are confronted with the problem of whether or not the company is able to go into the financial market and obtain the necessary money for its works under existing conditions. The company contends that this cannot be done unless it can obtain an extension, beyond 1927, of its existing franchise. Under the terms of this franchise, the city is able to assume the ownership of the system in 1927 under the conditions set forth, but must give the company one year notice of its intention so to do, and, therefore, should be in a position by 1926 to notify the company of its intention, if it intends to assume the ownership in 1927. In my opinion if it is the city's intention to assume the ownership of the system, the matter should be taken under consideration at the earliest possible moment. On the other hand, if that be not the city's intention, it would be not only fair to the company, but of a decided advantage to the city, to give the matter due consideration at once and, if possible, to make up its mind and inform the company so that the company can make its arrangements to meet the capital expenditures which will be involved in the work required to be performed by it under the headings which are now the subject of negotiation, the

company having asserted that it would be impossible for it to make any arrangements without an extension of the franchise. It would, therefore, appear that the subject should have the council's serious consideration, and that the matter of either extending the franchise or of taking over the system as a municipal utility be very carefully canvassed; as it should be obvious to everyone that the city is vitally interested in the maintenance of a first class street railway system."

Electric Railway Track Laid in 1921.

Revised figures in two instances have increased the total mileage of new track laid by electric railways in Canada by about 2.5 miles over the figures given in Canadian Railway and Marine World for January. The revised figures are:—

	Miles.	Miles.
Brantford Municipal Ry.—		
St. Pauls Ave. extension	1.47	
South Market St. extension.....	.42	
Along West Mill St.	1.00	
		2.890
Hydro Electric Ry., Essex Division—		
New track in Windsor, Ont.....		1.500
Montreal Tramways Co.—		
Sherbrooke St. extension	0.14	
Bordeaux extension	1.22	
Park Ave. extension .....	.72	
Cremazie Road-Bagg Ave. ....	.11	
		2.190
Quebec Ry., Light & Power Co.—		
Bourgeois Ward extension		0.880
Toronto Transportation Commission—		
Coxwell Ave., Queen St. to Danforth Ave.	1.040	
Greenwood Ave., connecting Toronto Ry. and Toronto Civic Ry. lines . . .	0.041	
Danforth Ave., connecting Toronto Ry. and Toronto Civic Ry. lines	0.023	
Teraulay St., College St. to Bloor St. . . .	0.625	
Albert & James Sts. loop	0.115	
Bloor St., Rummymede Road to Jane St. . . .	0.416	
Bathurst St., Dupont St. to St. Clair Ave. . . .	0.527	
		2.787
Total . . .		10.247

The Hydro Electric Railways reports that it rebuilt 3.3 miles of track in Windsor, Ont., and one mile of track on the Guelph Radial Ry., Guelph, Ont.

Vote on Proposed Purchase of Toronto Suburban Railway.

Toronto voters were asked on Jan. 2 to vote on a bylaw authorizing the Toronto City Council to acquire the Toronto Suburban Ry. Co.'s lines owned by the Dominion Government and operated as part of the Canadian National Rys. system, and to confirm an agreement for the operation of the portions outside the city by the Hydro Electric Power Commission of Ontario. The number of votes for the bylaw was 16,087, and against 13,580, a majority of 2,507 for the bylaw.

The agreement referred to in the bylaw provides for the taking over of the whole of the Toronto Suburban Ry. lines within and without the city, payment to be made by the city taking over outstanding bonds for \$2,628,000, paying in cash \$202,000 for the line within the city limits (the franchise for which has expired, and preparations are in progress for a valuation by arbitration under the franchise), and the provision of \$150,000 for betterments within the city. The sections of the line in the city would then become part of the city's system, and the lines outside would be handed

over to the Hydro Electric Power Commission of Ontario for operation, the city to be responsible for any deficits on operation and only to receive surplusses at the Commission's discretion. The bylaw not having been approved by the Ontario Government before submission will not be effective unless confirmed by the Ontario Legislative Assembly.

The large vote against the bylaw suggests that there are features about the proposal which will have to be very carefully considered before full effect is given to the agreement. The ownership by one municipality of electric railways in other municipalities has been referred to by the Premier of Ontario as an objection to the consummation of the agreement, but the principal reason urged against the bylaw was that the lines outside the city are to be handed over for operation to the Hydro Electric Power Commission of Ontario, which would be given power to fix fares and rates, to make expenditures, and to call upon the City of Toronto to pay deficits, while any profits could be retained by the Commission.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies.—

	Oct. 1921	Oct. 1920	4 mos. to 4 mos. to Oct. 31, 1921 Oct. 31, 1920
Gross	\$845,973	\$935,054	\$3,375,467
Expenses	631,458	622,494	2,531,066
Net	14,515	212,560	844,401

Cape Breton Electric Co.—

	Nov. 1921	Nov. 1920	12 mos. to Nov. 30, 1921	12 mos. to Nov. 30, 1920
Gross	\$63,427	\$63,035	\$699,596	\$637,587
Expenses and taxes	51,107	49,429	581,834	542,260
Net	12,320	13,606	117,762	95,327
Interest	5,681	5,722	68,823	67,416
Balance	6,640	7,883	48,939	27,911

London and Port Stanley Ry. Co.—The annual meeting of shareholders was held in London, Ont., Jan. 16, the City of London being the only shareholder represented. The directors are appointed by the London City Council, and are the Mayor, Aldermen Holmes, May, Watkinson, Ashton, Childs, Cunningham, Watkinson and Judd. The directors' duties are nominal: they receive the rent from the London Railway Commission and hand it over to the London City Council, and transact certain formal business. The directors' report showed the receipt of \$63,461.48, as rent and interest, and the payment out of the same sum. The City of London owns 8,631 shares; the G.T.R. Co. controls 2,317 shares, and 270 shares are held privately.

Regina Municipal Ry.—The interim report of the auditors on the City of Regina's finances for the 11 months ended Nov. 30, 1921, shows that the deficit on the municipal railway was \$20,982.22.

The city commissioners have had under consideration for some time questions relating to the municipal railway accounts and their adjustment. The commissioner's report has been approved by the finance committee and recommended for adoption by the city council. The report deals with the adjustment of the street railway accounts respecting the contributions from property sales and the consequent change in depreciation reserve. The result of the adjustments made would reduce the deficit of \$312,-

095.62 shown in the accounts by \$101,909.80.

Winnipeg Electric Ry.—

	Nov. 1921	Nov. 1920	11 mos. to Nov. 30, 1921	11 mos. to Nov. 30, 1920
Gross	\$481,818	\$483,099	\$5,032,069	\$4,768,916
Expenses	366,823	363,434	3,732,099	3,556,087
Net	114,995	119,665	1,299,970	1,212,829
Fixed charges	57,182	64,218	650,550	693,920
Surplus	52,813	55,447	649,420	518,909

Arbitration of Value of Toronto Railway Co.'s Property.

The proceedings to determine the value of the Toronto Ry. Co.'s property, transferred to the city on Sept. 1, 1921, before the arbitrators, Hume Cronyn, of London, Ont., chairman, Sir Thos. White, nominated by the company, and Sir Adam Beck, nominated by the city, were on December 23, 1921, adjourned until Jan. 10, as far as the examination of witnesses was concerned, but on Dec. 31, Chairman Cronyn announced the following decision:—"Following the judgment delivered in this matter by the Second Divisional Court on Dec. 16, Mr. McMaster has renewed the City of Toronto's application for inspection of the Toronto Railway Co.'s books and records. After reading the argument before the court and perusing the judgment delivered, it is obvious I failed to make clear the reasons which impelled me in the ruling under review. No useful purpose would be served by entering at this stage into further explanations, save in so far as these may be necessary to clarify the opinion which follows. As shortly stated by Mr. Tilley in the course of his address to the court, our ruling, so far as my view went, was that the evidence was not relevant and was therefore inadmissible. The court holds unanimously that the evidence is admissible, although, in contrast to the decision in the Rogers and London and Canadian case, no opinion is expressed by a majority of the court as to its relevancy, and the Chief Justice makes it plain that, upon the arbitrators lies the burden of its admission or rejection.

"After a careful review of the whole matter, in the light of the above judgment, I have reached the conclusion that we should receive evidence of original cost, and to that end should require the railway company to produce its books and records. Our ruling, therefore, is that upon the conditions as to sealing or covering up, laid down on Oct. 28, 1921, the company shall forthwith produce for inspection by the city all its vouchers, books, records and other documents covering the items mentioned by the city in its notice of Nov. 2, 1921.

"Mr. Rowell, for the railway, has asked for a decision on the request made by him for the production and inspection of certain books and records of or in the control of the city. Our ruling is that, subject to the conditions as to sealing or covering above mentioned, the city shall forthwith produce for inspection by the railway company all the vouchers, books, records and other documents in the possession or control of the city or in the possession or control of the Toronto Transportation Commission covering the items requested by the railway company on Nov. 10, 1921. But the said production and inspection shall not be limited to the period since Jan. 1, 1918, but shall cover the period since the inception of the construction of the first city lines."

The arbitrators resumed the taking of evidence on Jan. 10, the witnesses examined up to Jan. 24, for the company, including F. G. Farley, Chief Engineer; B. F. Wood, electrical engineer, New York; and L. A. Herdt, Professor of Electrical Engineering, McGill University, and Vice Chairman, Montreal Tramways Commission.

Voting on Niagara, St. Catharines & Toronto Railway Bylaws.

The position in regard to the proposed purchase of the Niagara, St. Catharines & Toronto Ry., from the Dominion Government, by the municipalities which it serves, was fully described in Canadian Railway and Marine World for January on pg. 41. The voters of a number of the municipalities voted on bylaws submitted to them on Jan. 2, and gave majorities in favor of the proposal, except Humberstone Village, which voted against it by 175 to 157, and it was subsequently decided to resubmit the bylaw there on Jan. 30. Following are the votes in the various municipalities:—

	For	Against
Humberstone Village	157	175
Louth Township	225	215
Merrittown Town	209	72
Niagara-on-the-Lake Town	160	59
Pelham Township	375	327
Port Colborne Town	339	271
Port Dalhousie Village	123	34
St. Catharines City	1,858	500
Thorold Town	319	248
Welland City	712	302

There is some question as to the votes in Pelham Township, as voters of Font-hill Village, part of which was formerly in that township, voted in the township, no arrangements having been made for separate voting in the village.

Similar bylaws were arranged to be voted on in Crowland, Grantham, Humberstone and Thorold Townships, on Jan. 30. Bylaws have not yet been submitted to the voters of Niagara Falls City, Niagara Township, and Stamford Township, which are included among the 17 municipalities interested, and in which bylaws either have been or are to be submitted.

The Ontario Government, having refused to approve of the bylaws before their submission, the votes on them by the various municipalities will apparently have no legal effect.

London's Electric Railway Problem.

Mayor Wilson, of London, Ont., in his inaugural address on Jan. 9, said:—"One of the most serious problems which the city will have to face in the near future is that of transportation. The franchise of the London Street Ry. Co. will expire in 1925. The question will then, or at an earlier date, arise as to whether it will be better, in the interests of the citizens, to extend the company's franchise or to take over the street railway as a municipally owned utility. I believe that the question of the solution of this problem should be taken up immediately, so that when the time arrives for the decision to be made, our successors in office will have the solution at hand. With this object in view, I suggest the formation of a transportation committee, to consist of members of the city council, prominent ratepayers and technical advisers, to thoroughly investigate the future transportation needs of the city and to report upon the solution of the transportation problem."

Marine Department

Canadian Shipping, Its Growth and Present Position.

By E. W. Beatty, K.C., President, Canadian Pacific Railway.

One of the most interesting features in Canadian development during recent years has been the growth of the shipping facilities for Canada's overseas trade and traffic. An indication of this can be seen in returns from the port of Montreal for 1921, which show that up to the close of navigation 980 ships had docked there, compared with 654 for the previous season. The shipments included more than 140,000,000 bush. of grain, an increase of nearly 100% over the previous highest figure, that of 1914.

The prosperity of a country depends upon the ease with which its produce can be marketed, and in the case of Canada, which exists so largely on overseas markets, the conditions of trade are undoubtedly governed by the facilities for transport. The development of shipping sufficient to ensure the speedy conveyance of passengers and freight is therefore of vital importance, and accounts for the steady increase in the size of the C.P.R. fleets on both the Atlantic and Pacific oceans.

The phenomenal growth of Canada's mercantile marine during the last few years has been taken as indicative of the country's progress. There is danger, however, in a too rapid growth if the increase has not been directed along commercially profitable lines. What we have to consider is whether the new tonnage is justified by the country's production, whether the ships are suited to the kind of traffic available, and whether they are the kind of ships that are likely to pay their way. If those factors are not taken into consideration, we may find that a portion at least of Canada's large mercantile fleet is the kind of asset popularly referred to as a "white elephant."

A statistical comparison of Canada's mercantile marine over a period of years is apt to be misleading, unless we thoroughly understand what these statistics represent. In a letter written in 1851, addressed to Earl Grey, then Colonial Secretary in Britain, Jos. Howe, the distinguished Nova Scotian statesman, said: "The best criterion of the comparative civilization of countries may be found in the growth of commerce and the increase of a mercantile marine. Tried by this test, the North American provinces will stand comparison with any other portion of the Queen's dominions. The West Indian colonies, the Australian group, including New Zealand, the African colonies, and the East Indies, or the Mauritius and Ceylon, owned collectively in 1846 but 2,128 ships, or 42,610 tons of shipping. The North American group, including Canada, Nova Scotia, New Brunswick, Newfoundland and Prince Edward Island, owned in that year 5,119 ships, measuring 393,822 tons. Of these, Nova Scotia owned in tonnage 141,093, and in number more than the other four put together, or 2,583."

In 1863 the British American provinces stood fourth in the world's shipping, with 7,101 ships, totalling 842,643 tons. In that year alone 602 ships totalling 224,314 tons were built in the Canadas and the Maritime Provinces, only 9,000

tons less than the tonnage built in the United States, which, moreover, in that year bought Canadian-built ships to the value of \$9,000,000. The highest tonnage on the Canadian register previous to the great war was reached in 1878, with a total of 1,333,015 tons net. These, however, were still mostly wooden sailings ships, and under the competition of steamships and trade depression, the tonnage had dropped by 1902 to less than 50% of that total, or, to be exact, 652,613 tons.

It was not till 1900 that steel ships began to appear to any extent on the Canadian register, and not till 1918 were steel ships in the majority, the figures being 4,366 steamships out of a total of

cost was high, and represents a hectic element in our maritime progress. It is indeed a mystery why construction of so many of these ships was undertaken after the armistice. Contracts were given by the Government to Canadian shipbuilders for cargo ships in Jan. 1919, on a price basis of \$200 a ton, at a time when the C.P.R. was being offered by the British Ministry of Shipping any number of cargo ships, well adapted to the requirements of Canadian trade, at \$100 a ton, and actually bought two at that price. The experience of Canadian ship owners has been that cargo ships are a speculative investment, unless they are operated as supplementary to a regular service of combined passenger and cargo steamers, when they may come in useful as an adjunct to regular liners when more business than usual is offered. The Government cargo steamships contracted for after the armistice, seem to have been built without any particular trade in view, and without the support of a passenger service. Unless their initial high cost is written down, they must be run at a loss, except during periods of high freights, and high freights are certainly not welcomed by any country looking for export business.

Experience has shown that for Canadian trade the ideal ship for Atlantic business is the steamship which will combine passenger and freight business in a certain proportion. This accounts for the construction of the new one cabin type of ship such as the Montcalm, with a gross register of 16,000 tons, a speed of 16 knots, a capacity of 1,500 passengers and 5,000 or 6,000 tons of freight. Of the 35 steamships plying for the C. P.R. on ocean service, only 9 are cargo ships. Although some of the Government steamships are run on regular lines, where there is some prospect of a cargo both ways, a large percentage of the fleet has been forced into tramping, without any particular benefit to Canadian commerce, although the tonnage may swell the Canadian register.

The increase in tonnage credited to the steamship companies carrying on regular service, particularly where the liners are passenger steamships, is in another category. The natural development of Canadian shipping under present conditions is undoubtedly in the field of passenger traffic, rather than cargo ships. In the first place, Canada's crying need is for more population, particularly of the farming classes, and over in Great Britain and Europe there are hundreds of thousands of good settlers eager to come to this continent if only the doors are not shut in their faces. In the second place, owing to Canada's geographical position, the St. Lawrence route in summer and the port of Vancouver all the year round are in a favorable position to attract large passenger traffic to and from the United States, with its 100,000,000 population, as well as to and from Canada itself. The St. Lawrence route enables Atlantic steamships of reasonable speed to cross the Atlantic with only four days open sea, while the comparatively short distance between Van-

Dominion Marine Association.

President, A. A. Wright, President, Tide-water Shipbuilders, and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

First Vice President, T. R. Enderby, Operating Manager, Canada Steamship Lines, Montreal.

Second Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Executive Committee, The President, First Vice President, Second Vice President, and W. E. Burke, Canada Steamship Lines, Montreal; Yvon Dupre, Sincennes-McNaughton Line, Montreal; W. B. Ellsworth, Imperial Oil Ltd., Toronto; L. L. Henderson, Montreal; G. J. Madden, George Hall Coal Co. of Canada, Montreal; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transports, Montreal.

Counsel, Francis King, K.C., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

8,568 ships. On Oct. 31, 1921, there were 8,322 ships on the Canadian register, of which 4,455 were steamships, the gross tonnage of these 8,322 ships being 1,750,570 tons.

The large tonnage of British North American ships in the middle of the nineteenth century is, however, deceptive, unless one analyzes the character of the trade in which the ships engaged. The Nova Scotian ships, in particular, were built of soft wood, iron and copper fastened, and, unlike the more substantial and more expensive British built ships, were not always destined for a long life. They carried possibly a cargo of Nova Scotia lumber to England, then reloaded with a cargo for South America and tramped to and fro on many oceans without seeing their home port again till they were practically used up. The steel steamship of today is built for a longer life, and tonnage involves a greater initial cost.

In the case of the mercantile fleet built for the late Canadian Government, the

couver and Yokohama has given Canadian liners a substantial time handicap over their competitors using the longer southern routes.

The total tonnage of ocean going lake and river steamers which will carry the C.P.R. house flag in 1922 will be only a few tons short of 500,000, or nearly nine times as large as the great Spanish Armada. This is in spite of the fact that the C.P.R. lost tonnage by enemy action during the recent war to the extent of 101,081 tons.

The growth of the C.P.R. steamship interests is significant of the contribution made by that company toward Canada's progress. Starting with a fleet on the Pacific, the railway entered the Atlantic trade by buying 15 ships from the Elder-Dempster Line in 1902 for \$7,500,000. The change of conditions in steamship business is illustrated by the fact that this sum today represents the cost of one single new ship destined for the Pacific trade, the Empress of Canada. In 1906 the Empress of Britain and Empress of Ireland were added to the Atlantic fleet. In 1913 the Pacific service was strengthened by the Empress of Russia and Empress of Asia. Two steamers of the one cabin type, the Metagama and the Missanabie, were added in 1914, followed in 1917 and 1918 by the Melita and the Minnedosa, but the chief increase was due to the taking over of the Allan Line fleet of 18 steamships. This year will see the addition of several fine passenger steamships for both Atlantic and Pacific service, the Empress of Scotland, 24,584 tons, which will be the largest ship in the Canadian trade; the Empress of Canada, 22,000 tons, built for the Pacific service; the Empress of Australia, 19,300 tons; the Empress of India, 17,052 tons, and the Montcalm, Montclare, and Montrose, each of 16,000 tons. This represents an addition of 130,000 tons to the C.P.R. fleet in a single year, and should convince the most pessimistic that the directors of one Canadian enterprise, at any rate, are looking forward to increased trade and traffic.

That traffic, however, can only continue to make progress if Canada pursues a broad minded immigration policy,

and does not shuther doors against the settlers anxious to come from overcrowded Europe, and work upon her vacant and undeveloped resources. The Imperial Government during the past year spent \$100,000,000 in doles to unemployment, a large percentage of whom were

recently living on the land. At the same time less than 10% of our available agricultural land in the west is under cultivation. Surely there is an opportunity for shipping here, to transfer the worker to a place where he can work and thus benefit both the old country and the new.

Sault Ste. Marie Canals Traffic.

Summary for 1921.

Articles	Eastbound	M. ft. B.M.	Canadian Canal	U.S. Canal	Total
Lumber	25,661		25,661	180,645	206,306
Flour	4,467,065		4,467,065	5,750,240	10,217,305
Wheat	15,515,611		15,515,611	182,199,399	197,715,010
Grain, other than wheat	26,200,231		26,200,231	69,494,033	95,694,264
Copper	6,991		6,991	24,542	31,533
Iron Ore	127,615		127,615	22,457,888	22,585,503
Pig Iron	526		526		526
Stone	15,910		15,910	9,000	24,910
General Merchandise	41,247		41,247	56,877	98,124
Passengers	21,375		21,375	11,640	33,015
Coal, Soft	92,198		92,198	12,414,829	12,507,027
Coal, hard	10,898		10,898	2,245,230	2,256,128
Iron Ore				9,820	9,820
Manufactured Iron and Steel	7,322		7,322	31,187	38,509
Salt	5,215		5,215	57,098	62,313
Oil	1		1	301,632	301,633
Stone	2,541		2,541	465,996	468,537
General Merchandise	232,602		232,602	269,977	502,039
Passengers	21,342		21,342	12,264	33,606
Summary					
Vessel Passages	Number		3,886	8,961	12,847
Registered Tonnage	Net		3,787,837	28,396,403	32,184,240
Freight—Eastbound	Short tons		1,652,493	30,460,755	32,113,248
Westbound	Short tons		350,237	15,795,769	16,146,006
Total Freight	Short tons		2,002,730	46,256,524	48,259,254

The Canadian canal was opened Apr. 9 and closed Dec. 16, 1921; season, 252 days.
The U.S. canal was opened Apr. 7 and closed Dec. 24, 1921; season, 262 days.

COMPARATIVE STATISTICS FOR 1920 and 1921.

Items	1920	1921
Vessels: Steamers	Number 16,336	10,779
Sailing	Number 1,354	538
Unregistered	Number 1,157	1,530
Total	Number 18,847	12,847
Lockages	Number 13,193	9,653
Tonnage: Registered	Net 58,194,083	32,184,240
Freight	Short tons 79,282,496	48,259,254
Passengers	Number 68,451	66,621
Lumber	M. ft. B.M. 192,854	206,306
Flour	Barrels 7,477,533	10,217,305
Wheat	Bushels 143,456,487	197,715,010
Grain	Bushels 51,630,135	95,694,264
Copper	Short tons 51,545	31,533
Iron Ore	Short tons 56,780,498	22,595,323
Manufactured and Pig Iron	Short tons 76,194	39,035
Coal: Soft	Short tons 12,096,993	12,507,027
Hard	Short tons 2,059,266	2,256,158
Salt	Short tons 99,208	62,313
Oil	Short tons 353,489	301,633
Stone	Short tons 563,271	493,447
General Merchandise	Short tons 556,110	600,163

Ships Registered in Canada During November, 1921.

In compiling the following lists of ships registered, steamboats and motorboats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, n.h.p. etc.	Owner or Managing Owner
150578	Canadian Britisher*	Prince Rupert, B.C.	Prince Rupert B.C. ....1921	400.3	52.2	28.4	5370	3244	266 Sc.	Minister of Marine, Ottawa, Ont.
150573	Canadian Scottish*	Prince Rupert, B.C.	Prince Rupert B.C. ....1921	399.9	52.2	28.5	5334	3242	266 Sc.	Minister of Marine, Ottawa, Ont.
150282	Gedon L.*	Sorel	Sorel, Que. ....1918	125.2	23.7	12.8	293	96	62 Sc.	Transportation & Shipping Co., Quebec, Que.
111661	Hamilton(1)	Montreal	Hamilton, Ont. ....1901 Lauzon, Que. ....1921	250.1	40.0	11.5	1614	928	123 Sc.	Montreal Transportation Co., Montreal.
135257	Sir J.J. Ltd. No. 10	Victoria, B.C.	Tacoma, Wash. ....1902	72.2	17.2	7.8	72	32	11 Sc.	Canadian North Pacific Towing, Diving & Salvage Co., Victoria, B.C.
31060	Thunder Bay(1)	Montreal	Cleveland, Ohio ....1895 Lauzon, Que. ....1921	247.0	40.1	19.9	1870	1109	88 Sc.	Montreal Transportation Co. and Canada Steamship Lines Ltd., Montreal.

*Equipped with wireless. (1) Formerly sailing ships.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owner or Managing Owner
141775	Marion L. Conrad	La Have, N.S.	Schr.	East La Have, N.S. ....1920	134.3	27.5	11.2	204	155	A. V. Conrad, M.O., East La Have, N.S.
141776	William S. MacDonald	La Have, N.S.	"	Dayspring, N.S. ....1920	122.5	28.0	11.2	262	252	Fraser Gray, M.O., La Have, N.S.

Canadian Pacific Railway's Twin Screw Steamship Montclare.

The launch of the s.s. Montclare, Dec. 17, 1921, by Lady Brown, wife of Sir George McLaren Brown, European General Manager, C.P.R., London, Eng., at Clydebank, Glasgow, Scotland, was announced in Canadian Railway and Marine World for January. The s.s. Montclare is the last of the three steamships of the M class, which the company ordered for the Atlantic service between Liverpool and Montreal, or St. John, N.B. Two of these, Montcalm and Montclair, were ordered from John Brown & Co., and the Montrose from Fairfield Shipbuilding & Engineering Co., Glasgow.

The Montclare has been built to Lloyd's highest class, and to the British Board of Trade's requirements for passenger service. Her principal particulars are:—Length on water line, 563 ft.; breadth moulded, 70 ft.; depth to shelter deck (C), 43¼ ft.; depth to boat deck, 68 ft.; tonnage, about 16,200 gross. She is of the shelter deck type, with bridge deck extending almost the full length, and has a cruiser stern, 2 masts and 2 funnels. The hull is divided into 13 watertight compartments, by 12 bulkheads, providing a high standard of subdivision. The cellular double bottom, in which is stored oil fuel, reserve feed water, fresh water and water ballast, extends the full length of the ship, and is carried well up the bilges, giving additional protection, and the machinery spaces are further protected by longitudinal bulkheads and inner skins. Fresh water tanks are also built along the shaft tunnels. Accommodation for 542 cabin passengers is provided amidships on the B and C decks, staterooms being arranged for 2 and 4 passengers, and comfortably furnished. The cabin dining room extends the full width of the ship, on D deck amidships, and is decorated in the Georgian style, a number of the tables being arranged for small parties. The cabin lounge is forward on A deck, and there are separate writing and card rooms. The cabin smoke room is aft, on the same deck, and decorated in the Jacobean style. Promenade space is provided on A and B decks, the forward end of A deck being screened off, and there is an open air dancing space on this deck. Third class accommodation is arranged on D and E decks, for 1,268 passengers, arranged in 2, 4 and 6 berth rooms. The dining room is on D deck aft, with 2 smoking rooms and 2 lounges on B deck aft, and smaller ones on C deck forward. The captain's quarters are on the navigating bridge, the officers on A deck forward, the engineers on C deck aft, and the remainder of the crew on C, D and E decks amidships. Heating and cooling are provided on the thermotank principle, ensuring a least average temperature of 65 deg. Ten thermotanks are fitted, sufficient to change the air in any compartment with which they are connected, at least eight times an hour. Cargo is handled by steel tubular derricks on the masts and derrick posts, operated by 14 electric winches, and each hatch is supplied by 3 derricks. Lifeboat accommodation is the standard of the International Convention, the nested boats are fitted on sliding chocks so that they can be moved from one side of the ship to the other, and all are placed under Babcock & Wilcox patent double acting davits, the other lifeboats have Australis patent davits. The ship is equipped

with wireless telegraphy, submarine signalling, gyro compass, complete fire extinguishing service, and pneumatic gauges are fitted in all oil fuel and fresh water tanks, with indicators in the machinery space, so that the tanks are always under the engineers' supervision.

The propelling machinery is placed in one room, and consists of 2 sets of steam turbines of the latest Brown-Curtis marine type, arranged to work with superheated steam and driving twin screws through double reduction helical gearing. Each set of turbines consists of one high pressure, and one intermediate pressure turbine, in tandem, driving through one portion, and one low pressure turbine driving through the other portion of the gearing. Astern turbines are incorporated in the casings of the intermediate and low pressure ahead turbines. Adjusting blocks are fitted to the turbines, and the bearings of the turbines and gearing are arranged to work under forced lubrication. One condenser of the underhung type is fitted for each set of turbines, and bolted direct to the exhaust branch of the low pressure turbine. The main shafting is of ingot steel, and each line has a main thrust block fitted next to the gearing, to take up the propeller thrust. The propellers are of the built-up type, with 4 manganese bronze blades and bosses of cast steel, with cast iron cones fitted over the propeller nuts. The auxiliary equipment includes Weir air, feed and hot well pumps, Weir surface and direct contact feed water heaters, water filters, evaporating and distilling plant, etc.

There are 10 single ended, cylindrical boilers, arranged for burning oil fuel, and suitable for a working pressure of 215 lb. a sq. in., fitted with smoke tube generators, and each boiler fitted with 3 furnaces arranged for forced draft. The

boilers are placed in 2 compartments, each equipped with a working and standby oil fuel installation complete. The ship was designed by Hugh Macdonald, Naval Architect, C.P.R., and built under the supervision of Sir J. H. Biles & Co., London and Glasgow, the company's consulting naval architects.

Sir Thomas Fisher, General Manager, Atlantic Lines, Canadian Pacific Steamships, Ltd., in speaking after the launching, said that the s.s. Montcalm, of which the Montclare is a sister ship, was one of the first steamships to be equipped with double reduction geared turbines. The greatest engineering skill and finest workmanship were necessary to cut the gear to transmit the power from the turbine engines, running at approximately 3,000 revolutions, to the propeller's 95 revolutions a minutes. In the Montcalm they were transmitting 13,000 h.p. and reducing the speed 30 times, and it was hardly an exaggeration to say that the noise of the engine was not more than that of a motor car of 10 h.p. That ship made a consumption of not more than 1 lb. per shaft horsepower, and the speed obtained for the given shaft h.p. was in excess of what should be obtained from a similar class of ship.

Sir George McLaren Brown traced the development of the company's operations, both railway and steamship, from the commencement, emphasizing the benefits accruing therefrom to the country at large, and incidentally mentioned that the company had spent about \$100,000,000 on the Clyde.

Marine Public Works Contract.—The Public Works Department awarded a contract Dec. 21, 1921, for repairs to wharf at Sheguiandah, Manitoulin Island, Ont., to McNamara Bros. & Thornton, Sault Ste. Marie, Ont., at schedule of prices.

Grain Shipped from Fort William and Port Arthur.

The following table, prepared by the Dominion Bureau of Statistics, Internal Trade Division, shows the bushels of each kind of grain shipped from Fort William and Port Arthur, with ports of destination, during the 1921 navigation season.

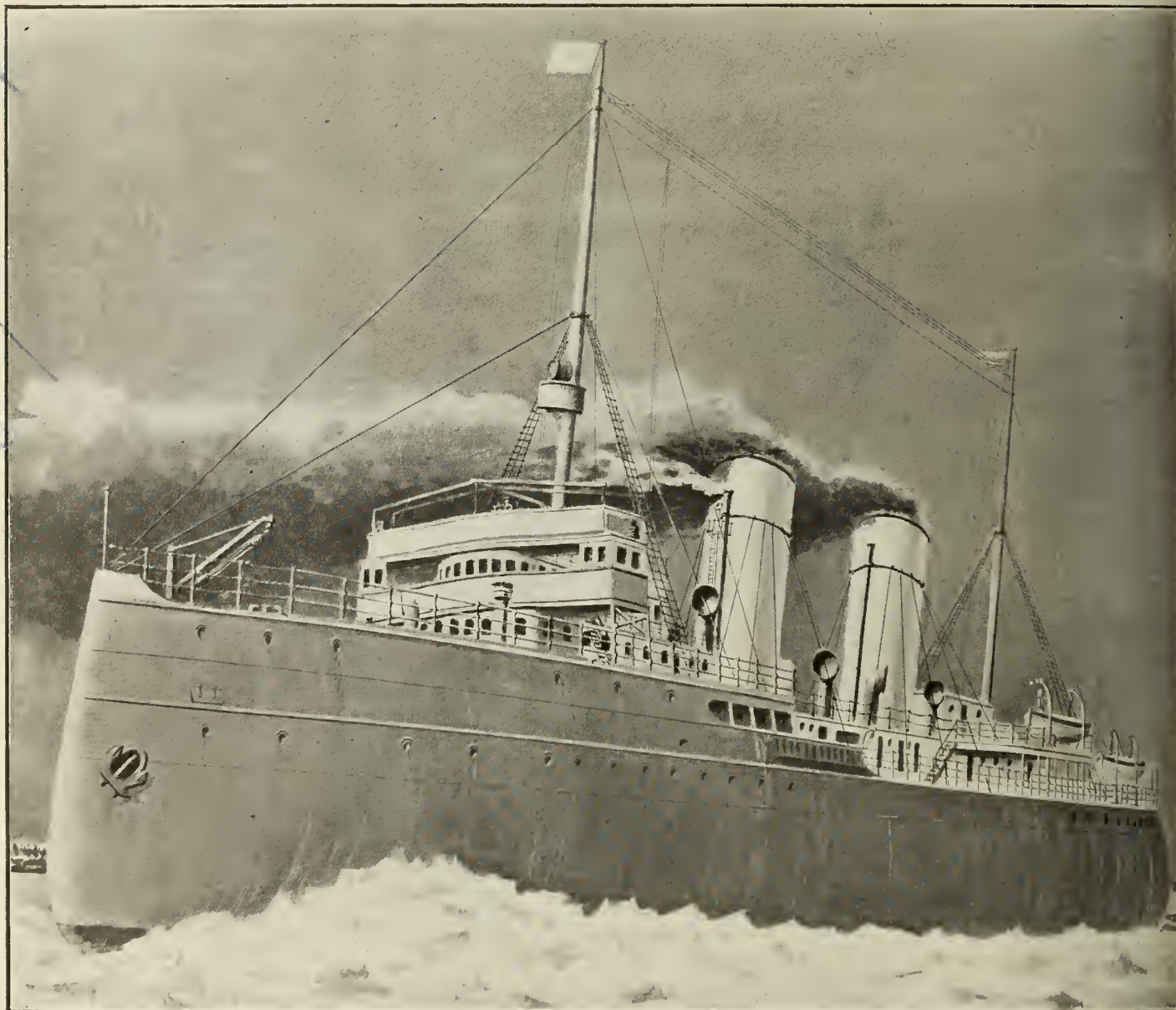
	Wheat	Oats	Barley	Flaxseed	Rye
	bush.	bush.	bush.	bush.	bush.
To Canadian ports—					
Goderich	8,618,999-50	5,434,562-11	45,000-00	186,818-42	95,596-12
Midland	6,818,489-20	7,851,135-27	2,507,759-36	71,654-06	99,252-27
Montreal	885,081-10	2,292,219-03	587,806-17	320,446-24	231,681-16
Port Colborne	20,454,878-30	6,632,098-07	1,653,488-40	233,181-34	329,390-44
Port McNicoll	20,916,390-00	12,488,438-14	3,306,968-12	233,181-34	329,390-44
Quebec	112,000-00				
Tiffin	7,383,783-10	2,587,378-07	564,215-04		23,270-14
Winter storage afloat	4,396,594-50	1,937,597-12	732,879-22	140,000-00	60,000-00
Total to Canadian ports	69,454,215-50	39,335,427-13	9,398,117-35	952,110-50	839,197-01
To United States ports—					
Buffalo	55,175,534-40	4,734,015-24	2,318,362-30	1,777,003-43	1,026,058-43
Chicago				296,715-08	
Cleveland	100,000-00			614,365-01	
Duluth-Superior	1,372,304-50				
Erie	795,956-50				
Port Huron	336,000-00				
Toledo	1,032,409-00			324,270-30	60,000-00
Winter storage afloat	25,662,394-20	1,101,478-15	185,382-34	463,835-00	525,030-37
Total to United States ports	84,474,599-40	5,835,494-05	2,503,745-16	3,476,189-26	1,611,089-24
Grand total	153,928,816-30	45,170,921-18	11,901,863-03	4,428,300-20	2,450,286-25
In addition to the above, 59,192,484 lb. of sample mixed grain, and 9,379-09 tons of elevator screenings, were shipped to Canadian ports; and 21,834,466 lb. of sample mixed grain and 20,500-10 tons of elevator screenings were shipped to U.S. ports.					
Canadian ships—291 cargoes	45,047,207-20	11,537,955-13	4,712,046-34	622,264-25	371,904-21
United States ships—251 cargoes	71,350,417-20	2,582,129-24	910,673-34	1,551,460-43	1,397,438-43
Total—542 cargoes	116,397,624-40	14,120,085-03	5,622,720-20	2,173,725-12	1,769,343-08
To Canadian ports, as destined	42,015,318-20	11,537,955-13	4,642,046-34	552,956-44	328,368-17
To U.S. ports, as destined	74,382,306-20	2,582,129-24	980,673-34	1,620,768-24	1,440,974-47
Total	116,397,624-40	14,120,085-03	5,622,720-20	2,173,725-12	1,769,343-08

Icebreaking Steamship for St. Lawrence River.

In Nov. 1921, the Marine Department gave an order to Canadian Vickers Ltd., Montreal, to build an icebreaking steamship, practically similar to the icebreaker J. D. Hazen, which is illustrated on this page, and which was being built by that company when the Great War broke out, and was completed in 1916, when it was, at the British Government's request, sold to the Russian Imperial Government for use in the White Sea. The new ship was to be delivered next autumn. A descrip-

sued at Ottawa on behalf of the former Meighen Government:—"The contract was given by Hon. C. C. Ballantyne, in the belief that the icebreaker was needed, and that it would be cheaper to build a new one than buy the J. D. Hazen, which had been sold by Canada to the Russian Government, and twice sunk during the war, therefore requiring heavy costs for repairs. In addition that ship is now claimed by both the French and Russian Governments. The J. D. Hazen

Government claim the ship and the Russian Soviet Government also claim it. Therefore the Meighen Government, while recognizing that there might be a possible saving on the purchase of this ship, considered that, with the great need of employment in Montreal at present it would be the better course to order a new icebreaker. This was done, at the earnest request of Mayor Martin, who had written both Premier Meighen and Hon. C. C. Ballantyne, while representa-



Icebreaking Steamship J. D. Hazen.

tion of her was given in Canadian Railway and Marine World for Dec., 1921.

The general election which took place in Dec., 1921, having resulted in a change of Government, a Montreal press report, early in January, stated that the contract had been cancelled. We have, however, been officially advised that it has not been cancelled, but that Canadian Vickers Ltd. has been instructed not to proceed any further with the work, for the present, and also that only a certain amount of preliminary work had been done under the contract.

The following statement has been is-

sued at Ottawa on behalf of the former Meighen Government:—"The contract was given by Hon. C. C. Ballantyne, in the belief that the icebreaker was needed, and that it would be cheaper to build a new one than buy the J. D. Hazen, which had been sold by Canada to the Russian Government, and twice sunk during the war, therefore requiring heavy costs for repairs. In addition that ship is now claimed by both the French and Russian Governments. The J. D. Hazen

was sunk twice during the war, and underwent some very hard experiences, and during the past 18 months has been at Cherbourg, France. The Meighen Government looked into this icebreaker proposition very thoroughly. The J. D. Hazen has been tied up at Cherbourg at the expense of the French Government, who claim that they are now owners of the ship. Reports furnished the Canadian Government were to the effect that after having been twice sunk and badly battered it would take a great deal of money to put the icebreaker into condition for efficient service, while the French

tions had also been made to the Government by the labor organizations of Montreal urging the construction of this icebreaker, both as a national necessity and as a help to tide over the present period of unemployment. The Government, under the circumstances, felt justified in letting the contract to the Canadian Vickers Co., as the lowest tenderers, at \$1,598,000."

We are officially advised that the s.s. J. D. Hazen, which is in the French Government's possession at Cherbourg, has been offered to the Dominion Government for £95,000, or approximately \$427,500.

Some of the Prince Edward Island members of the House of Commons have suggested that if a new icebreaker is

built, it should be designed so that it might also be used as a car ferry, in case the s.s. Prince Edward Island, which

operates the car ferry service between New Brunswick and Prince Edward Island should be disabled at any time.

International Joint Commission's Report on St. Lawrence Waterway.

A Washington, D.C., press dispatch of Jan. 16, stated that the International Joint Commission has presented a detailed plan for the construction of a deep waterway between the Great Lakes and Montreal, with a recommendation that the project be undertaken at once by the United States and Canada. The Senate referred the report to its Foreign Relations Committee. The report was also submitted to the Dominion Government at Ottawa. The cost of construction of the proposed St. Lawrence ship channel, of 25 ft. draft, is estimated at \$250,000,000, and of the Welland ship canal, \$60,000,000. It is proposed that the project be financed by the sale of bonds of the two countries, and the bonds retired from the proceeds of the sale of electrical power to be developed on the route. The Commission's recommendations are as follows:—

1. That the governments of the U.S. and Canada enter into an agreement by way of treaty for a scheme of improvement of the St. Lawrence River between Montreal and Lake Ontario.

2. That the new Welland Ship Canal be embodied in the scheme and treated as a part thereof.

3. That the proposed works between Montreal and Lake Ontario be based upon the report of the engineering board accompanying this report, but before any final decision is reached, the report of the board, together with such comments, criticisms and alternative plans as have been filed with the Commission, be referred back to the board, enlarged by other leading members of the engineering profession.

4. That there shall be an exhaustive investigation of the extent and character of the damage through flowage involved in the plan of development finally adopted.

5. That, assuming the adoption of the plan of the engineering board, or of other plans also involving a readjustment of the international boundary, in order to bring each of the power houses on its own side of the boundary, appropriate steps be taken to transfer them to one country or the other, as the case may be, and the slight acreage of submerged land involved.

6. That Canada proceed with the works necessary for the completion of the new Welland Ship Canal in accordance with the plans already decided upon by that country.

7. That such navigation works as do not lie wholly within one country or are not capable of economical and efficient construction, maintenance and operation within one country, as complete and independent units, be maintained and operated by a board hereinafter called The International Board, on which each country shall have equal representation.

8. That such navigation works as lie wholly within one country and are capable of economical and efficient construction, maintenance and operation as complete and independent units, be maintained and operated by the country in which they are located, with the right of inspection by the International Board, to ensure economy and efficiency.

9. That power works be built, installed

and operated by and at the expense of the country in which they are located.

10. That except as set forth in recommendation 11 the cost of all navigation works be apportioned between the two countries on the basis of the benefits each will receive from the new waterway, provided that during the period ending five years after completion of the works—and to be known as the construction period—the ratio fixing the amount chargeable to each country shall be determined upon by certain known factors such as the developed resources and foreign and coastwise trade of each country within the territory economically tributary to the proposed waterway, and that that ratio shall be adjusted every five years thereafter and based upon the freight tonnage of each country actually using the waterway during the previous 5-year period.

11. That the cost of navigation works for the combined use of navigation and power over and above the cost of works necessary for navigation alone should be apportioned equally between the two countries.

The Ottawa Viewpoint.

A summary of the report, with comments, was issued at Ottawa, Jan. 16, which is in part as follows:—"It appears from the report that the members of the Commission, as a result of their long and careful study of the situation from every possible angle, have reached the conclusion that the proposed deep waterway is practicable both from an engineering and an economic standpoint, and that it would result in adding very materially to the prosperity of the two countries. So far as the U.S. is concerned, they believe that the benefit would be immediate. In the case of Canada, it might take a somewhat longer time to reap the full advantages of such a route.

"As to the engineering features of the improvement, the Commission has had the benefit of the expert advice and assistance of a board of engineers created by the two governments, Canada being represented by W. A. Bowden, Chief Engineer of the Railways and Canals Department, and the U.S. by Col. W. P. Wooten of the Corps of Engineers. This board, as the result of over a year's painstaking study and field work, filed with the Commission a comprehensive report as to the best means of improving the river for both navigation and water power development in the international section of the river—that is, from Lake Ontario down to Cornwall—with the principal power works in the vicinity of the Long Sault Rapids, designed to produce about 1,500,000 horsepower, one-half of which would go to each country. In the purely Canadian section of the river, from Cornwall down to Montreal, only a navigation system is provided, the development of power to be undertaken at some future date, when the growing markets in Canada make it desirable. Locks and canals with a depth of 25 ft. are provided for at the Long Sault, Valleyfield and Lachine. The estimated cost of the entire improvement, both for navigation and water power, is about \$252,000,000.

"Probably the most difficult and delicate problem the Commission had to settle was how the cost of this international project could be divided between the two countries so as to put the thing on a fair and equitable basis. The Commission's solution, as embodied in its report, is that the cost of that portion of the work chargeable to navigation should be divided on the basis of benefits received; that is to say, that each country should pay a proportion of the cost equivalent to the benefit it actually derives from the waterway. Obviously, this principle involves readjustment at periodical intervals, as the traffic develops on one side or the other. Provision is made for a tentative distribution during the construction period, based on the production and foreign trade of the territory economically tributary to the waterway on each side of the boundary. Further, in distributing the cost of the waterway, Canada is credited with her expenditures on the Welland Ship Canal, which is considered an essential part of the general scheme of improvement."

After considerable discussion, the House of Representatives' Speaker referred the report to its Interstate Commerce Committee. This decision was challenged by the Chairman of the Rivers and Harbors Committee, who desired that his committee handle the report, and he gave notice of motion of a resolution to change the reference.

United States Mercantile Marine Grain Rates.

H. C. Hoover, U.S. Secretary of Commerce, who is also Chairman of the American Relief Committee, in speaking of the rates charges by various U.S. ships for transporting relief grain to Russia, is reported to have stated that the rate quoted by private U.S. shipping interests, to Baltic ports, had been \$6.80 a ton, but that it was, at once, increased to \$8.50 and \$8.75 a ton. He is also quoted as saying:—"I cannot understand why rates should increase about 30% within one week after Congress passed legislation providing that the grains purchased with the money appropriated by the Government must be moved in U.S. bottoms. It would cost us \$3 more a ton to move the grain in U.S. ships than to move it in foreign tonnage. Every dollar spent for transportation means a reduction in the amount of grain which can be bought for the relief work. If that \$3 a ton correctly represents the difference in the operating cost of ships under U.S. and foreign registry, I can only say that it presents a sorry outlook for the future of a U.S. merchant marine."

Newfoundland Shipbuilding Subsidy.—The Newfoundland Government has decided to pay a bonus of \$30 a ton on all schooners over 25 tons, and up to 50 tons registered, built in the colony during this winter, and fully equipped and ready for sea by July 1. Schooners now building, the keels of which were laid after Oct. 14, 1921, will be eligible for the bonus.

North Vancouver Floating Drydock.

The floating drydock which is to be built at North Vancouver, B.C., by the Burrard Drydock Co., under an agreement with the Dominion Government in accordance with the Drydocks Subsidies Act, the principal details of which were given in our last issue, will be of 15,000 tons capacity. The drydock is to be of the following dimensions,—length over keel blocks, 556½ ft.; length over walls, 495½ ft.; width over all, 126 ft.; width between side walls, 98 ft.; draft of drydock afloat and fully loaded, 24 ft. over 4 ft. keel blocks. It will be of the composite type, with pontoons of wood, and wings of steel, and will be built in two sections, one 200 ft. long, and the other 300 ft. long, and provision is made so that, should the necessity arise at some future time, a third section of 200 ft. may be added. There will be 7 pontoons in one section and 4 in the other, each pontoon being 126 ft. long by 44 ft. wide by 14 ft. deep, and all of heavy timber and rigidly connected to the side walls or wings by steel links and pins, so arranged that any pontoon may be quickly detached and drydocked on the remaining part of the dock for examination or repair. Howe trusses will be fitted every 3 ft., consisting of top and bottom chords, diagonal trussed members, heavy stanchions, and iron rod tension members. There will be a solid center line bulkhead, and 3 non-water-tight bulkheads on each side. The deck and bottom planking will be of 5 x 12 timbers, and the sides and ends, 6 x 12. The pontoons will be covered on the outside by 3 layers of prepared felt, fastened by 1 x 12 creosoted sheathing. The pumping equipment will comprise 22 18 in. centrifugal pumps, one on each side of each pontoon, all electrically driven and controlled from a central station.

In conjunction with the floating drydock, there will be a concrete pier 700 ft. long by 50 ft. wide, built of concrete cylinders, on a similar plan to the Balantyne pier at Vancouver. It will be equipped with heavy cranes and pier legs, up to 75 tons capacity. Considerable dredging will be necessary to obtain the necessary depth for sinking the drydock, and with the material removed, a large area will be reclaimed, on which the machine shops to be operated in conjunction with the drydock will be erected. They will consist of steel buildings, including machine shop 250 x 60 ft., equipped with gravity crane of 30 tons capacity and galleries for small machine tools; blacksmith shop 100 x 40 ft., equipped with gantry and jib cranes, furnaces, forges, etc.

The floating drydock will be built by Wallace Shipbuilding & Drydock Co., North Vancouver, on a portion of the company's present site, extending eastward from Lonsdale Ave. for 700 ft., from plans drawn by W. T. Donnelly, New York, and preparations for the first section were started Dec. 1. The general design is similar to drydocks built from his designs for the U.S. Steel Corporation, Bethlehem Steel Corporation, Sun Shipbuilding Co., W. & A. Fletcher Co., Jahncke Drydock & Ship Repairs Co., Galveston Drydock & Construction Co., Grand Trunk Pacific Ry., Prince Rupert, B.C., and one at Honolulu. The other works, including dredging, pier construction, ship designing and erection, etc., will be carried out to plans and spe-

cifications prepared by A. D. Swan, M. Inst.C.E., M.I.Mech.E., Montreal.

The Burrard Drydock Co.'s directors are:—A. Wallace, President, Wallace Shipbuilding & Drydock Co., President and Managing Director; Clarence Wallace, Secretary; R. S. Lennie, Solicitor; H. A. Wallace and J. J. Coughlan. All the directors are associated with Wallace Shipbuilding & Drydock Co., except J. J. Coughlan, of J. Coughlan & Sons, shipbuilders, etc., Vancouver, who were largely instrumental in securing the drydock subsidy, but who is said to be only nominally interested in the company.

A Victoria press dispatch of Jan. 23, says that the new Dominion Government contemplates the suspension or cancellation of the Burrard Drydock Co.'s contract, and also the suspension of work on the additional drydock at Victoria and the pier at Vancouver.

The C.P.R. Steamship Princess Louise for British Columbia Coast Service.

The C.P.R. s.s. Princess Louise, built at North Vancouver, B.C., recently, for its British Columbia Coast Service, was expected to be completely finished and ready for service by the end of January, when she was to be placed in service locally, between Victoria and Vancouver. It is expected that she will take her place on the Alaska route, for which she was specially designed, about June 9, sailing in conjunction with the company's s.s. Princess Alice, and calling at Alert Bay, Prince Rupert, Ketchikan, Wrangel, Juneau and Skagway.

Her dimensions are,—length b.p. 317 ft., beam 48 ft., depth of hold 18½ ft. She is equipped with vertical triple expansion type of engines, balanced on the Yarrow, Schlick & Tweedie system, with cylinders 28, 43, 50 and 50 in. diam. by 39 in. stroke, and driving a propeller 13¼ ft. diam. having four bronze blades. Steam is supplied by four 16 ft. Scotch boilers, equipped for using oil fuel, and there is sufficient tankage capacity to take her 4,000 miles without replenishing. She has been built to the highest class of the British Corporation, under special survey, and is elaborately fitted up with all modern comforts and appliances, with berthing accommodation for 280 first class and 44 second class passengers, and seating capacity in the dining room for 140.

While designed primarily for passengers, she has a cargo capacity of 600 tons and refrigerated space for about

two carloads. She has a double bottom from the fore peak to the after peak, and her tank tops run directly out to the sides of the ship. The hull has numerous watertight compartments and watertight flats, the decks are of steel throughout, except the boat deck, and the deck houses are all steel. The equipment includes a complete wireless installation, and an electric elevator.

While on her test trips, during Dec. 1921, runs were made over the measured mile near Victoria, on different revolutions, a maximum speed of 17.48 miles an hour being obtained on 145½ r.p.m., 48.15 h.p. Throughout the trials she was loaded to a mean draft of 14 ft. 5½ in., showing a displacement of 3,300 tons. The slip varying from 7.78 to 11.4%.

Winter Moorings of Canadian Steamships.

Following is a list of Canadian steamships and the ports at which they are berthed for the winter, of which Canadian Railway and Marine World has been officially advised, in addition to those given in our January issue:—

British Yukon Navigation Co., White Horse, Yukon.—Canadian, at Hootalinqua, Yukon; Nasutlin, at Lower Le Barge, Yukon; Casca, Dawson, Neechea, White Horse, at White Horse, Yukon.

Canadian Government Merchant Marine.—Canadian Adventurer, at Port McNicoll, Ont.; Canadian Engineer, Canadian Sailor, J. A. McKee, at Goderich, Ont.; Canadian Pathfinder, Canadian Sower, Canadian Trader, Thomas J. Drummond, at Midland, Ont.

Great Lakes Transportation Co., Midland, Ont.—Glenbrae, Glencairn, Glenfinnan, Glenisla, Glenlivet, Glenlyon, Glenmavis, Gleorchy, Glenshee, Glenstriven, at Midland, Ont.

Keystone Transports Ltd., Montreal.—Keybell, at Collingwood Shipbuilding Co.'s drydock, Kingston, Ont., undergoing repairs; Keynor, Keyport, Keyvive, Keywest, at G.T.R. dock, Kingston, Ont.

La Have Steamship Co., West La Have, N.S.—Tussle, at La Have, N.S.

Niagara, St. Catharines & Toronto Navigation Co., St. Catharines, Ont.—Dalhousie City, at Port Dalhousie, Ont.; Northumberland, at Toronto.

Northern Trading Co., Edmonton, Alta.—Northland Echo, at McMurray, Alta.; Northland Pioneer, Northland Trader, at Fort Smith, North West Territories.

Ross Navigation Co., Pas, Man.—Nipawin, at Pas.

Ships Added to and Deducted From the Canadian Register During November, 1921.

	Steam.			Sailing.		
	No.	Gross Tonnage—	Net	No.	Gross Tonnage—	Net
Added.						
Built in British Possessions	9	11,093	6,638	2	466	407
Purchased from foreigners	5	136	75	.....	.....	.....
Transferred from U.K. ports	1	72	32	.....	.....	.....
Transferred from British possessions .....	.....	.....	.....	1	37	37
Registered anew	4	3,562	2,102	.....	.....	.....
Re-registry .....	.....	14	.....	.....	.....	.....
Totals.....	19	14,877	8,847	3	503	444
Deducted.						
Wrecked or otherwise lost	4	1,314	814	4	779	695
Broken up or unfit for use	14	210	132	4	337	328
Sold to foreigners	3	2,954	2,370	.....	.....	.....
Transferred to U.K. ports	1	17,099	9,849	.....	.....	.....
Registered anew	2	2,942	2,368	2	3,140	2,921
Re-registry .....	.....	165	358	.....	190	190
Totals.....	24	24,684	15,891	10	4,446	4,134

The Panama Canal's Influence on British Columbia's Trade.

F. C. Wade, K.C., Agent General for British Columbia in England, read a paper, "British Columbia, the awakening of the Pacific," before the Royal Society of Arts, Dominion and Colonies Section, in London, Eng., recently. After glancing back to the early explorers' voyages, he said in part:—

"The cutting of the Panama Canal has reduced the distance from Liverpool to Victoria, B.C., from 14,558 miles to 8,512. The distance by land and sea from Vancouver to Liverpool, via Montreal, is about 5,852 miles, as against 8,512 miles by the Panama Canal, the all-sea route. The difference between the old all-sea route around Cape Horn and the trans-continental and Atlantic route is 8,706 miles. The difference between the all-sea route by the Panama Canal and that via Montreal and the Atlantic is only 2,660 miles. The disadvantage in distance by sea, as against that over land and sea, has been lessened more than two thirds, if it does not approximate to three fourths. What this means to commerce and civilization in and around the Pacific can scarcely be conjectured. The discovery of America by Columbus has been described as 'the God-like gift to humanity of half a world.' The opening of the Panama Canal is the gift of another half.

"Brandon, in central Manitoba, is 30 miles nearer to Vancouver than to Montreal, and 871 miles nearer to Vancouver than to Halifax. Regina, in Saskatchewan, is 471 miles nearer to Vancouver than to Montreal, and 1,312 miles nearer to Vancouver than to Halifax. Edmonton, in Alberta, is 1,397 miles nearer to Vancouver than to Montreal, 2,238 miles nearer to Vancouver than to Halifax. It is obvious that the rail haul is much shorter to the Pacific than to either Montreal or the Atlantic from most points in Western Canada. Just as the Great Divide marks the point where the great rivers of the west have their common source, and then separate to flow east and west, there is a great economic divide, between conditions and distances which will determine how much of the product of central and western Canada will be carried east and west respectively. Whether that point is Regina or Moose Jaw remains to be determined.

"But there are even other important factors to consider. The great inland waterways of Canada are available only in the summer. Montreal is not available as a port after the snow flies. Vancouver and Prince Rupert and the whole coast line of British Columbia are open throughout the year. Not only are the ports open, but there is not a day in the year when the weather is cold enough to interfere with work.

"Another serious factor which alone will force the adoption of the western route for moving a great part of the crop is the danger of freight congestion, and a shortage of cars in the east . . . How many of us have any idea of the causes which go to make up congestion in traffic in western Canada? Taking the cereal crop of Canada for 1921 as 288,493,000 bush., we have 288,493 carloads, at 1,000 bush. to the car, which, divided into trains of 20 cars each, will give us 14,449 trains of cars loaded with grain. At 53 ft. to the car we would have five trains to the mile, or a single train 2,889 miles long. As there are only 365 days

in the year, if the entire crop had to be handled through Montreal on a single track, it would be at the rate of about 40 cars a day or nearly two every hour. As there are still 37,000,000 acres in easy reach of the railways in western Canada, and hundreds of millions as yet untouched, and which yet have to be developed, the folly of handling the crops of the future, not to speak of the present, overland and by only one ocean route, can easily be realized.

"Assuming, then, that the export traffic of Canada in the future will move west as well as east, there is an important point to consider which is bound to affect immensely the development of the west, as against the east, and in the end develop our Pacific ports to an extent as yet undreamed of. It has been estimated that the arable land of what may be called Pacific or western Canada comprises 333,000,000 acres, against 160,000,000 in eastern or Atlantic Canada. On this basis it is evident that with the development of traffic westward and via the Panama Canal, the products and traffic of Pacific Canada may double those of Atlantic Canada. This is one of the results to be expected from the awakening of the Pacific.

"It is too soon to make a comparison of freight rates from the Pacific coast and central Canada to Europe via the Panama Canal with the rates across the continent and via the Atlantic. Traffic by the new route is only in its inception, and rates have not become stabilized. It can be pointed out, however, that the Vancouver route embraces a much larger proportion of water mileage, that it is on the water that the greatest competition exists, and consequently the greatest tendency to shrinkage in rates. As an instance of what water carriage means as against land carriage, take Regina, situated almost the same distance from Halifax as Halifax is from Liverpool. The shipment of a quarter of wheat from Regina to Liverpool costs, say 21s., but of this total only 4s. represents the water carriage, while 17s. represents land carriage, though the distances in each case are practically the same.

"The Great War has produced several new factors which profoundly affect the whole portion of the railroad and grain interests in the Dominion: (1) Great increase in the cost of rail haulage; (2) great expansion of ocean tonnage; (3) the availability of some of this tonnage to provide new services for Canada's west coast at rates based upon the highly competitive nature of sea transport under peace conditions.

"Another important factor to be considered is the revolution in transportation by the introduction of the motor boat with Diesel engines using oil for fuel. It is unquestionably the fact that the Swedish line of motor freighters of the North Star or Johnson Line, now operating out of Vancouver through the Panama Canal, is run at a saving of one third the cost of steam transportation. Grain is transported to Europe by the cheapest of all kinds of transport, viz., by all water, or almost all water, from the Argentine, Australasia, East Mediterranean, India, etc., and it is no rash prophecy to say that before long the great bulk of the grain of western Canada will adopt the sea route as well. Indeed, the

movement is already in full swing. On Feb. 9, 1921, the Buenos Aires, of the North Star or Johnson Line, of Stockholm, brought the first direct commercial shipment of Canadian wheat, 3,200 tons, from Vancouver to London. It was No. 2 Northern Manitoba wheat, and arrived in perfect condition. During the year ended June 30, 1921, there were sailings through the canal from British Columbia to the United Kingdom and Northern Europe, to the Atlantic and Gulf coast of the United States, to Mexico, the Mediterranean, Cuba, the east coast of South America, and eastern Canada; and of these, 20 cargoes, aggregating 138,433 tons, were bound to the United Kingdom and Northern Europe alone.

"In considering the extent to which the wheat of western Canada will be routed to Europe via Panama, it is important to remember how much nearer the wheat centers of western Canada are to the Pacific than to the Atlantic seaboard. Following is a table of distances from some of the principal cities in the great western provinces, Manitoba, Saskatchewan, and Alberta, to Vancouver, Montreal and Halifax respectively:—

	Miles from		
	Vancouver	Montreal	Halifax
Brandon	1,477	1,507	2,348
Regina	1,256	1,727	2,568
Saskatchewan	1,096	1,842	2,693
Battleford	1,025	1,983	2,824
Edmonton	770	2,167	3,003

Lake Steamships Ordered.—The Ontario Paper Co., Thorold, Ont., which is controlled by Robt. McCormick, of the Chicago Tribune, has, as mentioned in a previous issue, ordered 2 lake steamships of Welland Canal size, one of which will be built by Swan, Hunter & Wigham Richardson at Wallsend-on-Tyne, Eng., and the other by the North of Ireland Shipbuilding Co., at Londonderry, Ireland. Their dimensions will be,—length b.p. 250 ft., breadth extreme 43 ft., depth moulded 19 ft. 4 ins.; approximate d.w. tonnage 2,300, draft 14 ft. The propelling machinery will consist of triple expansion engines with cylinders 16, 27 and 44 in. diar. by 30 in. stroke, supplied with steam by two boilers, each 12 ft. diar. by 11 ft. long, at 180 lb. working pressure, and fitted for natural draft.

The Minister of Trade and Commerce on Transportation.—Hon. J. A. Robb, the newly appointed Minister of Trade and Commerce, in addressing the Export Club of Montreal and the Canadian Manufacturers Association's Quebec Division, in Montreal, recently, said that Canada has lots of transportation, some say too much. He suggested that if Canada is to successfully compete with other countries in the markets of the world it must be prepared to carry its goods as fast and as cheaply as those countries. Canada has the railway lines, she has ships. Surely Canada should carry Canadian exports from Canadian ports at as favorable rates as those offered at any other ports on this continent.

How a Ship Finds Her Way at Sea was the title of a lecture delivered to students at McGill University, Montreal, recently, by Professor T. H. Matthews, who explained the works of the gyroscopic compass, sounding machine, etc., and demonstrated how a ship is actually steered at sea.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

Deliveries of Steamships.—In addition to the steel cargo steamships mentioned in Canadian Railway and Marine World previously, the following have been delivered to Canadian Government Merchant Marine for operation:—

Dec. 18, 1921, s.s. Canadian Freighter, Marine Department contract 63, builder's yard no. 21, approximately 8,930 d.w. tons, J. Coughlan & Sons, Vancouver, B.C.

Jan. 7, 1922, s.s. Canadian Constructor, Marine Department contract 39, builder's yard no. 4, approximately 10,500 d.w. tons, Halifax Shipyards Ltd., Halifax, N.S.

All of the 63 steel cargo steamships ordered by the Marine Department for Canadian Government Merchant Marine, have now been delivered.

Officers of Steamships.—The following appointments of masters and chief engineers have been made, in addition to those mentioned in previous issues:—Canadian Aviator, Capt. E. Randell, vice Capt. W. J. Davies, transferred to Canadian Raider; Canadian Coaster, Capt. J. B. Hubley, vice Capt. S. B. Corkum; Canadian Constructor, Capt. H. E. Webb, formerly on Canadian Raider; Canadian Explorer, chief engineer, E. Sutherland; Canadian Hunter, Capt. P. H. Murphy, formerly on Canadian Spinner, vice Capt. R. V. Bennett, transferred to Canadian Spinner; Canadian Leader, chief engineer, F. W. Cunningham; Canadian Navigator, chief engineer, C. Underwood; Canadian Raider, Capt. W. J. Davies, formerly on Canadian Aviator, vice Capt. H. E. Webb, transferred to Canadian Constructor; chief engineer, W. D. McGregor; Canadian Sapper, chief engineer, T. H. Angell; Canadian Spinner, Capt. R. V. Bennett, formerly on Canadian Hunter, vice Capt. P. J. Murphy, transferred to Canadian Hunter; chief engineer, W. Percival; Canadian Squatter, chief engineer, F. Stanley; Canadian Victor, chief engineer, W. Humphreys.

C. G. M. M. Employees' Personnel.—The Canadian National Rys. management has issued the following statement: "The Canadian Merchant Marine is a Canadian institution, built with Canadian money, operated to further and facilitate the foreign commerce of this country. Somehow or other, a report was circulated to the effect that outsiders were employed by the Canadian Merchant Marine to the exclusion of Canadians and British subjects. In denial of this report, the C.N.R. management offers the statement that of the 1,674 employees on the payroll at Dec. 31, 1920, exactly half were Canadian by birth, or adoption, and the balance were of British birth. It is the management's invariable practice to employ only British subjects in the management and operation of this Government owned line of steamships."

Fare Reductions.—We are advised that the passenger fares from Halifax, N.S., to Kingston, Jamaica, and Belize, British Honduras, have been reduced to \$102 and \$175 respectively, or about 15%, to meet C.P.R. competition from Boston to Jamaica. In conjunction with this, a reduced train fare of \$11.80 between Montreal and Halifax has been put into effect on the Canadian National Rys. to equalize the train fare between Montreal and Boston, Mass. This puts Halifax on a

parity in competition with business for Bahamas, Jamaica and British Honduras. The reduced rate applies only to the minimum fares, the rates for special state rooms, etc., remaining as hitherto.

Change in Trading Advocated.—The Canadian National Rys. management has issued the following statement:—"Examination of Canada's trade figures brings out a number of peculiar circumstances. First of all, the figures demonstrate that we are buying too much from the United States in comparison with its purchases from us. Secondly, while our sales abroad are in a measure satisfactory, we are not buying enough from the foreign countries that buy from us. Broadly speaking, this results in two sets of adverse conditions. The amount we purchase from the U.S. being too large results in depreciation of the Canadian dollar there. We must equalize our purchases to the basis of what they buy from us, as only by that means can the adverse exchange be adjusted. Another condition is that the Canadian Merchant Marine ships are at present returning from foreign ports with inadequate cargoes. It is not sufficient to load ships one way only. Return cargoes are necessary to the economical operation of ships. The countries to which Canadian Merchant Marine ships are operating, British West Indies, China, Belgium, France, Britain and South American ports, offer opportunities for the purchase of many commodities which Canada does not, or cannot, produce herself. We must not simply sell to these people, we must trade with them. The revision of our buying and selling operations on this basis would result in the advance of the Canadian dollar to par in the U.S. and have a most salutary effect on the financial condition of our nationally owned railways and ships, by diverting to Canadian seaports a much larger proportion of the tonnage which for years has entered and left Canada through U.S. seaports."

Agents in China Boycotted.—A few weeks ago it was stated in a press cablegram that the Chinese had declared a boycott at Amoy against Butterfield & Swire, who are the agents in China for Canadian Government Merchant Marine and several other steamship lines. A Pekin dispatch of Jan. 6 said that relations between the British Legation there and the Chinese Government, which had been interrupted because of the Amoy incident, had not been resumed, and that it was hinted in official circles that the British Minister's recall might be requested.

The s.s. Canadian Observer, when passing through Discovery Passage, about 150 miles from Victoria, on the inside coast of Vancouver Island, Jan. 12, during a dense fog, struck ground at Deep Bay. She was refloated by the incoming tide, about 2 hours later, without any apparent damage.

The s.s. Canadian Seigneur was reported, Dec. 17, 1921, to have arrived at Novorossisk, on the Black Sea, with 90 oil tank cars, being the first consignment of 500 built by Canadian Car & Foundry Co., Montreal, for the Russian Soviet Government for the Caucasian oil trade. She sailed from Montreal, Nov. 10.

The s.s. Canadian Voyageur, which was laid up in Bedford Basin, Halifax, N.S.,

for the winter, broke from her moorings, Dec. 30, 1921, during a blizzard, and was blown ashore. We have been advised that the extent of the damage sustained cannot be ascertained until she is drydocked for examination.

J. Coughlan & Sons, Vancouver, B.C., delivered the steel cargo steamship Canadian Freighter, Marine Department contract 63, builder's yard no. 21, approximately 8,390 d.w. tons, to the Marine Department, and she was transferred on Dec. 18, 1921, to Canadian Government Merchant Marine for operation, and sailed from Vancouver on Jan. 4, for Kobe and Yokohama, Japan.

Halifax Shipyards Ltd., Halifax, N.S., delivered the steel cargo steamship Canadian Constructor, Marine Department contract 39, builder's yard no. 4, approximately 10,500 d.w. tons, to the Marine Department, Jan. 7, and she left Halifax Jan. 9 for Sydney, N.S., to load a cargo of coal. From Sydney she went to Rockland, Me., to make standardization runs over the U.S. naval course of a measured mile in 60 fathoms. She made the mile at an average of 13½ knots an hour, and on 5 full speed runs averaged 13 1/3 knots. The contract called for a speed of 12 knots. She is the last of the 63 steamships built for the Canadian Government Merchant Marine under the Dominion Government shipbuilding programme inaugurated in 1918, and is also one of the two largest ships built under that programme. The contract was placed Dec. 10, 1918, the keel was laid Oct. 6, 1919, and she was launched Sept. 24, 1921. We were officially advised Jan. 14 that after discharging her coal cargo at Halifax, she would load a general cargo for Australia and New Zealand and sail about Jan. 25.

Portland Longshoremen's Strike.—Canadian Railway and Marine World for January stated that the Longshoremen's Union members at Portland, Me., had gone on strike on Dec. 21, as they refused to accept wages and working conditions in force at Boston and New York. Work was suspended for eight days, causing the diversion of a number of ships to other ports for loading. The strike was brought to an end Dec. 28, through the efforts of a committee nominated by shipowners and Portland citizens, and headed by the Mayor, the men accepting the same basic rate as paid in Boston and New York, viz., 65c. an hour. The basic rate in 1921 was 80c. an hour.

Peninsula Transportation System Ltd. has been incorporated under the Ontario Companies Act with \$150,000 authorized capital and office at Toronto, to own and operate all kinds of conveyances and vehicles moved by any form of power, for the transportation of merchandise by land, water or air. The incorporators are, F. J. Hart, G. H. Riches, T. M. Mungowan, J. H. Rowland, W. Gordon, B. F. Walsh and M. Young, Toronto.

Interlake Navigation Co. Ltd. has been incorporated under the Dominion Companies Act, with \$500,000 authorized capital, and office at Montreal, to own and operate ships of all kinds, wharves, docks, and general transportation facilities, and to carry on a general navigation and forwarding business. The incorporators are, W. W. Skinner, G. G. Hyde, J. F. Ahern, R. C. Grant, R. J. Forster, Montreal.

Canadian Pacific Railway Ocean Steamship Services.

W. H. Perry, heretofore chief steward, s.s. Scandinavian, has been appointed chief steward, s.s. Empress of Russia, vice G. B. Macfarlane, transferred to s.s. Empress of Australia.

The s.s. Empress of Canada was scheduled to sail from Liverpool, Eng., direct to Hong Kong, China, on the conclusion of her final speed trials, which took place Jan. 28. She is in charge of Commander A. J. Hailey, R.N.R. A description was given in previous issues.

The s.s. Sicilian opened the company's new direct steamship service between St. John, N.B., and Havana, Cuba, Jan. 3. The service between these ports has hitherto been handled by the United Fruit Co. and the Eastern Steamship Line, jointly, via New York.

Capt. Samuel Robinson, R.N.R., has been appointed master of the s.s. Empress of Australia. He entered C.P.R. steamship service in 1895, and has been master of the company's steamships Empress of China, Empress of India, Ruthenia, Athenian, Montegale, and, during the war, Empress of Russia.

The s.s. Montcalm, which underwent her trials in the Clyde, during Decem-

ber, attained the maximum speed of 17.96 knots an hour, without pressing her boilers or engines, and on her 12 hour trial, averaged over 17 knots. She later proceeded to Liverpool, where she was taken over by the company, and sailed for St. John, N.B., on her maiden trip, Jan. 17, arriving Jan. 28.

The C.P.R. has given the Marconi Wireless Telegraph Co. an order to equip its trans-Pacific steamships Empress of Canada and Empress of Australia with the most comprehensive range of the latest type of wireless apparatus, which will enable them to make the fullest possible use of the latest developments in radio engineering as a means of securing additional safety for passengers and crew, as an aid to navigation, and as long distance telegraph service. The equipment will comprise a direction finder, an aid to navigation spark set, a complete emergency equipment and a long range continuous wave valve transmitter and receiver.

been added from time to time, including the splendid type of Empresses, on both the Atlantic and Pacific. In 1916, the company absorbed the Allan Line, with which it had been working in close conjunction for some years, thus acquiring 18 steamships with an aggregate gross tonnage of 153,000. The war service of the company's ships is a history in itself. Between Aug. 1914 and Oct. 1919, they carried over 1,000,000 troops and passengers on war business, and over 4,000,000 tons of cargo and war munitions, and several thousand horses and mules. During the war, the company lost 12 ships through enemy action, with a total tonnage of 101,081 gross. Of the company's ocean steamships, 7 are using, or are being arranged to use, oil as fuel, with advantage in efficiency of operation, cleanliness, etc.

The s.s. Empress of Scotland was scheduled to sail from Southampton, Eng., Jan. 22, direct to New York, whence she will sail on a special Mediterranean cruise, Feb. 4. She was originally the German s.s. Kaiserin Auguste Victoria, and was bought from the Reparations Commission. She is of the shade



Twin Screw Steamship Montcalm, 16,000 tons gross, C.P.R. Atlantic Steamship Service.

Dr. W. C. Whitteker, surgeon; E. Syder, purser; and G. B. Macfarlane, chief steward, s.s. Empress of Russia, were presented with a silver goblet, a pair of mounted shields engraved in English and Chinese, and a wardrobe trunk, respectively, by the Chinese crew, at Vancouver, recently, on leaving for the Orient, where they will be transferred, the first two named, to the Empress of Canada, and the last named to the Empress of Australia.

On account of the success of the moving pictures established on some of its trans-Atlantic steamships, the company has decided to place similar service on its trans-Pacific steamships, the s.s. Empress of Russia, which sailed from Vancouver Jan. 5; for the Orient, being the first to have it installed. The series shown covers Canadian scenes from the Atlantic to the Pacific. The s.s. Empress of Asia, which will sail from Vancouver Feb. 2, will be similarly equipped, as also will other ships on the trans-Pacific routes.

The s.s. Empress of India, which will

The C.P.R. Passenger Department has issued an excellently designed and printed booklet, giving the history of its ocean steamship services, from the commencement in 1886 with the arrival at Port Moody, B.C., of the brig W. B. Flint, with a cargo of tea from Yokohama, to this year, with 19 passenger steamships, total 254,103 gross tons, and 8 freight steamships, total 77,275 d.w. tons, on the Atlantic; and 6 passenger steamships, total 89,720 gross tons, and 2 freight steamships, total 15,950 d.w. tons, on the Pacific. The first regular trans-Pacific service was established in 1887, with the chartered steamships Abyssinia, Batavia and Parthia. In 1890 the company concluded a contract with the British Government, under which it was paid a mail subsidy of £60,000 a year for the service of three twin screw steamships between Vancouver, Japan and China. In this connection, the steamships Empress of China, Empress of India and Empress of Japan, 6,000 gross tons each, were built and placed in operation in 1891. For several years the company's steamship business was confined to the Pacific Ocean, and it was not until 1903 that its ships appeared on the Atlantic. In this year, 15 steamships of the Beaver Line, owned by Elder, Dempster & Co., were bought, and a regular freight and passenger steamship service inaugurated on the Atlantic. Other steamships have

deck type with bridge deck extending about half her length, and with a long forecastle deck. Above the bridge deck there are lower and upper promenade decks the full length of the bridge deck and above the 'tween decks, and a lower and orlop 'tween decks at the forward and after ends. She has a straight stem, elliptical stern, 2 funnels and 4 masts. There is accommodation for 465 first class, 450 second class and 960 third class passengers, and a crew of about 510. The first class accommodation is on A, B, C, D and E decks, in staterooms arranged for 1, 2 and 3 persons, all being equipped with bedsteads, no upper berths being fitted in any of the first class rooms. There are also 25 large suites of rooms with private baths and lavatories. The dining saloon is on E deck and has accommodation for 430 persons, the tables being arranged for small parties of from two to six. The lounge is on B deck, and at the forward end of the ship there is another lounge with writing room. The ball room is on B deck forward, and there is a double smoking room on A and B decks, that on A deck being a balcony looking down to B deck. A winter garden is provided at the forward end of the boat deck and extensive promenade space is arranged on A and D decks, the forward end of A deck being screened off by glass windows. The length of each promenade

space is over 400 ft. Barber shops, book stalls, dispensaries, hospitals, information bureaux, etc., are also provided and there is an electric elevator for first class passengers from E deck to the boat deck. The ship is equipped with wire-

less telegraph, long range installation, and apparatus for taking bearings for wireless, submarine signalling, electric clock, gyro compass, etc. Her dimensions are,—length 677½ ft., breadth 77 ft., depth to shade deck 54 ft.

General Shipbuilding Matters Throughout Canada.

Canadian Shipbuilding Statistics. — Ottawa press dispatch, Jan. 5.—During the year ended March 31, 1921, the shipping built in Canada amounted to 95,838 tons. During the year ended March 31, 1920, 164,074 tons of shipping was built. During 1921, 34,623 tons of shipping, with a value of \$8,456,573, was sold to other countries. In 1920 the tonnage sold to other countries was 53,407. The value was \$17,819,477. In 1868, the first year for which statistics are given, 87,230 tons of shipping was built in Canada. This industry reached its highest peak in 1875, when 188,098 tons reached the ocean. From 1875 tonnage built each year gradually declined until in 1896 only 10,753 tons passed from Canadian yards. After 1896 the amount increased until another peak was reached in 1920. In 1918, 53,912 tons were built, and the figures given show that this more than doubled in 1919 and more than tripled in 1920. Of the total of 220 ships built in the year ended March 31, 1921, 139 were steamships and 81 sailing ships. The steamship tonnage was 80,174, and the sailing ship tonnage 15,664.

G. F. Askew, Vancouver, B.C., is reported to have an order from the Hudson's Bay Co. for a stern wheel steamboat for the Athabasca River, length 172 ft., breadth 35 ft., draft, light, 17 in.

Collingwood Shipbuilding Co., Kingston, Ont., has been given a contract for repairs on the Keystone Transports' s.s. Keybell. Work was commenced in January, and it is expected that it will be completed during March.

Port Arthur Shipbuilding Co., Port Arthur, Ont.—As mentioned in our last issue, this company has a contract from Mathews Steamship Co., Toronto, for building a steel bulk freight steamship for Great Lakes service. Her dimensions will be, length 550 ft., breadth 58 ft., depth 31 ft., and she will have capacity for over 400,000 bush. of grain. The propelling machinery will consist of triple expansion engines with cylinders 25½, 41 and 67 in. diam. by 42 in. stroke, supplied with steam by 3 Scotch boilers, each 13½ ft. diam. by 11 ft. 2 in. long, at 185 lb. working pressure, and equipped with interchangeable furnaces. She will be built to the highest class for Great Lakes service, of the American Bureau of Classification. At the time of writing, no date has been fixed for the laying of the keel, but the contract calls for delivery by Sept. 15.

Vancouver Shipyards Ltd., Vancouver, B.C., launched the harbor service boat Atkinson recently, for the Vancouver Harbor Commissioners. She has a wooden hull, of the following dimensions,—38 ft. long, 9 ft. wide and 4 ft. deep, and is equipped with a 2-cycle semi Diesel engine of 30 h.p., with air compression integral with the engine. She is to be used chiefly for night patrol work in keeping the harbor clear of drifting logs, etc., and for yarding booms.

Victoria Machinery Depot Co., Victoria, B.C.—The Canadian Government Merchant Marine s.s. Canadian Winner was

drydocked at Esquimalt, Jan. 13, for general overhaul by this company, which has recently completed a similar overhaul of the C.G.M.M. s.s. Canadian Traveller there. Both these ships were built by Harbour Marine Co., a V.M.D. Co. subsidiary. It is also stated that the company has been given a contract for overhauling the Marine Department's s.s. Newington.

Wallace Drydock & Shipbuilding Co., North Vancouver, B.C., has received a contract for repairing the Admiral Line's s.s. Admiral Farragut, the amount being stated as approximately \$63,500. It is also stated that the Wallace Co.'s tender was about \$35,000 below the lowest U.S. tender.

Yarrows Ltd., Victoria, B.C., did the following steamship repairing and overhauling recently:—C.P.R. British Columbia Coast Steamship Service steamships, Charmer, engine room repairs; Princess Adelaide, docked, cleaned, painted and repaired; Princess Alice, docked, cleaned, painted and propeller repaired; Princess Louise, minor engine room repairs; Princess Maquinna, engine room repairs; Princess Mary, engine fittings supplied; Princess Royal, castings and minor repairs; Princess Victoria, docked, cleaned, painted, and brass liner for propeller shaft bracket; Canadian Government Merchant Marine, s.s. Canadian Importer, docked, cleaned, painted and repaired; barkentine Simon F. Tolmie, storm damage to rigging and steering gear repaired; Dominion Government, steamships Estevan, fittings to engine room; Givenchy, docked, cleaned, painted, and repairs due to stranding and being submerged; Thierval, docked, cleaned, painted and repaired; Coastwise Steamship Co., s.s. Amur, docked, cleaned, painted, repaired and propeller changed, and later, repairs due to stranding; Canadian Western Steamships Ltd., s.s. Margaret Coughlan, docked, cleaned and painted; Cascade Towing & Freighting Co., s.s. Cascade, docked, cleaned and painted; Sir John Jackson (Canada) Ltd., ship Mafalda, docked, cleaned, painted and repaired, and electric welding; C. T. Bowring & Co., s.s. El Lobo, docked, cleaned, painted and repaired; Kingsley Navigation Co., s.s. E. D. Kingsley, new cast iron propeller.

American Association of Port Authorities.—At a meeting of the executive committee at Montreal, Dec. 31, 1921, the resignation of the Secretary, M. P. Fennell, Jr., Secretary, Montreal Harbor Commissioners, was accepted, but at the request of the executive committee, consented to continue to act until an appointment is made. W. D. Lighthall, K.C., has been appointed Canadian Counsel for the Association. The annual convention will be held at Toronto in October.

Goderich Elevator & Transit Co., Goderich, Ont., has given J. H. Tromanhauser, Toronto, a contract to build an addition of a marine tower to its elevator at an approximate cost of \$50,000.

Montreal Harbor Commission.

Dr. W. L. McDougald, President, Century Coal Co. and Ogdensburg Coal & Towing Co., and a director, Canada Steamship Lines Ltd., and British Empire Steel Corporation, has been appointed President, Montreal Harbor Commissioners, succeeding W. G. Ross, who resigned to become a candidate for St. Antoine, Montreal, in the recent Dominion general elections, but was defeated. Dr. McDougald was sworn in, Jan. 16, by M. P. Fennell, Jr., Secretary of the Commission, and was welcomed by the retiring board.

On the re-organization of the administration of Montreal harbor in Jan. 1913 the Commission appointed consisted of W. G. Ross, President, Brig. Gen. A. E. Labelle and Farquhar Robertson. Following the recent change in the Dominion Government the two latter also resigned, but their successors had not been announced at the time of writing, Jan. 20.

During the ex commissioners' term of office Montreal has become, in volume of traffic, the second port on the continent, the first as a grain shipping port, and the seventh of the great world ports.

Naval Dockyards at Halifax and Esquimalt.

In the Naval Service Department's report for the year ended March 31, 1921, issued recently, the Deputy Minister, G. J. Desbarats, C.M.G., says:—"Concurrent with the other services of the Department, a complete reorganization of the technical branches of both dockyards was effected. The management of dockyard workshops has been much simplified and has been placed under the charge of an engineer manager. The reorganization has resulted in a considerable reduction of both labor and clerical personnel and has produced a more centralized and compact system of control and operation.

"A number of workshops at Halifax, which were established owing to extra work during the war, have been closed. These are held in reserve, and are in condition to be put in full operation at short notice.

"During the year, repairs and refits, as required, have been carried out at Halifax, to Canadian Naval Service, Imperial Navy and French Navy, and also to Fisheries Protection, Hydrographic Survey and other Canadian Government ships.

"Upon the return to normal conditions the Department ascertained that known and anticipated requirements for ship repairs and refits would not justify the maintenance of Esquimalt dockyard in active operation. It was, therefore, decided to close the workshops and repair plant, which was done early in the year. The shops and equipment are in readiness for reopening without delay, should they be required."

Welcome, to the Land of Liberty.

The incoming ocean liner was proceeding up New York Bay.

"What is that island on the left with the statue on it?" asked the immigrant. "That's Bedloe's Island, and the Statue of Liberty," explained the steward.

"And what is the other one over there?" asked the immigrant.

"That's Ellis Island, where you'll be locked up," replied the steward.

Atlantic and Pacific Oceans.

The White Star Line has reduced its second class fare to Hamburg and Bremen, Germany, by \$5, making the new rate, \$125.

The Anchor-Donaldson Line's s.s. Satornia, scheduled to sail from Halifax, N.S., for Londonderry, Ireland, and Glasgow, Scotland, Feb. 18, having been withdrawn from service for her annual overhaul, the Anchor Line's s.s. Algeria will sail from Halifax, on the same route, Feb. 28. The s.s. Algeria was formerly under German ownership.

The Blue Funnel Line (Alfred Holt & Co.) is inaugurating a new regular steamship service between Great Britain and European ports and Vancouver, Victoria, B.C., and certain U.S. Pacific ports. Four steamships will be operated on the route on a 60 day schedule. The s.s. Memnon is now en route to Vancouver, via the Panama Canal, and will be followed by the s.s. Hector sailing from Liverpool, Eng., Feb. 17.

The Newfoundland Supreme Court has rendered judgment in the case of the s.s. Portia against the s.s. Basaan on a claim for salvage, holding that though the service rendered was admittedly of a meritorious character, it was more in the nature of pilotage and towage, than of salvage proper, and \$1,000 was awarded as fair compensation for the service, together with \$120 to cover certain small damage to the salvaging ship. The s.s. Portia was also awarded costs of the action, but the s.s. Basaan's costs, occasioned by the excessive amount in which she was held to bail, were assessed against the Portia.

Judgment was entered recently in the Newfoundland Supreme Court, in favor of the Danish s.s. Storborg, on a salvage claim against the s.s. Delco, bound from Gothenburg, Sweden, to New York, in Feb. 1921. The service rendered by the Storborg, without aid from the Delco's engines, from the time she picked her up at a point west of Malins Head, about 1,000 miles from St. John's, Nfld., to the time of landing at St. John's, lasted 14 days, and was carried out during heavy weather, and in considerable danger from meeting icebergs. The judgment laid special stress on what was described as a "very meritorious salvage," and stated that shipmasters should be encouraged by liberal award to offer their services to ships in distress. The amount of \$50,000 was awarded to the ship Portia, against the Delco, her cargo and freight, with costs, the award to be apportioned according to the laws of the ship's domicile, with the court's recommendation that a liberal share should be assigned to the master, officers and crew, whose skill and care were so well bestowed and whose risk and labors were so largely increased during the tow.

Shipbuilding on the Clyde.—It is stated that 314 ships were launched on the Clyde, in Scotland, during 1921, the aggregate tonnage being 514,000, compared with an aggregate tonnage of 669,000 during 1920. The largest ship launched was the Windsor Castle, 19,000 tons.

Empire Shipping Co. Ltd. has been incorporated under the British Columbia Companies Act, with \$10,000 authorized capital, and office at Vancouver, B.C., to own and operate ships, and to carry on a general transportation business between any ports in the world.

Martime Provinces and Newfoundland.

The s.s. D. D. Mann, owned by the Town of Lockport, N.S., was considerably damaged by fire while lying at her wharf there, Jan. 5.

The s.s. Cabot, owned in Newfoundland, was sold by auction, Jan. 9, to Sir Michael Cashin for \$6,150. She was built in Norway for whale fishing.

The Reid Newfoundland Co.'s Cabot Strait mail steamship Kyle is being fitted with direction finding apparatus, by the Marconi Wireless Telegraph Co. of Canada.

The Dominion Public Works Department has, we are officially advised, awarded the contract for repairs, etc., to its steel hopper scow 157, to Sydney Foundry & Machine Works, Sydney, N.S.

The Newfoundland schooner Bohemia, with coal from Sydney, N.S., for Burin, Nfld., was blown ashore in the harbor at St. Pierre, Miquelon, during a hurricane Dec. 31, and with her cargo became a total loss.

Longshoremen's wages for the current winter season, at Halifax, N.S., dating from Jan. 1, have been arranged as follows,—day work, 55c. an hour; night work, 65c. an hour, to remain in force until June 30. The rates hitherto paid were,—day work, 65c. an hour, night work, 73c. an hour.

The wreck of the steam trawler Baleine is lying sunk in the south entrance to the Gut of Canso, about 1,500 ft. from Cape Argos whistle buoy, with the smoke stack and spars showing above water. To make the wreck more conspicuous, the Marine Department is attaching a barrel painted green to one of the spars.

The s.s. San Zotico, which arrived at St. John, N.B., Dec. 28, with 55,000 barrels of fuel oil, was the first cargo bearing ship to carry cargo to the new oil tanks in Courtenay Bay. She was also the first ship to take fuel oil to St. John, and carried the largest bulk cargo of any description to enter the port.

The Nova Scotia schooner Frederick H., 525 tons, ran ashore on the Negrotown breakwater, at the entrance to St. John, N.B., harbor, Jan. 7, when inbound with 426 tons of coal from New York. There was a pilot on board, and it is believed that, during the darkness, he kept too close to the shore.

The s.s. Imo, one of the steamships held to have been responsible for the Halifax disaster of Dec. 1918, when a munitions ship exploded in the harbor, causing large loss of life and destruction of property, was wrecked on the East Falkland Islands, in Dec. 1921, and became a total loss. She was originally the White Star Line's s.s. Runic.

A New York press dispatch states that an involuntary petition of bankruptcy has been filed against the Nova Scotia Transportation Co., the largest creditor being mentioned as the Federal Line Inc., which claims \$300,000. The principal place of business is given as Halifax, N.S. The company, which has its registered office in Toronto, owned the s.s. Le Quesnoy, built by Dominion Shipbuilding & Repair Co., Toronto, which was reported recently to have been sold to German interests for \$60,000.

The oil tank s.s. San Zotico, which arrived at St. John, N.B., Dec. 28, from Mexico, with a cargo of oil equalling

50,000 barrels, and with a draft of over 26 ft. of water, was the ship with that draft to enter Courtenay Bay and unload a cargo, which she discharged at the rate of 200 tons an hour into three large tanks built recently by Allen C. McAvity. During the time the San Zotico was in the bay, there was a severe gale, but the ship experienced no trouble, being amply protected by the breakwater which has been built by St. John Drydock & Shipbuilding Co., as part of its Dominion Government contract. The C.P.R. s.s. Montcalm was the first ship to take fuel oil from the tanks.

The crews of the Newfoundland schooners Amy B. Silver, and Kinsman returned to Newfoundland early in January, both ships having been wrecked. The Amy B. Silver sailed from the Argentine in Nov. 1921 for Oporto, Portugal, and foundered 400 miles south of Cape Race, Dec. 4, the crew being rescued by the German s.s. Sophia Buckman, and taken to Bremen, Germany, later being sent to Liverpool. The Kinsman sailed from Battle Harbor for Gibraltar, Dec. 1, and collided with the s.s. Gillarosa, being badly damaged. The crew were eventually taken off by the Portuguese s.s. Gilanio on Dec. 4, and taken to Lisbon, whence they were sent to Liverpool. Both crews returned on the C.P.R. s.s. Minnedosa.

The s.s. Yarmouth, owned by the Black Star Steamship Corporation, which is composed entirely of New York colored people, was sold there recently, by the U.S. Marshal, for \$1,625. She was built at Dumbarton, Scotland, in 1887, for Yarmouth Steamship Co., Yarmouth, N. S., for operation between there and Boston, Mass. Her dimensions are, length 220.3 ft., breadth 35.2 ft., depth 21 ft.; tonnage, 1,452 gross, 725 net. In 1901, she, with her sister ship, Boston, was taken over by the Dominion Atlantic Ry., and used for winter service between Digby, N.S., and St. John, N.B., and was continued on that route when the service was taken over by the C.P.R. She was later sold to the North American Steamship Co., a U.S. concern, and was operated in North Atlantic service for some time, and during the war made several trips to European ports. In 1919, she was sold to the Black Star Steamship Corporation, and, for a time was run between U.S. ports and the West Indies, but she has been laid up for some time, and, it is now said, will be broken up.

Grain Congestion at Vancouver.—Press dispatches at the end of December reported congestion at the Dominion Government grain elevator there and said that prospects were that there would be great activity in shipping circles there, moving the grain for the next few weeks. Wheat was mentioned as the principal cereal in store, and further large quantities were either in cars waiting to be unloaded as soon as elevator space became available, or were on the way from the prairies. A grain carrier was expected to arrive at Vancouver on Dec. 25, and another about Jan. 1, and after that a whole fleet of vessels were due. Up to the end of December something like 80,000 tons of wheat had been booked to the Orient and the United Kingdom, of which some 25,000 tons had been moved. It was stated that there were 850,000 bush. of grain in the elevator at the end of December.

Ontario and the Great Lakes.

The steam tug *Carlotta*, now owned in Port Stanley, and formerly by Jas. Playfair, Midland, was badly damaged by fire at Port Stanley, Jan. 8.

The limits of Port Colborne harbor have been defined as covering all the waters in Lake Erie, situated north of a line drawn from the extremity of Georgian Point to the extremity of Point Albino.

Imperial Oil Ltd. is reported to have bought an additional 315 ft. of land along the St. Clair River, at Sarnia, making a total of 680 ft. acquired recently. It is stated that the company intends building a dock for berthing and repairing its ships there.

The George Hall Coal Co. of Canada is reported to be negotiating for the purchase of two new steel steamships of full Welland Canal size, for operation between Montreal and Chicago. It is said that they will be equipped for both salt and fresh water service.

The Detroit & Windsor Ferry Co. announce that a new ferry steamship will be placed in operation between Detroit and Windsor, in June, with accommodation for about 4,000 passengers and 70 automobiles. This ship which, it is stated, is under construction, will be 65 ft. wide, and will have no cabins on the main deck, which will be reserved exclusively for automobiles and trucks.

The U.S. Lake Survey reports the mean stages of the Great Lakes in feet above mean sea level, for Dec. 1921, as follows: Superior, 601.99; Michigan and Huron, 579.54; St. Clair, 574.58; Erie, 571.71; Ontario, 244.83. Compared with the average December levels for the past 10 years, Superior was 0.39 ft. below; Michigan and Huron, 0.62 ft. below; Erie, 0.09 ft. below; Ontario, 0.68 ft. below.

The s.s. *Trevisa*, which is berthed for the winter at Kingston, arrived there towards the close of St. Lawrence navigation, and too late to enter the lake trade, for which she was built. She is owned by Export Steamships Ltd., Montreal, and was built at Londonderry, Ireland, in 1915, when she was taken by the British Government for war purposes, and was operated between the north of England and France, being successful in sinking and destroying four German submarines. Two of her captains received decorations for their work.

Manitoba, Saskatchewan, Alberta and Northwest Territories.

The Ross Navigation Co.'s s.s. *Nipawin* has been hauled out at Pas, Man., for repairs to her hull, after being wrecked at Big Stone Rapids in the Saskatchewan River, in Aug. 1921, when she sank in 7 ft. of water. She was subsequently raised and a bulkhead built securely round the damaged part, to enable her to complete the season's work and enable her to reach Pas. The method used to raise her required the use of two barges, cross timbers through the housing of the boat with cables slung underneath, and screw jacks placed under the timbers for the lift.

Montreal Grain Elevator.—It is reported that work will be commenced in the spring on an additional grain elevator at Maisonneuve, to be known as no. 3 for the Montreal Harbor Commission.

British Columbia and Pacific Coast.

An experimental shipment of 200 tons of frozen fish, the first to go from British Columbia to the Atlantic coast by water, left Vancouver on the s.s. *Neponset* for New York via the Panama Canal.

The Grand Trunk Pacific Coast Steamship Co.'s s.s. *Prince Albert* was docked at Prince Rupert drydock early in January, owing to an accident and her trip from Prince Rupert south was cancelled. The company's s.s. *Prince John* took up the *Prince Albert*'s service, sailing from Vancouver Jan. 13.

North Vancouver voters on Jan. 12 voted on a bylaw to provide approximately \$300,000 for buying an additional ferry steamboat, tenders for which had been received, the details being given in our January issue. The votes were 474 for and 426 against. As a three-fifths majority, or 540 votes, was required to pass the bylaw, it was not carried.

The s.s. *Celestial Empire* has been sold by The Canadian Fishing Co., Vancouver, to B. L. Johnston, Walton & Co., Vancouver, for towing on the north coast. She was built at Hull, Eng., in 1897, when she was named *Jupiter*, and was lengthened in 1902, when her name was changed to *Celestial Empire*. Her dimensions are,—length 121.2 ft., breadth 21 ft., depth 11.3 ft.; tonnage, 204 gross, 80 net. She is screw driven by engine of 59 h.p.

The British Columbia Public Works Department called for tenders recently for a steam cruiser for the Boiler Inspection Department. The details given were,—length 55 ft., breadth 11 ft., depth 7¼ ft., draft 4 ft., speed 10 miles an hour, engines to be of English make, 55 i.h.p., the hull was to be of timber construction, with cabin accommodation for 7 persons. We are officially advised that it has been decided not to accept any tender at present.

The U.S. Government has stationed the pilot ship *King and Winge*, radio call KDVV, off Cape Flattery, Juan de Fuca Strait, to render service to ships navigating in the waters of southeastern Alaska, British Columbia and Puget Sound. She is a power schooner, painted white, with the word *Pilot* in black letters on the sides, and is equipped with a half kilowatt radiotelegraph installation, with a sending radius of 300 miles by day and 400 to 600 miles at night.

The steam tug *Clinton*, registered in the name of the Pacific Great Eastern Ry., was sunk Jan. 15 in Burrard Inlet, after collision with the C.P.R. s.s. *Princess Royal*. The crew of nine were rescued, and the *Princess Royal* was reported to have received no damage. The *Clinton* was built at Tacoma, Wash., in 1909, and was originally named *Daring*. She was screw driven, by engine of 39 h.p., and had the following dimensions, length 98 ft., breadth 19 ft., depth 6.9 ft., tonnage 123 gross, 60 net.

The C.P.R. car transfer barge no. 8, whilst in tow of the company's s.s. *Nanoose*, ran aground at Porlier Pass towards the end of December. She was loaded with 18 freight cars, carrying, mainly, Christmas and perishable goods from the mainland, for island points. The front light tower of the Porlier Pass range had been destroyed during a storm a few days earlier, and it is stated that this loss probably caused the casualty. The barge was refloated by the Pacific Salvage Co. and towed to Ladysmith, Dec. 28.

D. C. Coleman, Vice President, Western Lines, C.P.R., is reported to have said, when in Vancouver, recently, that the work on the company's new pier in Burrard Inlet, Vancouver, will be commenced shortly. The dredging and fill were completed last spring, but the steel and concrete construction was held up to await better market conditions. The pier, which will be 700 ft. long, will be of modern construction, equipped with the latest machinery for handling cargo, and will be able to accommodate any ship operating on the Pacific Ocean.

Frank Waterhouse & Co., shipping agents and managers, etc., Seattle, Wash., with branches at various Pacific ports, including Vancouver, B.C., have been placed in receivership, on the application of the Northern Pacific Ry., a creditor for \$6,833. It is stated that other liabilities amounting to about \$500,000 fall due shortly. C. E. Bissett, Professor of Law, Washington University, has been appointed receiver. R. D. Smalley, Vice President, stated recently that a statement of the company's assets was not then available at that time, and that the company's activities had been greatly restricted recently on account of the sale of its shipping and insurance interests.

The s.s. *Victoria*, at one time operated by the C.P.R. in its trans-Pacific service, and latterly by U.S. interests in the Alaska trade, has been surveyed by U.S. inspectors, and may be condemned unless extensive repairs are made. She was built in Scotland in 1870, and was originally named *Parthia*. Shortly after the completion of the C.P.R., she was chartered by that company, with the steamships *Abyssinia* and *Batavia*, to establish its trans-Pacific service. In 1890 the C.P.R. made a contract with the British Government for a mail subsidy on the Pacific of £60,000 a year, and in 1891 the three ships named were replaced by the steamships *Empress of China*, *Empress of India*, and *Empress of Japan*, which were specially built for the service.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

81. Dec. 16.—218, British Columbia, Juan de Fuca Strait, Swiftsure Bank lightship, characteristic of submarine bell not to be changed. 219, British Columbia, Strait of Georgia, entrance to Baynes Sound, Yellow Island, new back range light to be established. 220, British Columbia, Queen Charlotte Sound, Blunden harbor, correct position of uncharted rock. 221, United States, Juan de Fuca Strait, Cape Flattery, pilot ship established.

82. Dec. 19.—222, Ontario, St. Lawrence River, Lake St. Francis, western portion, Lancaster to Cornwall, new edition of chart. 223, Ontario, Lake Huron, new editions of charts. 224, United States, Lake St. Clair, St. Clair Flats canal gas buoy permanently discontinued.

83. Dec. 23.—225, Canada, Atlantic coast, list of harbor and fishing lights.

84. Dec. 30.—226, Nova Scotia, southwest coast, Cape Fourchu gas and whistle buoy, color of light to be changed. 227, Nova Scotia, south coast, south entrance to Gut of Canso, wreck, temporary beacon to be placed. 228, Quebec, River St. Lawrence between Quebec and Montreal, Becancour to Champlain, new edition of chart.

Mainly About Marine People.

Capt. W. J. Boyce, master in the C.P. R. British Columbia Coast Service, has been elected President, Canadian Navigators Federation's Pacific Division, vice Capt. F. H. Parker, master in the Union Steamship Co. of British Columbia's service.

G. W. Crossan, Superintendent, Engineering Department, Halifax Shipyards Ltd., Halifax, N.S., was presented with a case of ivory toilet articles by the department employees, recently, on leaving there for Toronto.

M. P. Fennel, Jr., Secretary, Montreal Harbor Commissioners, and Secretary, American Association of Port Authorities, has resigned the latter position.

Sir Thomas Fisher, General Manager, Atlantic Lines, Canadian Pacific Steamships Ltd., London, Eng., has been adopted as a coalition liberal candidate for Portsmouth, Eng., for the next general election.

W. I. Gear, Vice President, Robert Reford Co., returned to Montreal, at the end of December, after an extended European trip.

Hon. G. P. Graham, M.P., who has been appointed Minister of Militia and Defence, and of the Naval Service, was born at Eganville, Ont., March 31, 1859, and in his early years was a school teacher. He went into newspaper work in 1880, and entered politics in 1890, when he unsuccessfully contested Dundas for the Ontario Legislature, but he was elected for Brockville in 1898, and represented it there, until 1907. He was Provincial Secretary of Ontario from 1904 to 1905, and in 1907 was leader of the opposition in the Ontario Legislature for a few months. He was elected to the House of Commons, for Brockville, in 1907, and was appointed Minister of Railways and Canals, Aug. 29, 1907, and continued to represent Brockville, until the defeat of the Laurier Government in 1911, when he was also defeated. He was elected to represent South Essex, Ont., at the recent Dominion general elections.

Sir William Hearst, a member of the International Joint Waterways Commission, and former Premier of Ontario, has been elected President of the Empire Club, Toronto.

Francis King, M.A., of Kingston, Ont., Counsel, Dominion Marine Association, has been appointed a King's counsel by the Ontario Government.

Hon. Ernest Lapointe, B.A., LL.B., K.C., M.P., of Riviere du Loup (en bas) Que., who has been appointed Minister of Marine and Fisheries, was born at Quebec, Que., in 1876, and entered the Dominion Parliament Feb. 12, 1904, when he was elected by acclamation for Kamouraska, Que., in a bye election, and was re-elected for the same constituency in 1904, 1908, 1911 and 1917. He resigned that seat in 1919 and was elected to represent Quebec East, being re-elected in 1921.

W. D. Lighthall, K.C., Montreal, has been appointed Canadian Counsel for the American Association of Port Authorities.

F. J. McClure, General Passenger Agent, Robert Reford Co., Montreal, sailed for Europe at the end of December on an extended tour of the continent in the interests of the Cunard Line.

Sir James McKechnie, Managing Director, Vickers Ltd., Barrow-in-Furness,

Eng., visited Canada and the U.S. in January.

Capt. William Playter, master mariner on the Great Lakes, died at Batteau, near Collingwood, Ont., Jan. 7, aged 52. He retired from the marine service in 1917, when master the Dominion Government s.s. La Canadienne. During his service on the Great Lakes, he was master of the steamships Northern Belle, Pacific and Majestic.

J. W. Troup, Manager, British Columbia Coast Steamship Service, C.P.R., Victoria, B.C., is making a trip to Japan and China.

F. W. Young, who formed the Lake Shippers Clearance Association, of which he was Manager for some years, died suddenly at Winnipeg, Jan. 9.

Panama Canal Traffic.

The Panama Canal report for Oct. 1921 shows that in point of tonnage, more than 50% of the Atlantic to Pacific traffic was routed to the U.S. and Canadian west coasts, and in tons of cargo, more than 36% was destined for points on those coasts. In the Pacific to Atlantic traffic, more than 50% of all tonnage, and 63% of all cargo, originated on the U.S. and Canadian west coasts. There were considerable increases, both in tonnage and cargoes, the greatest increase in traffic being from the U.S. and Canadian west coasts to Great Britain and Europe. There were heavy grain shipments, 22 full cargoes of wheat and barley passing through the canal during the month, and many of the ships with mixed cargoes included grain.

A considerable number of ships passed through the canal from the Atlantic to the Pacific, light, the majority being en route from Europe to the U.S. and Canadian west coasts for cargoes. Several were charged full tolls, owing to their carrying more coal than allowed under ballast rates. British steamships head the list of those using the canal.

A new day's record was made Nov. 23, when 18 merchant ships, the British cruiser Raleigh, and a launch, passed through the canal. The cargo carried aggregated 78,648 tons, the total of tolls levied being \$79,808.50. Omitting the launch, 10 of the ships passed from the Atlantic to the Pacific, and 9 from the Pacific to the Atlantic.

Coal Dock for Vancouver.—An Edmonton, Alta., press report, published in our January issue, stated that the Alberta Government was negotiating in regard to new markets for Alberta coal, that the Vancouver harbor commissioners were considering the construction of an extensive dock at which to store the coal, for bunkering steamships and other purposes, and that a similar scheme was being considered for a coaling wharf and equipment proposed for Prince Rupert. We have reason to believe that plans and specification to be built by the Vancouver harbor commissioners have been prepared, but that nothing has been done in regard to construction, probably owing to the change in the Dominion Government.

Welland Canal Statistics.—St. Catharines, Ont., press dispatch, Jan. 15.—During 1921 a total tonnage of 3,070,966 passed through the Welland Canal, an increase of 800,000 tons over 1920. The largest up cargo was carried by the Winona with 2,800 tons pulpwood; the Beaverton, with 2,750 tons of oats, had the largest down cargo. During the year

3,750 ships passed through, 1,859 up and 1,848 down. Fifteen new ships passed through on their way to the Atlantic. The principal increases in tonnage were: Barley, 7,732; corn, 747,776; oats, 122,226; rye, 45,694; flax, 108; wheat, 502,939; agricultural implements, 6,432; iron and steel, 14,415; coke, 4,700; ore, 2,347. The main decreases were cement, brick and lime, 23,470 tons; petroleum and oils, 2,790; pulpwood, 15,750; soft coal, 702,000; sand, 17,255.

Nautical Assessors' Appointments.—In connection with the selection and appointment of nautical assessors in investigations of marine casualties by wreck commissioners, comments on which, following a British Columbia Supreme Court judgment, have been made in previous issues, we are officially advised that the Minister of Marine will in future act on the Justice Department's recent report and appoint the persons to act as nautical assessors.

Guy Tombs Ltd., 285 Beaver Hall Hill, Montreal, has been appointed ticket agent, Anchor-Donaldson and Cunard Lines, Canadian Pacific Steamships, French Line, Holland-America Line, and White Star-Dominion Line.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Orton & Steinbrenner Co., Chicago, manufacturers of locomotive and special cranes, clamshell and orange peel buckets, coal and ore handling plants, etc., has appointed Walter Hasendahl, 1213 Fuller Ave., Los Angeles, Cal., to represent it.

S. F. Bowser Co. Ltd., incorporated under the Dominion Companies Act, has been granted an Ontario license under the Mortmain and Charitable Uses Act, to acquire, hold and assure land in mortmain in Ontario to the value of \$52,000 for its actual use and occupation, or to carry on its undertaking. The company manufactures oil storage and handling equipment for railway, steamship and general purposes.

Transportation Conventions in 1922.

March 14 to 16.—American Railway Engineering Association, Chicago, Ill.; E. H. Fritch, 431 South Dearborn St., Chicago, Ill.

March 21 to 23.—American Railway Association, Telegraph and Telephone Division, Colorado Springs, Col.; W. A. Fairbanks, 75 Church St., New York, N.Y.

May 2 to 5.—Air Brake Association; F. M. Nellis, 165 Broadway, New York, N.Y.

May 17 to 19.—Association of Railway Claim Agents, Montreal; H. D. Morris, Northern Pacific Ry., St. Paul, Minn.

May 23 to 26.—Master Boiler Makers Association, Chicago, Ill.; H. D. Vought, 26 Cortland St., New York.

June 1, 2.—Canadian Electric Railway Association, Quebec, Que.; L. E. Moreland, Hull, Que.

June 14 to 21.—American Railway Association, Mechanical Division, Atlantic City, N.J.; V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

June.—American Society for Testing Materials, Atlantic City, N.J.; C. L. Warwick, University of Pennsylvania, Philadelphia, Pa.

Aug. 23 to 25.—American Association of Railroad Superintendents, Kansas City, Mo.; J. Rothschild, 400 Union Station, St. Louis, Mo.

Sept. 12 to 14.—Roadmasters and Maintenance of Way Association, Cleveland, Ohio; P. J. McAndrews, Chicago & Northwestern Ry., Sterling, Ill.
 Sept. 25 to 30.—American Society for Steel Treating, Detroit, Mich.; W. H. Eiseman, 4600 Prospect Ave., Cleveland, Ohio.
 Oct. 17 to 19.—American Railway Bridge and Building Association, Cincinnati, Ohio; C. A. Lichty, Chicago & Northwestern Ry., 319 North Waller Ave., Chicago, Ill.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:
 American Association of Port Authorities—Canadian Counsel, W. D. Lighthall, K.C., Montreal.
 Belleville Railway Men's Educational Club. Meets each Tuesday, 7.30 p.m. F. A. Pinkston, Belleville, Ont.
 Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

ESQUIMALT & NANAIMO RAILWAY COMPANY.

Notice.

The Esquimalt & Nanaimo Railway Company will apply to the Parliament of Canada, at its next session, for an Act extending the time for commencement and completion of the line of railway which it was authorized to construct by Statutes of Canada, 1920, chapter 77, namely:—

From a point at or near its present terminus at Courtenay, thence in a generally northerly and northeasterly direction to a point at or near Duncan's Bay on the east coast of Vancouver Island.

Dated at Vancouver, this seventh day of January, 1922.

A. F. ARMISTEAD,
Secretary.

Andrew T. Thompson, K.C.,
Pringle, Thompson, Burgess & Cote,
122 Wellington St., Ottawa,
Parliamentary Solicitor.

LA COMPAGNIE DU CHEMIN DE FER DE COLONISATION DU NORD.

Notice.

La Compagnie du Chemin de Fer de Colonisation du Nord will apply to the Parliament of Canada, at its next session, for an Act extending the time for the completion of the railway which it was authorized to construct by Statutes of Canada, 1899, chapter 62, namely:—

From a point at or near Labelle, thence in a westerly direction to the Village of Rapid de L'Orignal (now called Mont Laurier), thence in a westerly direction to a point at or near Lake Temiscamigue, in the County of Pontiac.

Dated at Montreal, this ninth day of January, 1922.

H. C. OSWALD,
Secretary.

Andrew T. Thompson, K.C.,
Pringle, Thompson, Burgess & Cote,
122 Wellington St., Ottawa,
Parliamentary Solicitor.

Canadian Electric Railway Association—L. E. Moreland, Hull Electric Co., Hull, Que.

Canadian Freight Association (Eastern lines)—G. C. Ransom, 909 Shaughnessy Bldg., Montreal.
 Canadian Freight Association (Western Lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Passenger Association—Eastern Lines, G. H. Webster, 54 Beaver Hall Hill, Montreal; Western Lines, E. J. Stone, 306 Union Station, Winnipeg.

Canadian Railway Board of Adjustment No.1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club — W. A. Booth, 53 Rushbrooke St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Ticket Agents' Association, E. de la Hooke, London, Ont.

Canadian Traffic League—R. J. Fitzgerald, 4 Queen St. West, Toronto.

Dominion Marine Association—F. King, K.C., Counsel, Kingston, Ont.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Travel Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, 89 Chatham Ave., Buffalo, N.Y.

Niagara Frontier Summer Rate Committee—James Morrison, Montreal.

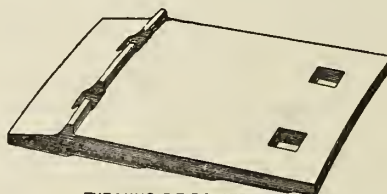
Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, General Secretary, 263 St. James Street, Montreal; Western Operating Committee, E. J. Stone, 306 Union Station, Winnipeg.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacramento Street, Montreal.

Transportation Club of Toronto—W. J. Hotrum, 595 Runnymede Road, Toronto.

Transportation Club of Vancouver — C. E. Blaney, Travelling Passenger Agent, Canadian Pacific Steamships Ltd., Vancouver, B.C.



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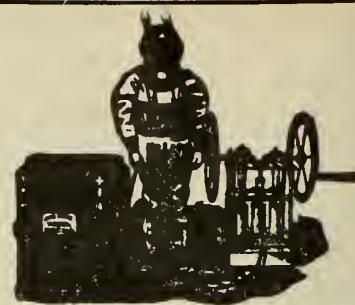
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Kettle Valley Railway Company

NOTICE

The Kettle Valley Railway Company will apply to the Parliament of Canada, at its next Session, for an Act extending the time for commencement and completion of the line of railway which it was authorized to construct by Statutes of Canada, 1920, Chapter 78, namely:—

From a point at or near Coalmont, on the joint section operated by the Company and the Vancouver, Victoria & Eastern Railway & Navigation Company; thence in a general southerly direction, a distance of about twelve miles, to the so-called Granite Creek Coal Areas, in the Province of British Columbia.

Dated at Montreal this seventh day of January, 1922.

H. C. OSWALD,
Secretary.

The Interprovincial & James Bay Railway Company

NOTICE

The Interprovincial & James Bay Railway Company will apply to the Parliament of Canada, at its next Session, for an Act extending the time for the completion of the railway which it was authorized to construct by Statutes of Canada, 1901, Chapter 66, namely:—

From a point on the Canadian Pacific Railway at or near Lumsden's Mill to or towards the Des Quinze River.

Dated at Montreal this ninth day of January, 1922.

H. C. OSWALD,
Secretary.

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New York Office: 30 Church St.

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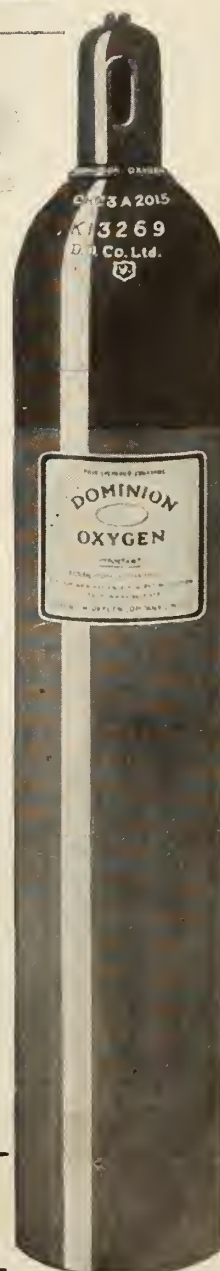
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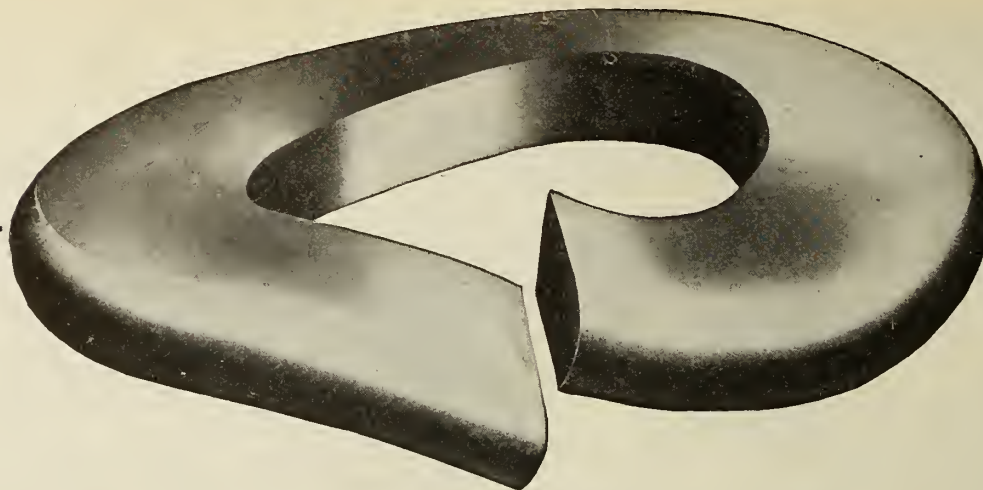
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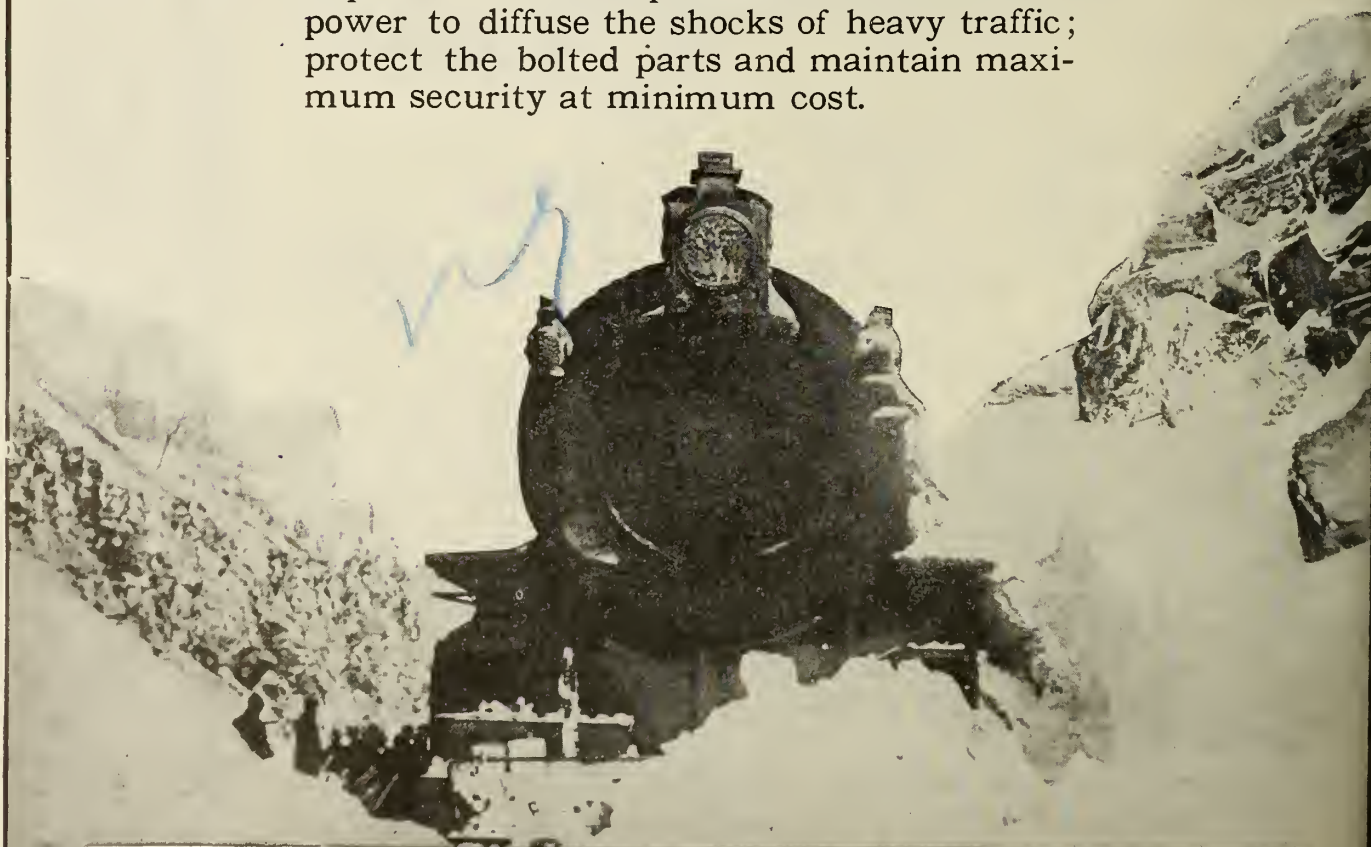
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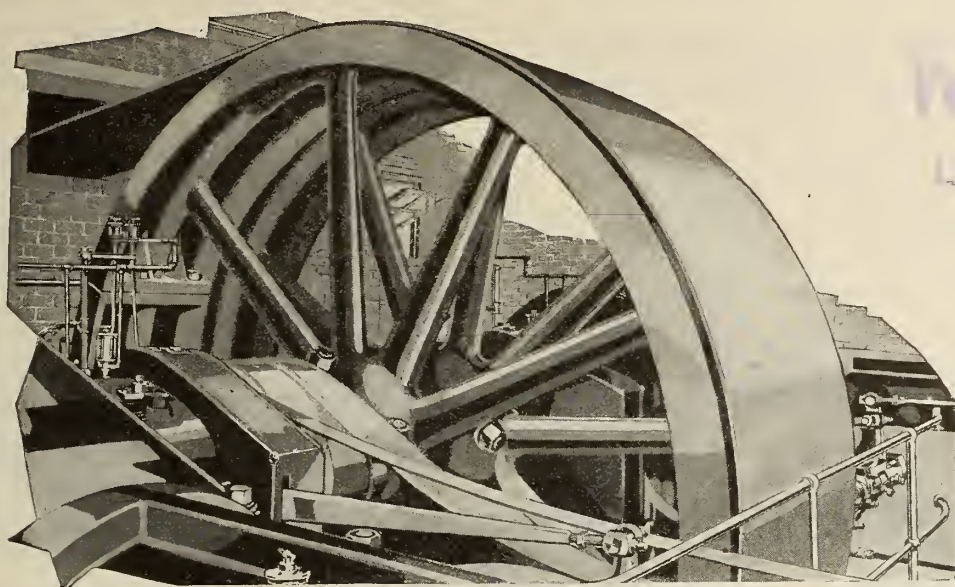
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Transmission troubles due to stretch and slipping are eliminated by *Dominion Friction Surface Belting*. Construction and the exceptional pulley gripping power make it unrivalled for reliability and economy in all drives. Every Dominion Friction

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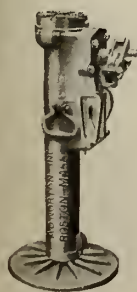
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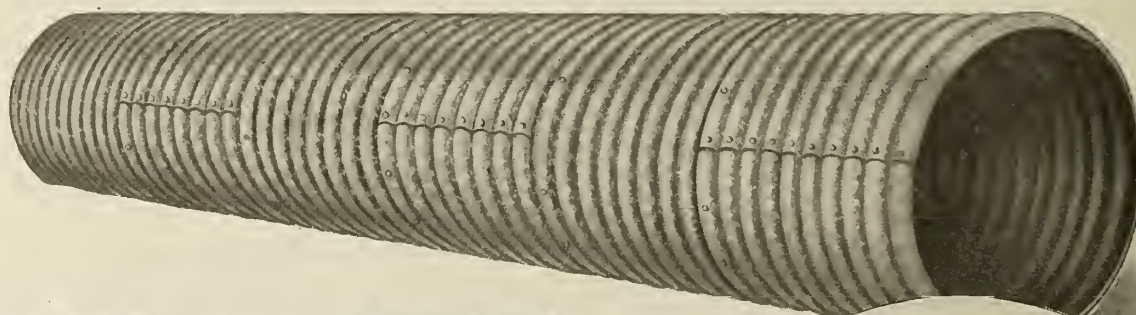
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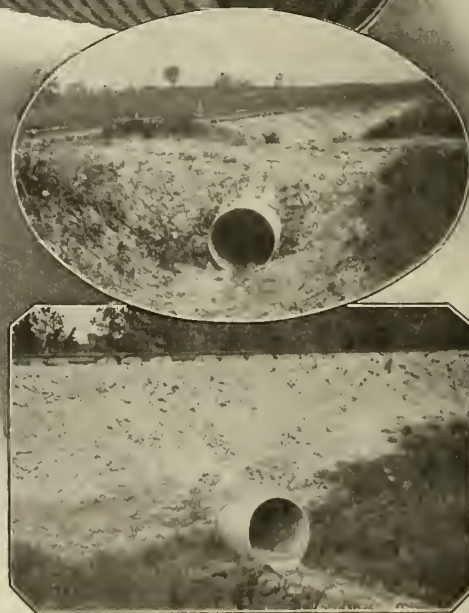
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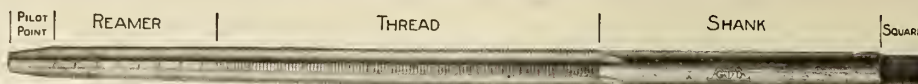
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Send for our bulletin on the "Maxi Tap" and learn just why these special features give you the results outlined above.



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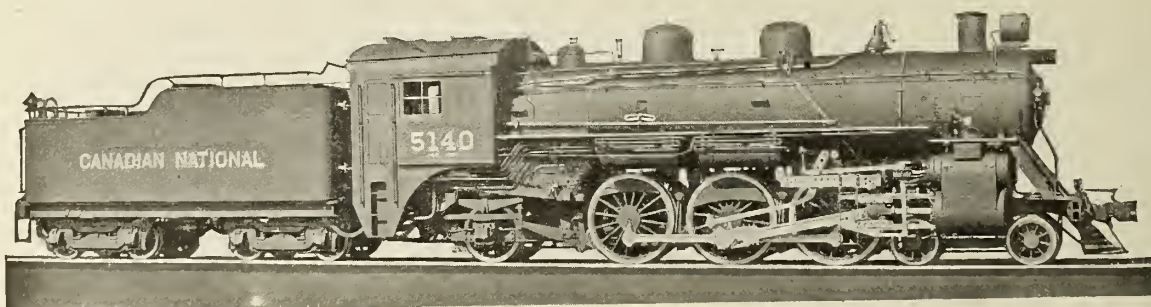
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4-6-2 TYPE LOCOMOTIVE

Built for the Canadian National Railways

We are specialists in building locomotives.

We build all types and sizes, also all kinds of spare and repair parts for locomotives and tenders.

Our experience puts us in a position to give you expert advice as to what particular type and size of locomotive is best suited to your needs.

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Canadian General Electric Co.
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Carbon in general is a highly refractory material, has a low coefficient of expansion due to heat, is mechanically strong, and can be obtained in many shapes and sizes.

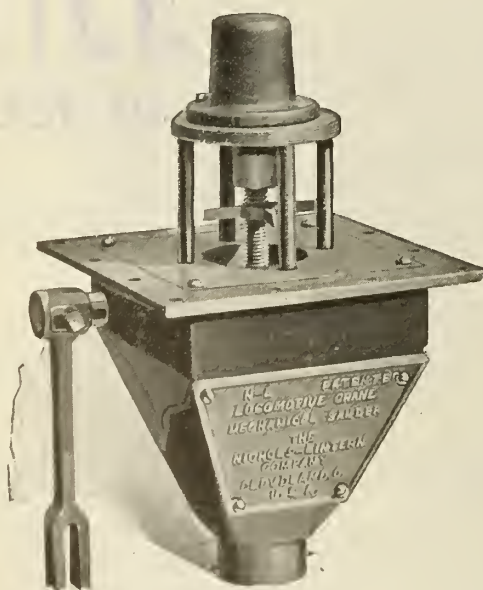
THEY are used chiefly as cores to save redrilling of holes that might otherwise be filled with metal during the welding process. The popular sizes of these rods are $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$, and 2 inches in diameter, and from 12 to 24 inches in length. They can be furnished with square ends, or with one end tapered at an angle of 30°. The services of our Engineering Department are always available to you in the solution of any welding problems.

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N-L Mechanical Operated Sanders

have been adopted as standard on many United States Electric Railways, and is a device filling a *real want* and performing an important and necessary *service*.

As an emergency device the N-L Mechanical Sander used with a hand brake is a real life saver. It is the only combination that can prevent cars from running away when air is lost. As an economical device in regular service N-L Mechanical Sanders prevent the motorman from misapplying his control apparatus, starting the emergency flow of sand and flooding the track with it. N-L Mechanical Sanders apply all the sand you *need* but *no more*. Your cars don't come back empty every night.

The air can and frequently does—fail just when needed—but never N-L Sanders. A slight foot pressure releases the sand at the instant the hand brake is applied—and the car is *held*.

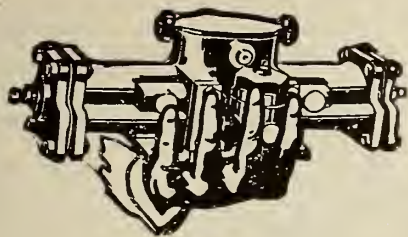
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"Better Service" in electric railway operation means more cars, shorter headways and shorter running time.

You may not always be able to get more cars, but you can give the shorter headways and better running time just the same.

How? By speeding up the cars you have, so that the same car will come around oftener, get the patrons there faster and carry more of those patrons in the day's run.

With what? *National Pneumatic Door and Step Control*, which eliminates time losses due to manual operation, and with *Safety Interlocking Door Control*, which eliminates time losses due to hand-cord signals, and to delays in starting the car immediately upon closing of the doors.

National Pneumatic Company

Originators and Manufacturers of

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Make your peak periods produce maximum profit and efficiency

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London Concrete Mixers



This No. 11 machine is suitable for such work as bridge abutments, piers, or in fact for any work where a large capacity of concrete per day is required.

Built on the most improved lines and of the best materials. Supplied either with Novo Gasoline engine, steam engine or electric motor.

Give us particulars of your work and let us recommend the most suitable mixer to meet your needs.

Information and prices gladly furnished on request.

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RAILWAY, MARINE AND CONTRACTORS SUPPLIES
EXCELSIOR LIFE BLDG., TORONTO ST.

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Canadian Pacific Railway Company NOTICE

The Canadian Pacific Railway Company will apply to the Parliament of Canada, at its next session, for an Act extending the time for commencement and completion of the following lines of railway which it was authorized to construct by Statutes of Canada, 1919, Chapter 79, and Statutes of Canada, 1920, Chapter 75, namely:—

(a) From a point on its Manitou Lake Branch in township 43, range 21, west of the 3rd Meridian, in the Province of Saskatchewan, thence in a generally northwesterly direction through Lloydminster, to a point on or near Whitford Lake in town 56, range 14, west of the 4th Meridian, in the Province of Alberta.

(b) From a point on the Pheasant Hills Branch, at or near Asquith, in township 36, ranges 9 or 10, west of the 3rd Meridian, thence in a general northwesterly direction to a point on the Wilkie Northwesterly Branch at or near Cloan, in township 42, range 20, west of the 3rd Meridian, all in the Province of Saskatchewan.

(c) From a point on the Moose Jaw Northwesterly Branch at or near Rose-town, in township 30, range 15, west of the 3rd Meridian, thence in a generally northerly and northeasterly direction to a point on the Pheasant Hills Branch at or near Keppel, in township 35, ranges 12 or 13, west of the 3rd Meridian.

(d) From a point at or near Kelfield on the Wilkie-Anglia Branch, in township 34, range 19, west of the 3rd Meridian, thence in a generally easterly direction to a point in townships 32 or 33, range 14, west of the 3rd Meridian, all in the Province of Saskatchewan.

(e) From a point on the Weyburn-Stirling Branch at or near Amulet, in township 8, ranges 20 or 21, west of the 2nd Meridian, thence in a westerly and northwesterly direction to a point on the Moose Jaw Southwesterly Branch at or near Dunkirk, in township 12, range 28, west of the 2nd Meridian, all in the Province of Saskatchewan.

(f) From a point on the Crow's Nest Subdivision at or near Kipp, in township 9, range 22, west of the 4th Meridian, thence in an easterly and northeasterly direction to a point on the Suffield-Blackie Branch at or near Retlaw, in township 13, range 17, west of the 4th Meridian, all in the Province of Alberta.

Dated at Montreal, this ninth day of January, 1922.

E. ALEXANDER, Secretary.

CARTER'S

For Hulls of Wood or Steel

CARTER'S GENUINE DRY RED LEAD

In painting steel or wooden hulls, steam pipes or metal work, the first coat is all important.

Carter's Genuine Dry Red Lead is ideal in this respect. Made from the best Canadian Pig Lead, highly oxidized and ground very fine, it is a durable and economical undercoating. Mixed with pure linseed oil, it possesses remarkable covering qualities.

Get prices on this and the other Carter products—Genuine Dry White Lead, Genuine Orange Lead and Litharge.

The CARTER WHITE LEAD Co. of Canada, Limited, 91 Delorimier Ave., Montreal



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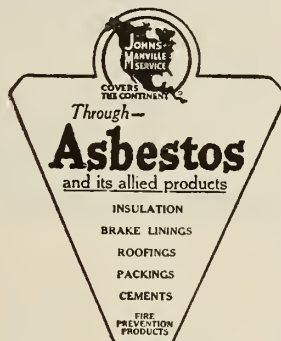
Air Pump, Throttle, Valve Stem,

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Pipe Coverings for all classes of service

High pressure, Low Pressure and

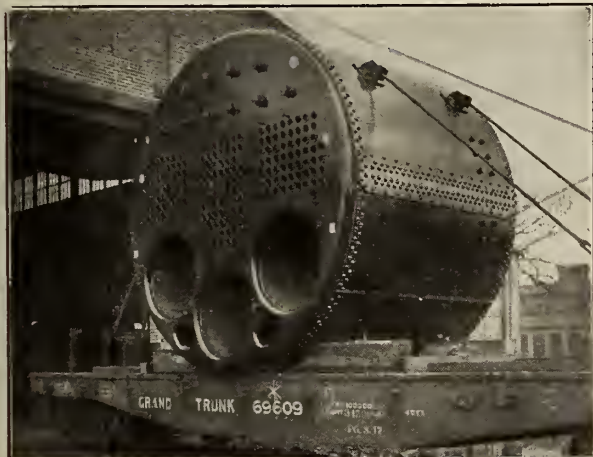
Sheet Packings

High Temperature Cements**Steam Traps****Insulating Cements****Electrical Supplies****Roofings****Industrial Flooring****Transite and Ebony Asbestos Wood****Transite Smoke Jacks****Refrigerator Car Insulation****Steel Passenger Car Insulation****Automatic Slack Take-up****Packing Cups and Gaskets****Expander Rings****Canadian Johns-Manville Co., Limited**

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Six Marine Boiler Bargains



Owing to the closing of a shipbuilding yard we are able to offer six new Scotch Type Marine Boilers at a very attractive price.

Dimensions: 14' 6" diameter by 10' 8" in length; 180 lbs. working pressure, Lloyds inspection. 1,950 square feet of heating surface in each boiler.

Immediate correspondence invited.

ENGINEERING & MACHINE WORKS OF CANADA, Limited, St. Catharines, Ont.

Eastern Sales Office: Hall Machinery Co., Sherbrooke, Que., and Birks Bldg., Montreal.

Malleable Castings High Grade Material First Class Service

Galt Malleable Iron Co., Limited - GALT, ONT.

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Do You Make Anything That Canadian Steamships Should Buy?

Investigate the thousands of things that operating steamship companies buy, and remember that these purchases are continuous rather than intermittent.

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Every manufacturer in Canada, in the United States or in any country, who feels that he has anything that Canadian ship or railway operators should buy, will find he's telling his story to welcoming eyes through the advertising pages of Canadian Railway and Marine World, the recognized buying guide for both railway and marine interests of the Dominion of Canada.

CANADIAN RAILWAY AND MARINE WORLD

Toronto

Member of

Canada

*Audit Bureau of Circulations, Associated Business Papers,
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JOBS CO

No.1. Guillotine Frame Bar Shear

**Motor Driven
10H.P. Motor**

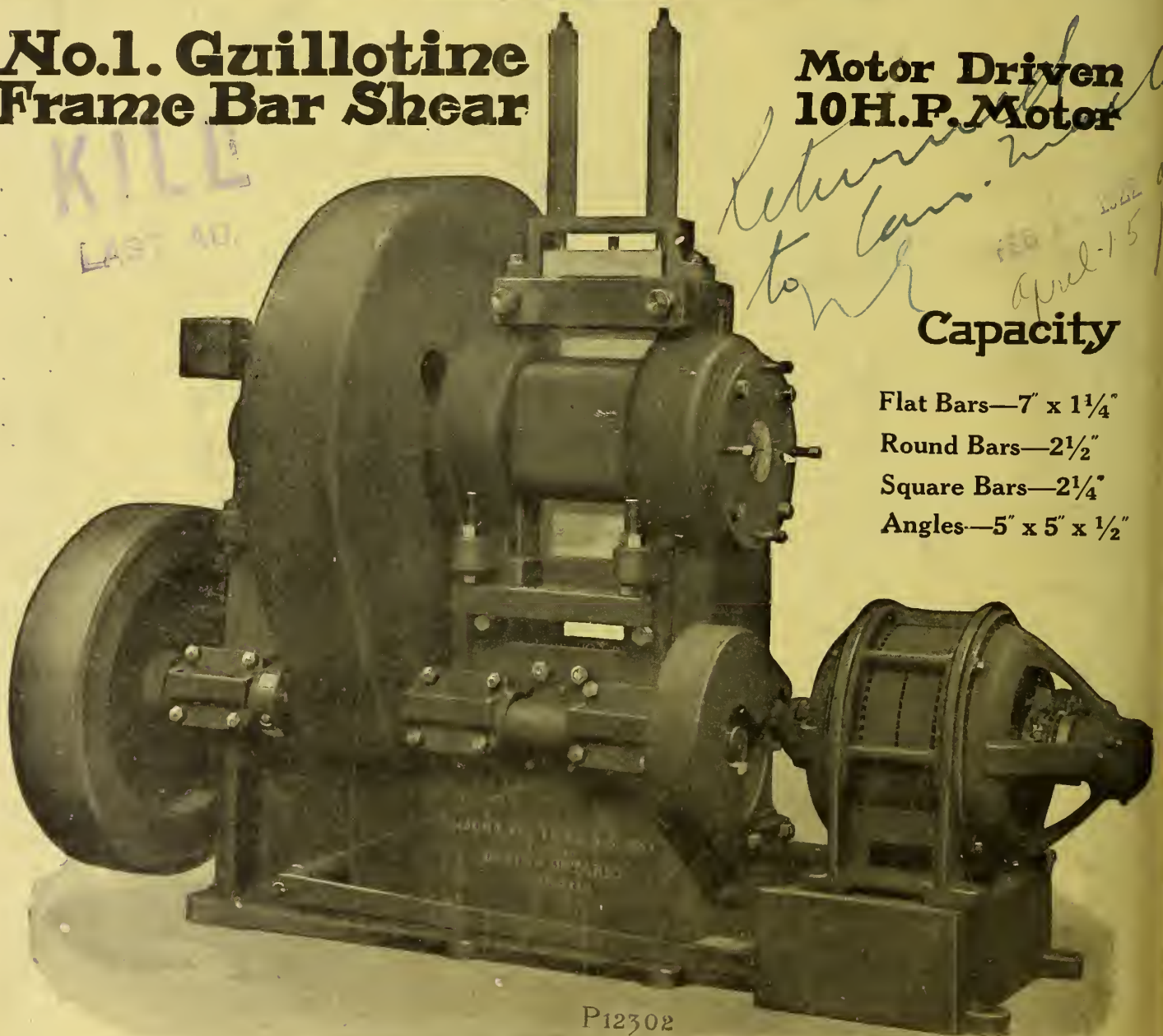
Capacity

Flat Bars—7" x 1 1/4"

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P12302

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1205 McArthur Bldg!

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Roy Bldg.

Canadian Railway AND Marine World

Founded in 1898 by Acton Burrows.

Number 289.

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TORONTO, CANADA, MARCH, 1922

See page 137 for
Subscription Rates

BERTRAM
MACHINE
TOOLS

Illustration shows our No. 4
Single Punch and Shear, 12"
Throat Motor Drive through
belt, fitted with plate shearing
attachments.

Capacity

To punch 1" hole through 1" Plate

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Write for full particulars re
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& Sons Co., Limited**

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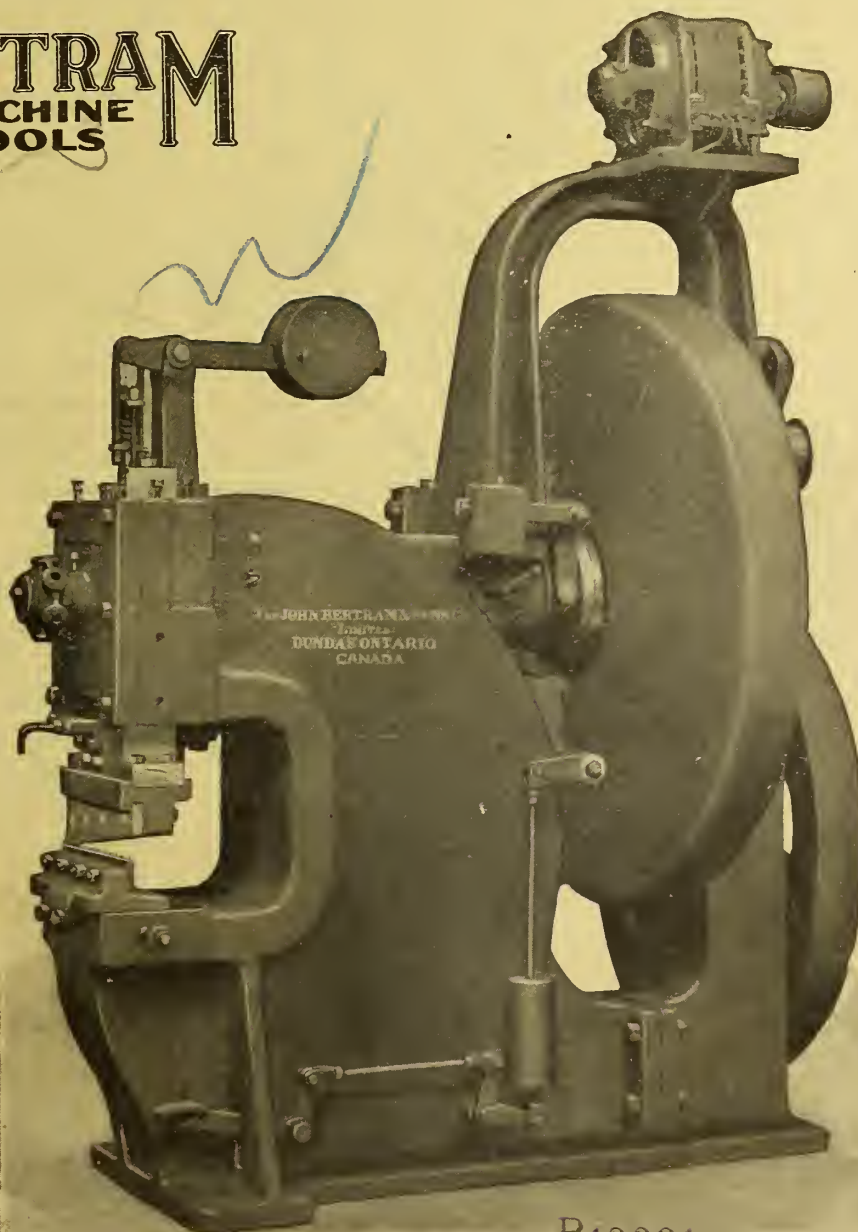
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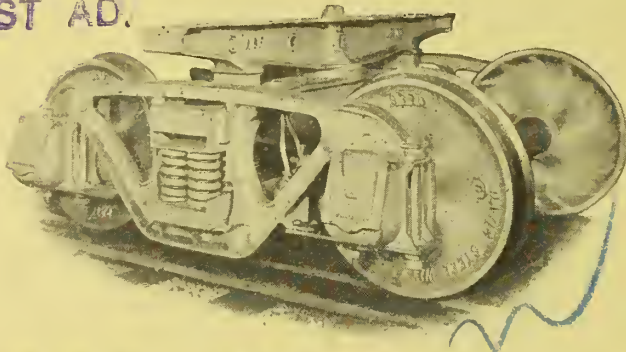


P12224

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NEW YORK CHICAGO ST. LOUIS

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The removal of the Safety Tie Bolt over each Journal Box, and the jacking up of the end of the Truck, permits the wheels to be rolled out.

Vulcan Trucks mean strength and decreased maintenance charges.

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MONTREAL, QUEBEC, CANADA.



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Cut Shows Propeller 17 Ft. 6 Inches in Diameter, Weight 10 Tons. All Sizes, Sectional or Solid Iron, Semi-Steel or Steel.

Marine Machinery Anchor-Windlasses
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Steel Castings, All Sizes

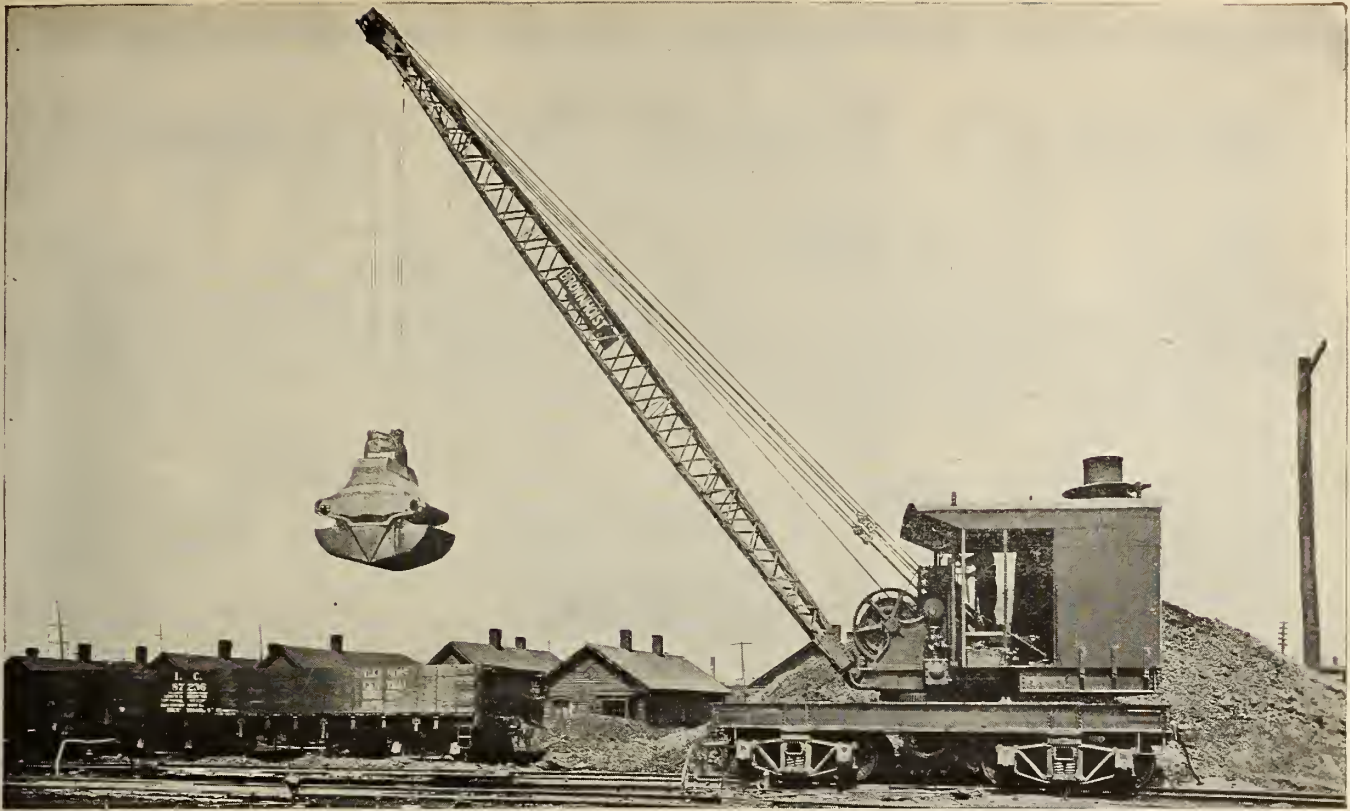
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ESTABLISHED 1860



Saving Over \$50 Per Day

After many years experience with locomotive cranes, The Nickel Plate Railroad rely on these cranes to the extent that they are indispensable in their work. They have proved that a crane saves men and money on all the big and little jobs they have to do.

Two Brownhoists are used by this company on grade crossing elimination work. Handling materials from commercial cars to concrete mixers, one Brownhoist crane and an operator do the work of 16 men. Cost records show that this crane alone is saving \$53.45 per day.

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The all-around usefulness and dependability of a Brownhoist is shown by the value the Nickel Plate places upon their cranes. Catalog K shows the wide usefulness and many types and sizes of these cranes. May we send you a copy?

The Brown Hoisting Machinery Co., Cleveland, Ohio

Branches: New York, Chicago, Pittsburgh, San Francisco, New Orleans.

Products—Locomotive Cranes, Buckets, Electric Hoists, Larries, Overhead Cranes, Bridge Cranes, Dock Machinery.

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RAILWAY TRACK MATERIAL

**Angle Bars
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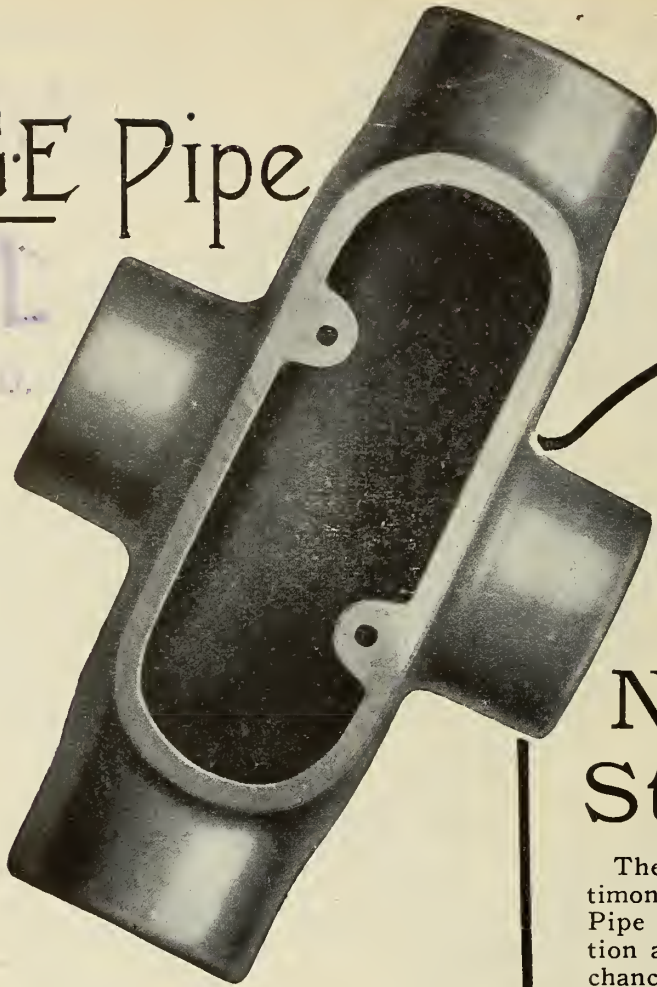
R. B. TEAKLE, General Manager, W. A. CUNNINGHAM, General Freight Agt.,
230 St. James Street, Montreal, P.Q.



Canadian National Railways

C.G.E. Pipe

Fittings



Used on the New Toronto Street Cars

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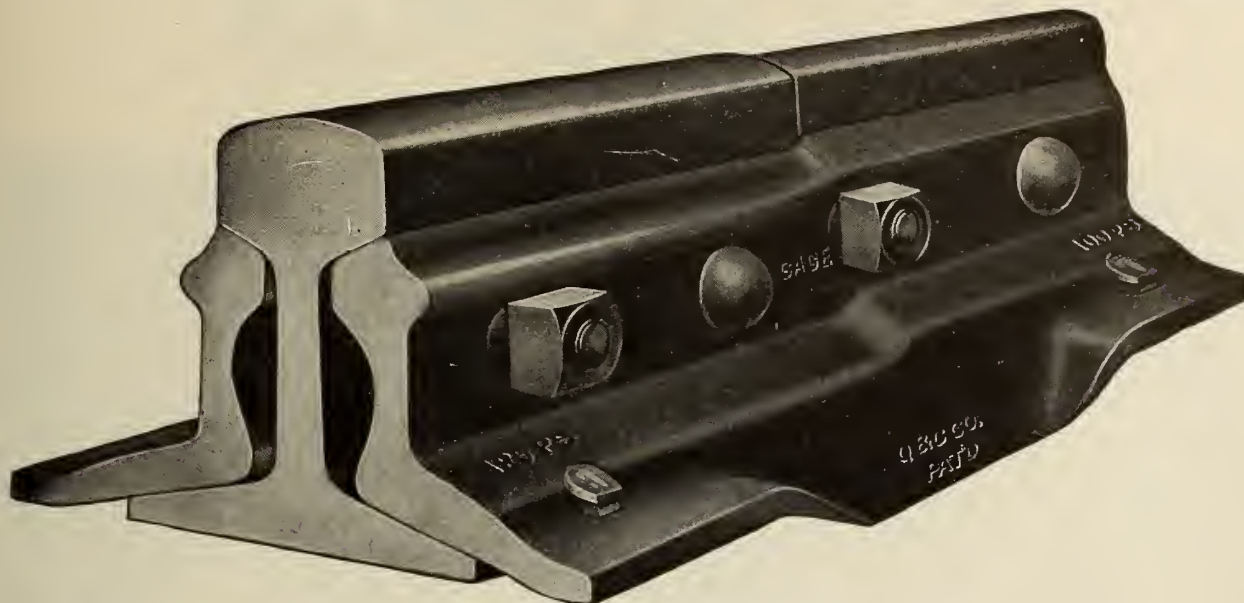
*C.G.E. Pipe Fittings Are
"Made in Canada"*

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LAST AD.

*A Rolled Steel Step Joint Built on
Sound Engineering Principles*

Here is a step joint made of high grade rolled steel. It is heat treated, has the Bonzano-Thomson features of metal distribution (the depending flange and the bulbed head) and is pressed to fit any section of rail made. One that will outlive the life of the rail—built on indisputable engineering principles, which embody strength, safety and economy.

We also manufacture

Derails, Replacers, Rail Braces,
Rail Benders, Rail Saws, Snow
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Rail Clamps, Guard Rail Braces,
Electric Snow Melters, Rolled
Steel Step Joints, Bonzano-Thom-
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There is no comparison between the Q & C Rolled Steel Step Joint and the ordinary cast steel metal joint; the reasons are obvious.

On your road you want the joint that is most efficient, the one that will stand up under fast and heavy traffic. The Q & C Rolled Steel Step Joint is worthy of your investigation. A trial will convince you of its supremacy in the step joint field.

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HIGHEST QUALITY
BASIC OPEN-HEARTH STEEL

CASTINGS



CAST - STEEL PLUNGER CONE
FOR TURBINE VALVE

Diameter - 13ft. 11in. Height - 7ft. 2in.

Weight 25,455 lbs.

for every purpose for which they are required.

From 1 lb. to 100,000 lbs. each.

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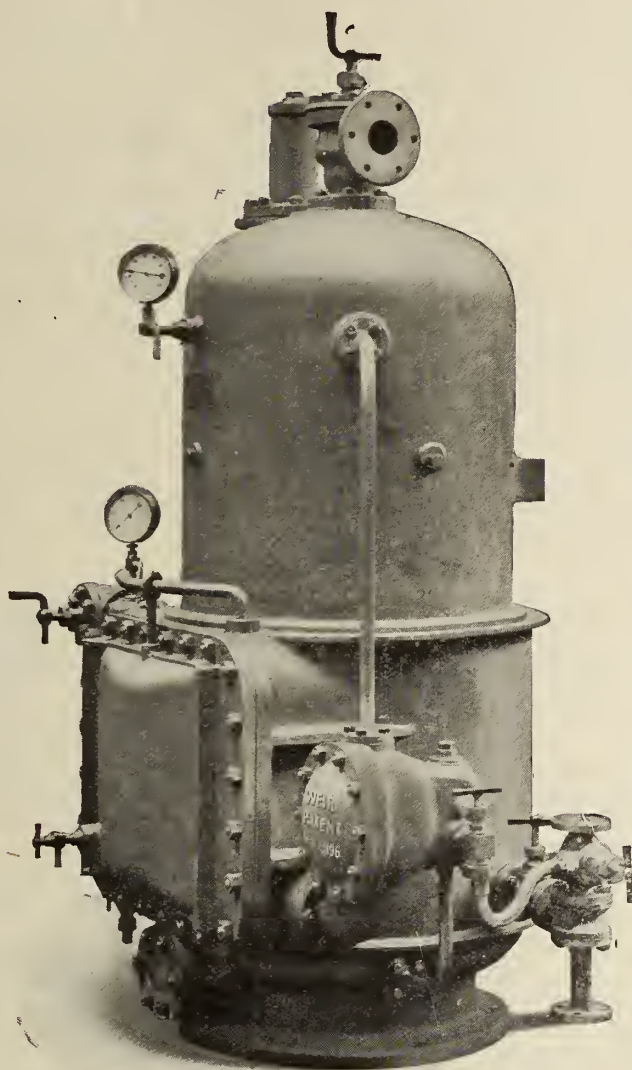
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Embodies Three Important Improvements

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These devices ensure uniform efficiency, simplify working, and lessen costs of upkeep.

They are fully described and illustrated in our New Evaporator Booklet—Send for it.

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AUTOMATIC FEEDING.

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In railroad service the cost of lubricants, as compared with the cost of fuel, is an item almost insignificant. Yet lubrication, as an influence in fuel consumption, is a factor of utmost importance. **LAST AD.**

In hundreds of comparative tests—extending over a period of years—Galena Oils have repeatedly demonstrated their superior lubricating qualities by performing like units of service with smaller fuel consumption in the prime mover.

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don't forget the coal pile!"*



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*"THE ONLY STEEL MAKERS IN CANADA
WHOSE ENTIRE RAW MATERIALS ARE
PRODUCED WITHIN THE BRITISH EMPIRE"*

STEEL PRODUCTS *of every
description*

*"Dominion"
"Old Sydney"
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STEAM COALS

"FROM ORE TO FINISHED PRODUCT"

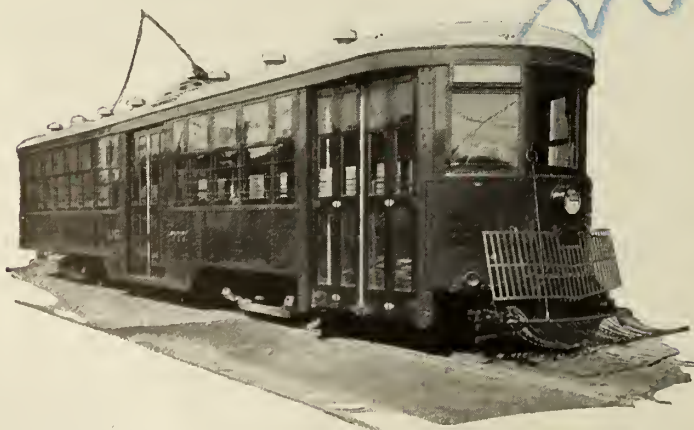
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Corporation Limited *120 ST. JAMES STREET*
MONTREAL



Tomlinson Automatic Couplers simplify train operation in St. Louis.



St. Louis Safety Cars are equipped with O-B Bases, O-B Catchers and Crouse-Hinds Imperial Headlights.



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There could be no better endorsement of O-B Car Equipment than the mute testimony of these United Railways of St. Louis cars.

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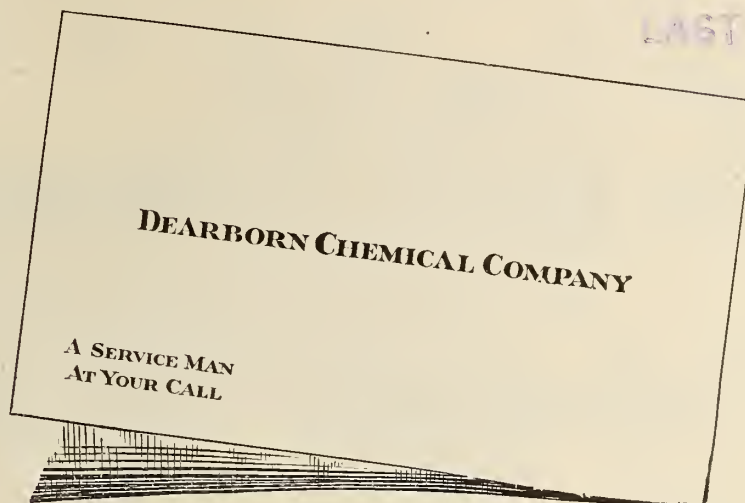
O-B Car Equipment includes:

Catchers	Retrievers	Bases
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The Majority of Steam
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Feed Water Treatment.



In South America, In Europe,
In the Orient,—On Every
Continent,—Dearborn Water
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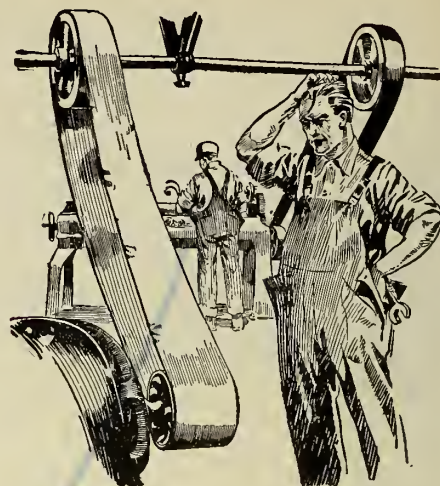
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Thus the Road not using
Dearborn Water Treatment
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method.

Dearborn Chemical Company
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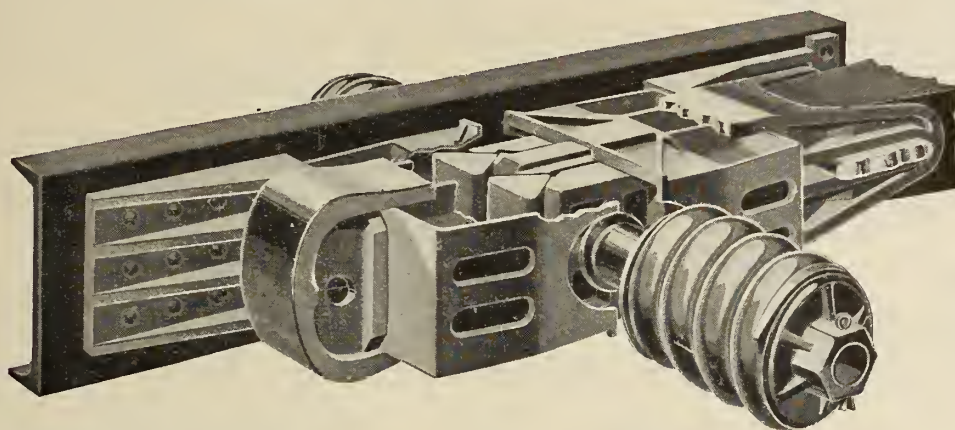
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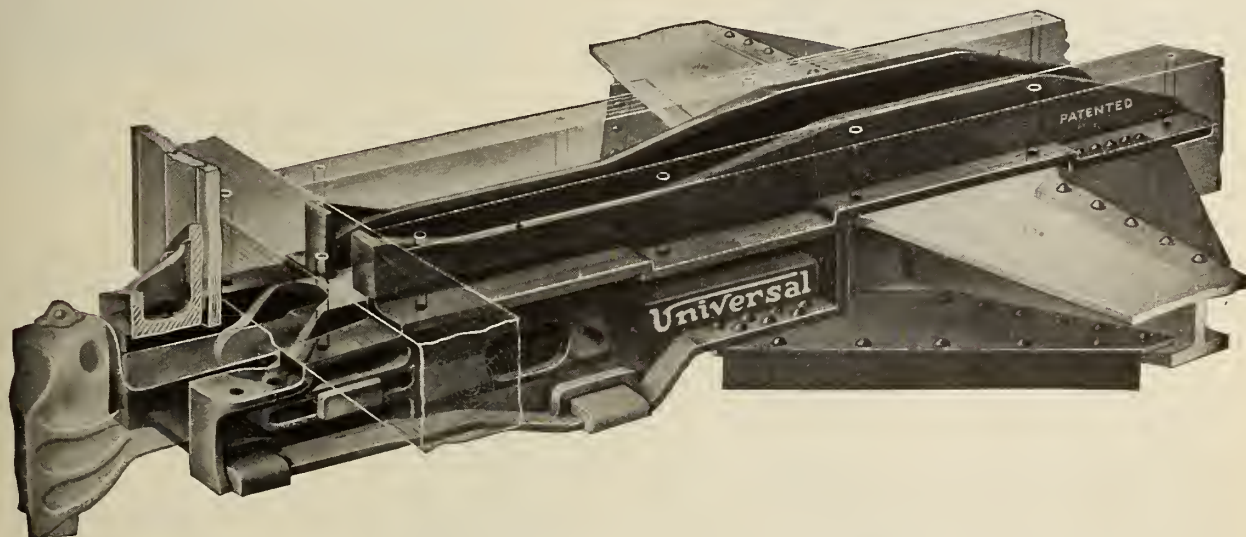
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Old Level Floor Car. Note Ballast Left by Plow.

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Center
Dump
or
Side Dump

For Coal
or General
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Improved Car Unloaded by Top Plow. Has no Ballast to be Shovelled out by Hand.

The Car With Gravity Discharge Pockets

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"MARION" STEAM SHOVELS

"INDUSTRIAL WORKS"

PILE DRIVERS & CRANES

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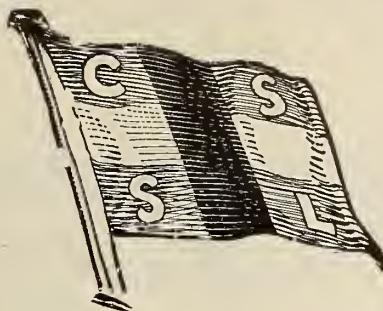
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to Fort William. Fort-
nightly sailings from
the above ports. Fur-
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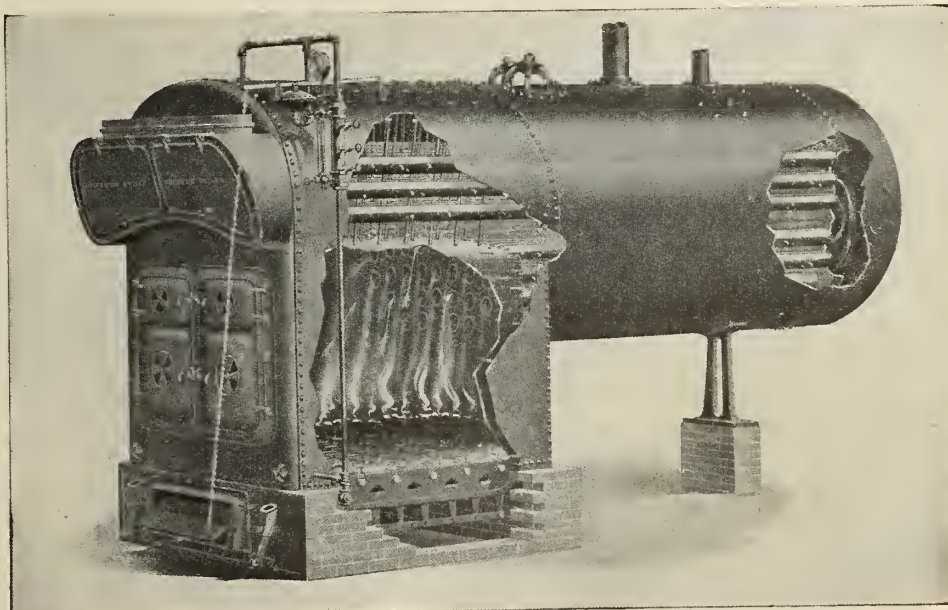
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Established 1860

Boilers of all Kinds
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Steel Plate Work

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MACHINERY
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Ottawa Representative,—J. W. ANDERSON, 7 Bank Street Chambers.

Buffalo Brake Beam Company

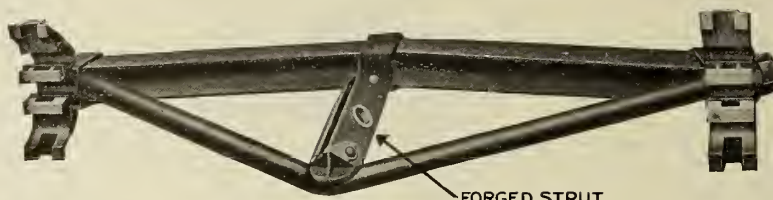
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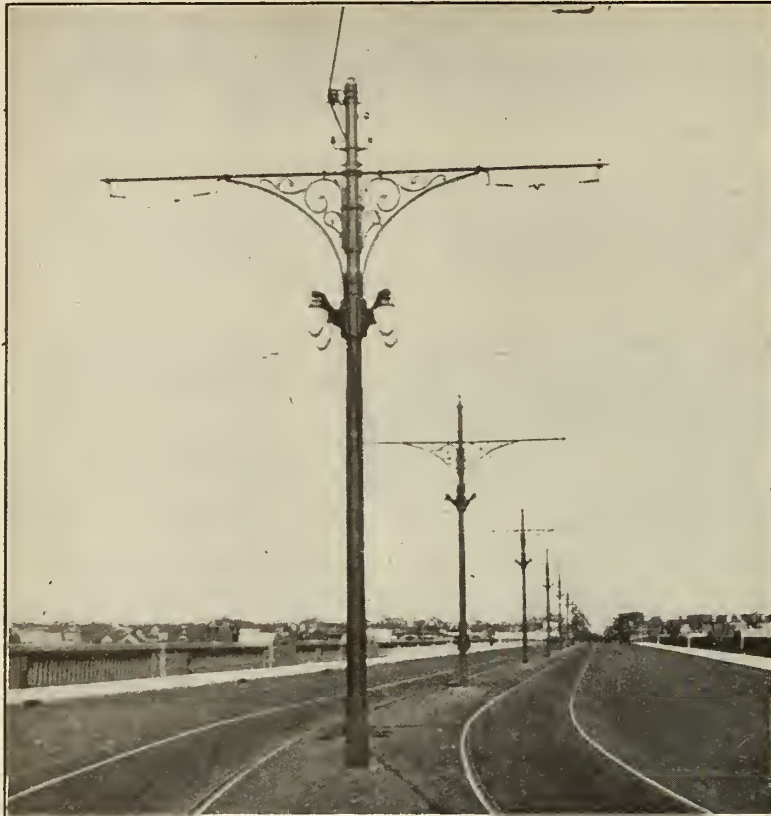


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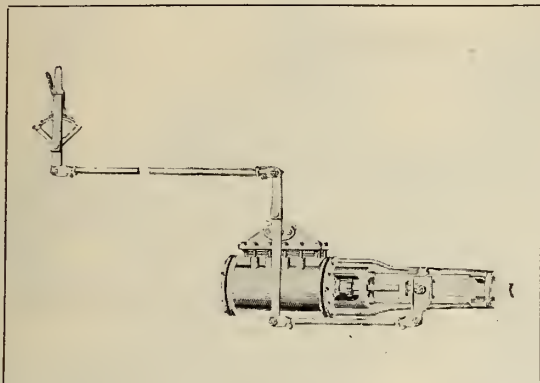
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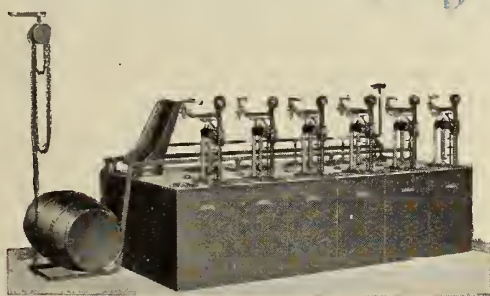
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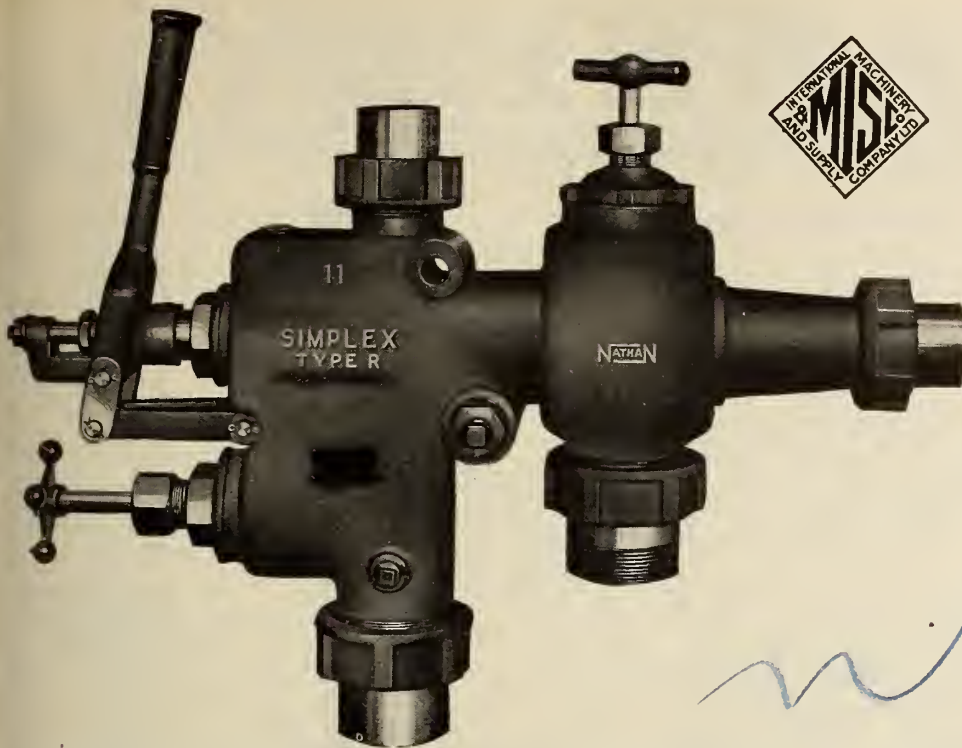
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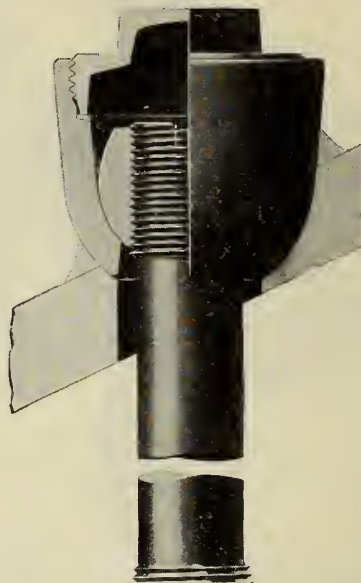
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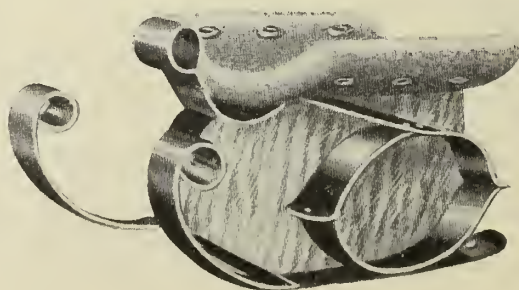


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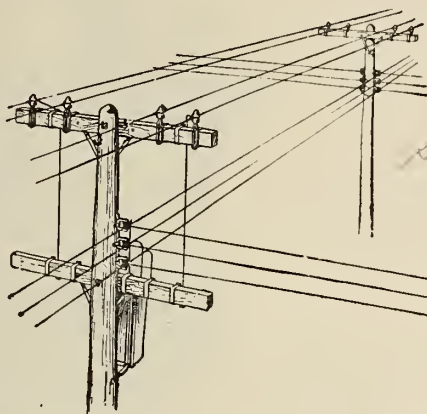
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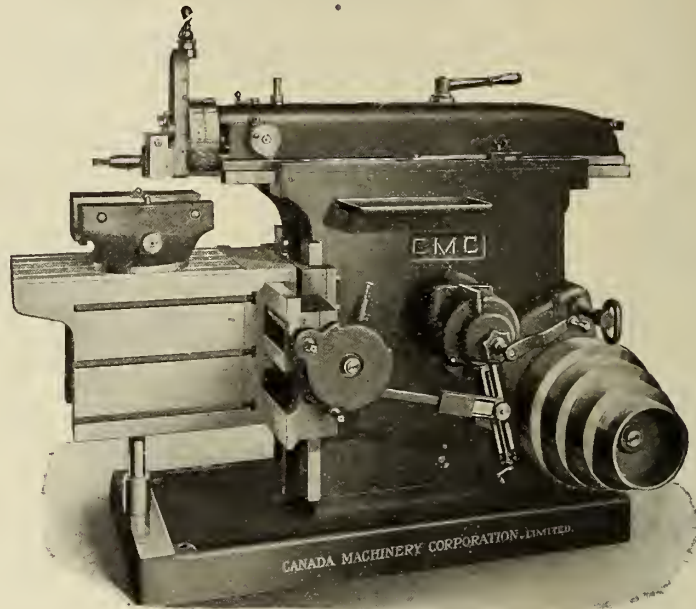


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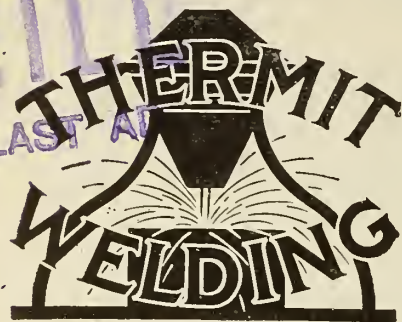
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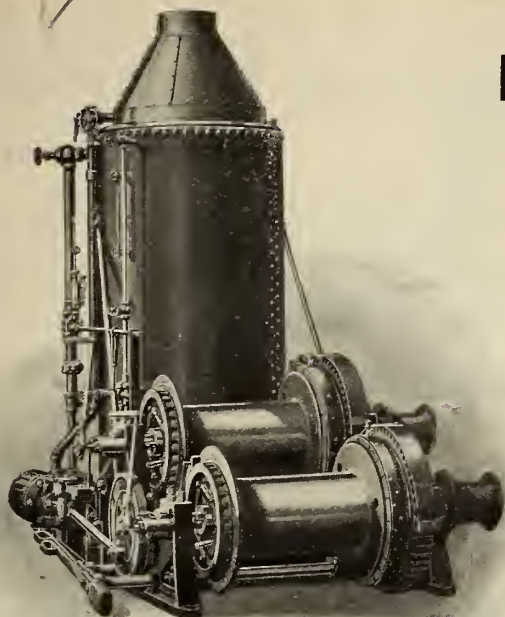


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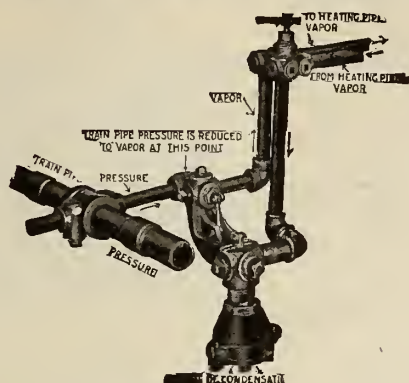
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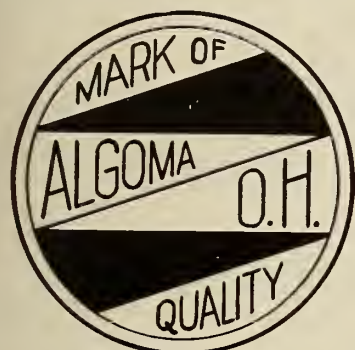
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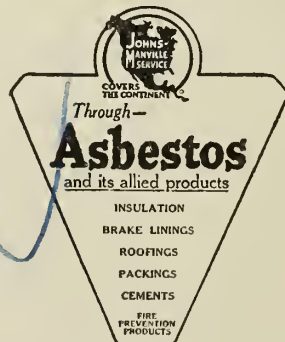
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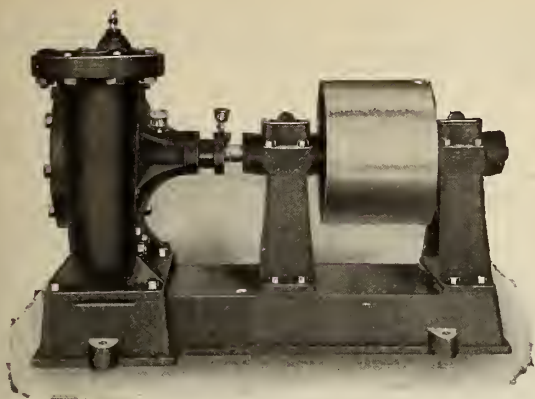


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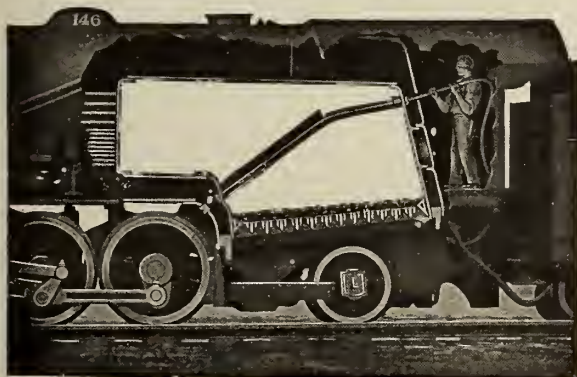
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Canadian Railway and Marine World

March, 1922

New Car Cleaning Facilities at C.P.R. Glen Yards, Montreal.

The terminal cleaning and refitting of passenger rolling stock is one of those branches of railway operation which does not attract much attention from those whose work does not bring them into direct contact with it, but it is an important detail in the scheme of railway operation, if for no other reason than that the degree of cleanliness to be met with in passenger cars has a lot to do with the impression the travelling public will take away concerning the type of service provided by the railway. As in all other departments of railroading, the degree of efficiency with which the cleaning and refitting are done, and the degree of economy attending the performance of the work must depend in a large measure on the facilities provided, it being axiomatic that the better and more modern the facilities, the greater will be the tendency for the work to be done

wide; the two wide platforms only will be covered. The wide and narrow platforms are to be located alternately, a narrow platform on the main line side, with a wide one located adjacent to it, and so on. The narrow platform nearest to the main lines will be 700 ft. long, the wide platform adjacent to it will be 600 ft. long, the narrow platform adjacent to that again will be 500 ft. long, and the remaining two will be each 400 ft. long. Two of the platforms will be equipped with ramps at the ends farthest removed from the car cleaners' house, as shown in fig. 1, the slope for these being 1 in 10. The track between the 1st and 2nd platforms, as counted from the main line side, will hold 8 modern passenger cars, that between the 2nd and 3rd will hold 7, that between the 3rd and 4th will hold 6, and that between the 4th and 5th will hold 5.

be 17 ft. 1 in. vertically above the top of rail, while the extreme edges of the roof will be vertically over the adjacent rail, so that the shelters over the wide platforms will be just high enough to clear the cars and form an enclosure when cars are placed on the tracks on both sides of the platform.

The wide platforms will be supported by 8 x 8 in. posts, with the bents at 8 ft. centers, with 2 x 8 in. bracing at every third bent, and 3 x 12 in. x 2 ft. sills. There will be 5 posts to a bent. Surmounting the posts will be 8 x 8 in. caps, with the platform surface material laid on 3 x 10 in. joists laid longitudinally. The platform surface will be of 3 in. planks laid transversely with $\frac{1}{4}$ in. spacing. The platform will be 3 ft. 8 in. high from top of rail, and the extreme edge of the platform will be 6 ft. from the center line of adjacent track. The lower part

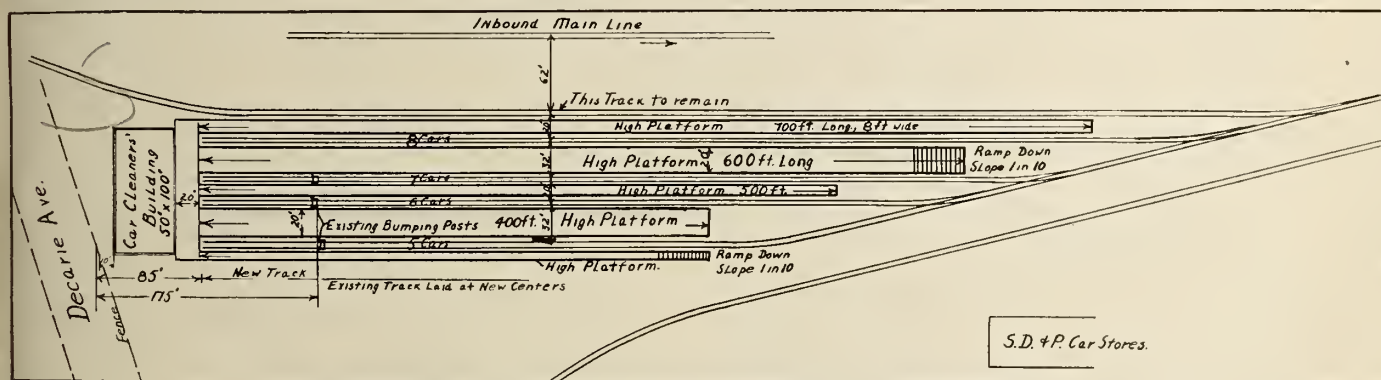


Fig. 1. General layout, car cleaning building and shelters, Glen Yards, Montreal.

thoroughly and economically.

A contract was given recently by the C.P.R. to D. G. Loomis & Son for the construction of car cleaning facilities at Glen Yards, Montreal. These yards are on the St. Lawrence River side of the main line, near Westmount, and are used for storing and handling passenger rolling stock operating out of Windsor St. station, there being also a locomotive house and accompanying facilities for handling of locomotives operating into and out of Windsor St. station. The accompanying fig. 1 shows the general layout of the new car cleaning facilities and the location which they will occupy is made clear by the relation which their position will bear to that of the sleeping, dining and parlor car stores, Decarie Ave., and the main line, all of which are shown.

The new facilities will consist of a car cleaners' building, 50 x 100 ft., and 5 platforms, of varying lengths, 2 covered and 3 open, all served by an adequate system of trackage. A track, now located 62 ft. c. to c. from the inbound main line, will remain as the outer platform track on the main line side of the new facilities, while the other tracks which will be provided between the platforms will diverge from the same ladder as does this one. Two of the platforms will be 20 ft. wide, and the other three 8 ft.

The house, platforms and shelters will be principally of wood. The distance between track centers across the narrow open platforms will be 20 ft., and across the wide covered platforms, 32 ft. The vertical supports for the shelter roofs over the wide platforms will be 16 ft. apart c. to c. longitudinally and 14 ft. transversely, which will bring their longitudinal center line 3 ft. in from the edge of the platform, or 9 ft. from the center line of the adjacent track. These supports for the platform roofs will be 10 x 12 in. posts, with the 10 in. face parallel with the center line of the track, set on 8 in. flatted cedar sills, 6 ft. long, and braced at the sills by 4 x 6 in. pieces, the alternate pairs of posts to have footings turned so as to give equal bracing in either direction. The roofs over the covered wide platforms will be 25 ft. extreme width, sloping both ways from the center, the slope to be 2 ft. in 12 $\frac{1}{2}$ ft. The upright posts supporting the shelter roofs will be surmounted by 10 x 12 in. caps and 12 x 12 in. beams, with 2 x 8 in. diagonal supports to the outer sides of the roof, while roof construction will include 2 x 8 in. rafters spaced at 2 ft. centers, two layers of $\frac{7}{8}$ in. tongue and groove plank with tar paper between, and top covering of asbestos roofing. The roof will be fitted with gutters and downspouts. The lowest part of the roof will

of the platform will be enclosed by $\frac{7}{8}$ in. boarding all around.

The narrow open platforms will be of similar construction to the wide covered platforms, with the exception that there will be only 3 posts per bent instead of 5, and of course fewer joists. The same type of post bracing, and the same dimension platform planking, similarly laid, will be used, and the sides of the platforms will be similarly enclosed by $\frac{7}{8}$ in. boarding all around. Vertical and horizontal rail clearance will be the same as for the wide platforms.

Fig. 2, a part plan, shows the car cleaners' house and platforms in somewhat more detail than fig. 1, and fig. 3 shows a cross sectional view of the new facilities as seen in looking toward the house from the ends of the platforms. Tracks between platforms will be equipped with C.P.R. standard cast iron car stops. The space between the wall of the house and the beginning of the long platforms proper will be occupied by a covered platform 20 ft. wide at the same level as the long platforms, the slope of the roof over this portion of the platform structure being shown by the side view, fig. 4. The $\frac{7}{8}$ in. shiplap boarding enclosing the sides of the long platforms will be carried along the sides of this portion to the wall of the house. Access from the car cleaners' house to the platform will be

"What is Your Locomotive Policy?"

G. M. Basford, of New York, N.Y., read a paper with the above title, before the Central Railway Club at Buffalo, N. Y., recently. His statements were such as to bring home forcibly to railway mechanical men, indeed, to all railway men, the fact that the locomotive of today is a vastly more efficient machine than that of a few years ago, provided all the economy and power increasing devices applicable to locomotives are utilized.

tions that they never even dreamed about. I am thinking particularly of D. L. Barnes, G. S. Strong, M. N. Forney and H. F. Shaw.

Successors have designed and built a passenger locomotive that will produce at the rate of a cylinder horsepower per hour from 16.5 lb. of water and 2.12 lb. of coal, and that weighs 121 lb. per cylinder h.p. This was done 10 years ago. Lots of locomotives have been built since

ment of the locomotive augments the effect of every other improvement that can be made. Everything done to make a locomotive pull more tons per ton of its own weight and per pound of fuel burned helps everything else you do to improve the efficiency of transportation. These facts are not as prominent in the minds of operating officials and of executives as they should be. Why? The locomotive today at its best is not understood by them as it should be. Why? Locomotives in everyday service may be made to produce at the rate of less than 3 lb. of coal per i.h.p. Why are so few of them doing this? Can they be made to do it? By co-operation, yes.

One of our difficulties is that we are so close to the locomotive as to tend to regard it as we have always done, as a machine that we know all about. We did know all about it as it was in our boyhood, but unless we have kept step with the improvements of recently past years in locomotive matters we are far behind the times. Forney said: "The human mind resents the intrusion of a new idea." This is true. The slow progress of locomotive improvements in the United States proves that he was right. Europe and Canada led us in the introduction of the greatest improvement that the locomotive ever enjoyed. Europe has 14,000 applications of another improvement that is only just starting in this country, and what other country needs these things more than we do? We need to bring our locomotive problem to the front. We need to elevate it to its proper place in railroading. We need to give it the attention it deserves.

What is your policy with respect to locomotive improvements, those factors that collectively give you, according to speeds, from 30 to 80% more power per pound of fuel than you can get from a plain locomotive? What are you doing about these things when you order new

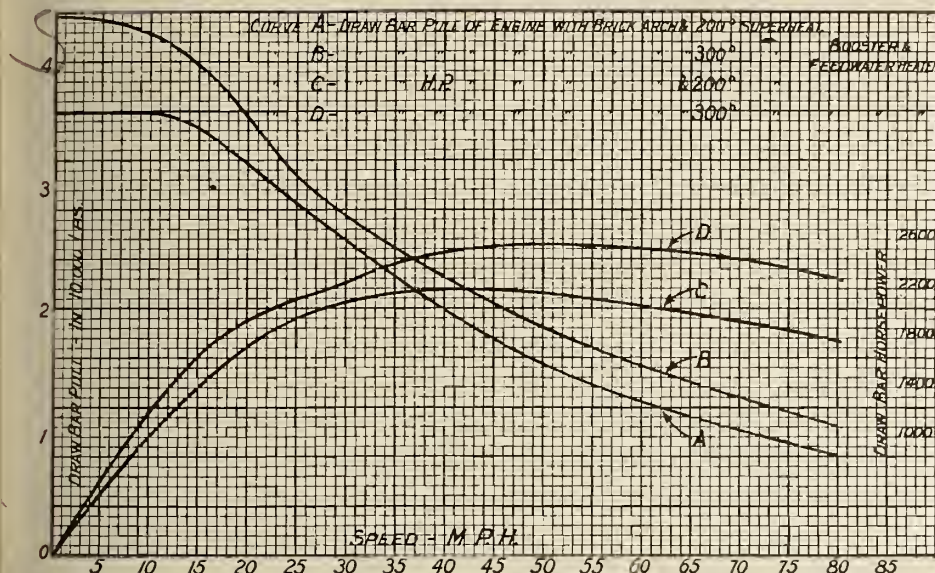


Fig. 1. Showing the power improvement that can be made in the most efficient Pacific type locomotive by application of higher superheat, the feed water heater and the booster.

The potentialities of the steam locomotive, as outlined by him, are much greater than is ordinarily realized. Following is a summary of the paper.

Transportation conditions have changed. Only a comparatively short time ago—a lifetime—a trip from New York to Buffalo took 20 days, while now it takes but a few hours. The steam locomotive is responsible for the difference; the locomotive which can be put into service today is as far ahead of the locomotive of 1835 as the locomotive of that date was ahead of ox teams, but not enough advantage is taken of the fact of it being possible to build such efficient motive power units.

With respect to the locomotive, "policy" means a charted course using all established and safe aids to bring the craft to its logical destination. That destination is "the most tons handled for the least money." After "policy" there must be a plan based upon the fundamental principles of the policy and then a programme to execute the plan.

No matter what else we do ours will be a sorry sort of railroading if we fail to find in the treasurer's office the results of the efforts of those who have spent the past 20 years in showing how to increase locomotive power per pound of metal, and per pound of coal, and who have proved their ability to do it. I say 20 years, but it is more than 30 years since this work began. Some of the men who inaugurated this development built better than they knew. We cannot thank them now. We can, however, use the results of their life work, that puts into our hands the possibility of building new and rebuilding old locomotives that are competent to meet condi-

that time that cannot do as well. Another example is a magnificent big freight locomotive with 90,000 lb. tractive effort that will produce one cylinder h.p. from 15.4 lb. of water, and, at its best, 2 lb. of coal, and that weighs 88.9 lb. per cylinder h.p. This has been done.

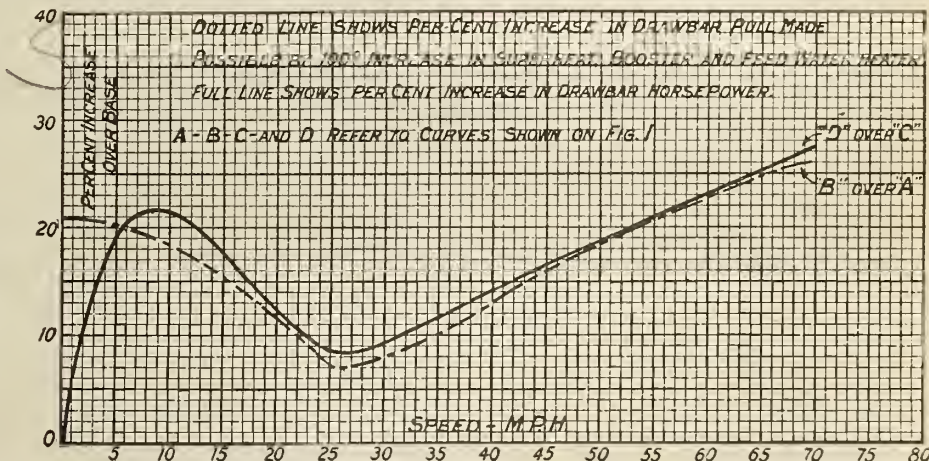


Fig. 2. Showing the percentage of increased power at various speeds, obtained by improvements of the past 10 years which are available for the locomotive of fig. 1, but which have not yet been applied to it.

It is the best record that I know about. Do those to whom they mean most know these facts? Do they make full use of them? These are isolated cases showing possibilities, but current practice is far behind them. Every new locomotive on every railway ought to be designed and built to equal and surpass the records just referred to.

No matter what else is done to increase efficiency and reduce cost in railroading, bear in mind that the improve-

locomotives, and what are you doing about applying them to old ones?

What is your policy and plan with respect to the design of new locomotives, and who decides their earning ability for their working life of 20 or 30 years?

What is your policy with respect to assignment of locomotive power to meet varying conditions of traffic, seasonal or emergency conditions? If this is not done by those who ought to know most about power matters there must be a

reason for it. How do you know just how many new locomotives to order, and just what type and capacity to order? Is there a plan for this that looks ahead to that which is coming and is framed on experience of the past?

How do you know that the latest new locomotives are making good? Do you test them and keep records to show whether your locomotive engineering policy is correct and whether you are making the money from your new engines that you ought to make?

What is your attitude toward locomotive improvements as to application to older locomotives? Are the applications

back into service promptly, and keep it in service continuously until it is time for the next shopping? Do you know that new locomotives can be built with improvements in design that will permit of safely deferring increases in weight of rail and strength of bridges for years to come? Are you aware of the fact that the biggest, most powerful passenger locomotives in the country can be replaced by others that will stress the track and bridges less than the present ones and yet give enough increase in pulling power to reduce double heading, and that improved locomotives will start and pull heavier trains than have ever been put

road coming up to date in its use of these epoch making operating factors? If you consider these as mechanical matters, and if you regard signalling as a safety measure alone, you are missing something. Operating officers, ask signal engineers and mechanical officials to help you operate the road. They are in position to help as they never have been before.

Do you establish a definite plan covering the next three or five years with respect to your locomotive programme? Do you keep in mind the fact that new locomotives will last 20 or 30 years, and that your record of intelligent grasp of railroading is to be read by others after you are gone?

In the matter of water stops, have you thought of the effect on operating cost of the capacity of tender tanks on freight locomotives? Do you realize that by applying new design tender tanks, carrying 15,000 gall. of water, would beyond question save more money in direct operating results on some railways than anything of equal cost that you can do to a freight locomotive on congested track today, with the possible exception of the application of a booster?

Our railways were built for the locomotives of the past. They were, and with the exception of a few outstanding examples, are, operated in accordance with the locomotives of the past. But the locomotive has changed faster than the methods of using it. A new, refined, efficient power plant is available to take the place of the one that was merely big and heavy. Those who operate our railways must learn what has happened. For their own sake, the sake of the properties, and of the people they serve, they must take advantage of the locomotive as it may be, not as it is, to solve the greatest problem they ever faced. The locomotive must be viewed from a new angle. We have been deficient in our conception of it, and of its proper place

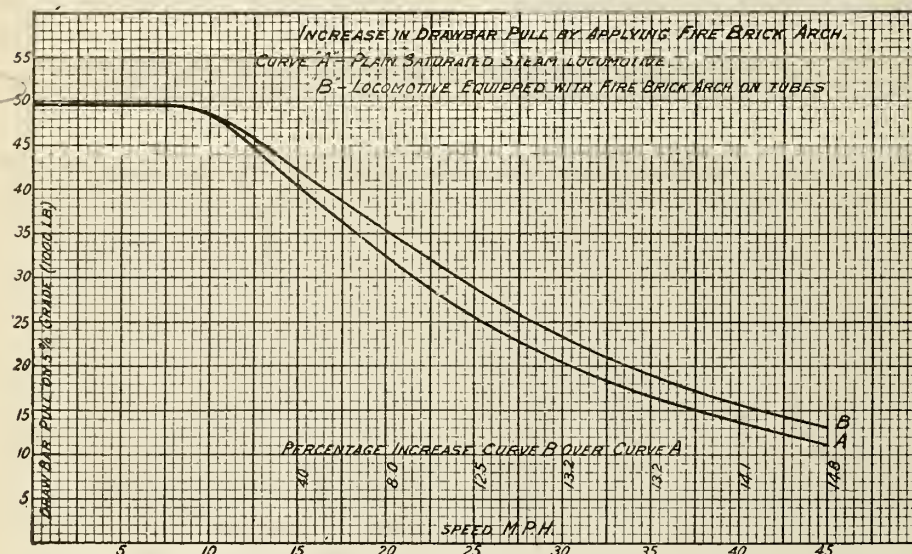


Fig. 3. Showing the increased power a brick arch gives on a 0.5% grade to a 26 x 30 in. mikado locomotive similar to the U.S.R.A. light mikado.

scheduled after careful complete surveys of the power, and are the improvements applied by programme, systematically? Then do you organize to educate the men in the best use of the modernized locomotives to get the utmost return from the investment? When you apply a locomotive improvement that is good for 25% greater economy, are you sure that you get that economy?

What is your policy with respect to scrapping old power, and also obsolete shop machinery? Is it done systematically to take advantage of improvements as Andrew Carnegie did? Did it pay Carnegie to do it? Do you have or follow an engineering or business policy with respect to your locomotives, as a manufacturer does with respect to his investment in his expensive machinery?

How do you know that the enormous investment in locomotives themselves and in the facilities for repairing them are employed to the best advantage? Do you do as one railway official does, hire a man, a specialist, to organize the use of every locomotive item on which he spends \$100,000 a year or more?

Do you know that the mileage locomotives are making is what it should be and may be? Are you hampering operations by the old time idea that each division is a separate railway? A passenger locomotive made a run of 1,000 continuous miles recently without uncoupling from the train. Regular continuous runs of 400 to 700 miles are being made. Are your locomotives making above the average of 60 miles a day? Herein lies a gold mine.

Are you sure that shops, shop equipment, locomotive terminals and terminal equipment are adequate to get the power

behind any locomotive yet built? I refer to usual main line traffic.

What policy are you following with respect to signalling in relation to locomotive improvements, that permits of

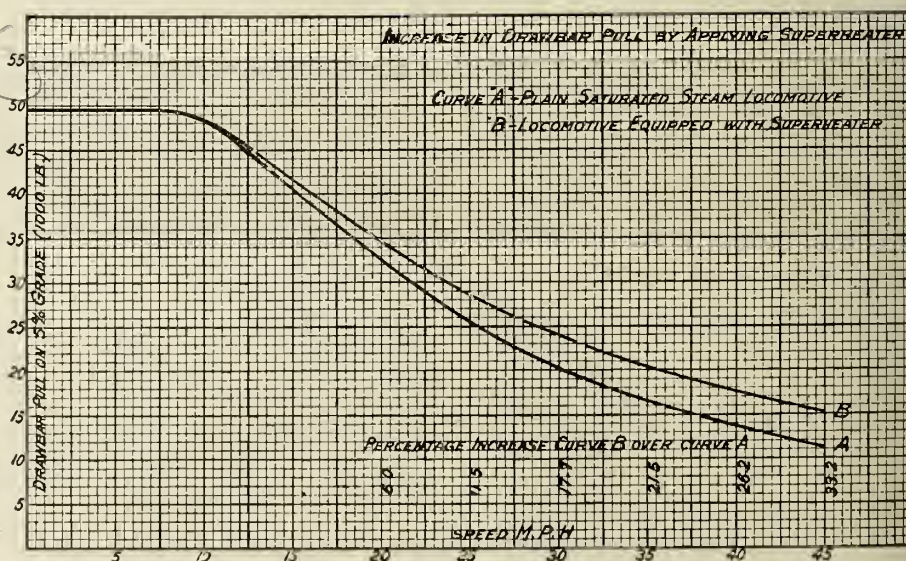


Fig. 4. Showing the increased power a superheater gives on a 0.5% grade to a 26 x 30 in. mikado locomotive similar to the U.S.R.A. light mikado.

more rapid acceleration in starting out of sidings, out of yards, and across cross-overs? The entire question of block signalling, siding locations, and location of water and coal stations, is opened up anew by the ability to accelerate trains faster and to make longer runs for coal and water. Our railways were built for the saturated steam locomotive, without the vitalizing factors of today. Is your

in operation of the road and in the transportation of the country.

A locomotive "simple as a grindstone" is a mighty expensive article to operate today, but thousands of them are running that may and should be made efficient by improvements that everybody knows about, and everybody accepts as satisfactory. Why don't we use them to the limit? These improvements have

revolutionized the locomotive art. They will revolutionize locomotive operation. Let us hasten the day when the locomotive will be considered as a real part of the great transportation machine. It is a big part of the transportation machine. Above all other things, every part of a machine must fit each other part. Otherwise a machine is impossible. The locomotive must fit track, tunnels, terminals and other factors, the least change in which means prohibitive cost, where bigness and weight and the increased power that go therewith must give place to improvements and refinement that render

der this improvement available. Another factor is improved conditions of combustion by application of the latest developments of the locomotive firebox as a furnace. This means improved fireboxes, more extended use of firebrick arches and mechanical stokers. A further factor is that weight per cylinder h.p. may be materially reduced by locomotive designers who are given the order to do their best in this direction. Up to this time they have never had a chance to show what they can do. They have much to offer.

Probably you are thinking and saying,

answered.

The electrical people are smarter than the steam people, because they are making good use of the prevailing oversight of the possibilities of steam. Is this to continue? Is the country to pay the price of this oversight? Are the electrical propagandists to be allowed to get away with even misrepresentations of the efficiency of the steam locomotive?

Let it no longer be said with truth that there is not a single steam locomotive today on the rails of our country that embodies and represents the best, and all the best locomotive improvements that are available, and that have proved their ability to reduce the cost of the American railway operation of which we are so proud. If I were a railway man I would put on my locomotives every single improvement I could find that would net a clear 25% on the investment, and there are lots of them that I believe will double that figure. Talking costs, without considering performance, is a most monumental mistake. Latent, potent, completely developed, and successful, but too little understood possibilities for the solution of one of our great problems lie at our very feet. To solve the problem of more tons moved for less money, a policy is called for. Then there is no escape from the necessity for a plan followed by a programme for its execution.

Is the locomotive a necessary evil or is it the real money earner of rail transportation?

The accompanying diagrams, figs. 1 to 6, illustrate the increased power to be obtained by the use of four locomotive improvements. The figures are the results of tests.

Railway Accidents Throughout Canada. The total number of railway accidents during January, reported to the Board of

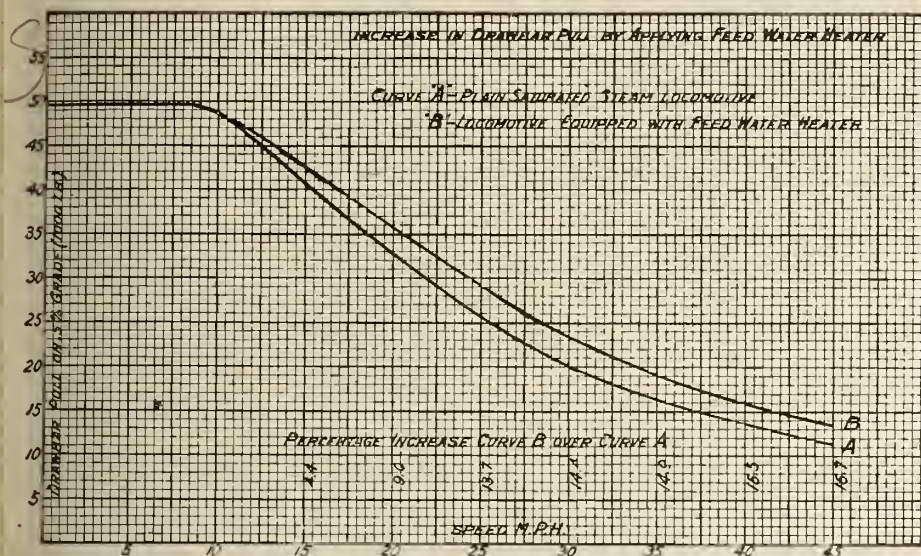


Fig. 5. Showing the increased power a feed water heater gives on a 0.5% grade to a 26 x 30 in. mikado locomotive similar to the U.S.R.A. light mikado.

greater weights unnecessary. It is time to disregard first cost and think of ultimate cost, to forget the limitations of the past and to build anew for the future. It is time to build every new locomotive on a new plan, to build it for high power with efficiency. Nothing that is known to be worth while, and that increases real efficiency, should be omitted from a new locomotive.

An improvement costing \$10,000 to buy, and even as much as that to maintain each year, is a good investment if it nets a saving of \$50,000 a year. You know what it costs. You do not know what it saves. It is good policy to double the first cost, and the cost of maintenance, if thereby locomotives will haul enough more tons, or make enough more miles, to show figures on the right side. This is one way to cut out "red figures." How really absurd it is to live as we do, in "comparative" figures instead of in constructive figures.

Here are some factors, improved cylinder operation, higher superheat and improvements in cut off, such as cut off control. Ask the officials of the Big Four Rd. about their cut off control as a factor in operation and in saving. Are we to wait years before getting the benefit of what they have done? Another factor is increased boiler efficiency, through feed water heating, using waste heat, and by improvements that compel greater boiler power through improved boiler circulation. Again, increased starting power, by means of the booster applied to trailing wheels. Another factor is increased starting power, and higher power at speed, by means of increased weights on drivers rendered possible by reduced dynamic augment. Alloy steel parts and refined design ren-

"Very well, but all these things cost money and it is impossible to finance them." Yes, they do cost money, but the cost of these improvements is now going

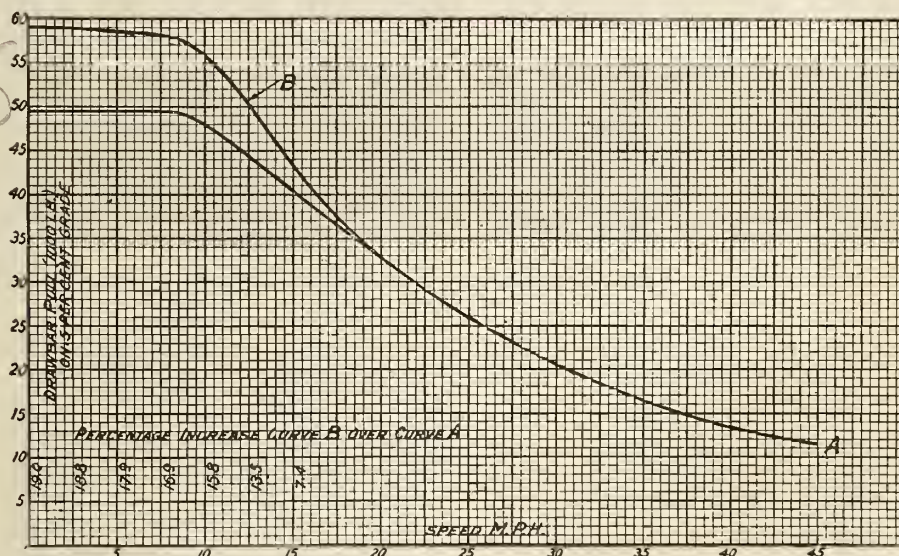


Fig. 6. Showing the increased power a booster gives on a 0.5% grade to a 26 x 30 in. mikado locomotive similar to the U.S.R.A. light mikado.

into the cost of operation. Here is a plain case of paying for improvements whether you have them or not. They are being paid for in every turn of the locomotive drivers, and the cost per turn is now far too great considering the enormous investment the locomotives of every railway represents. When three locomotives are required to do the work that can easily be done by two, and when the improvements cost half that of the third locomotive this money question is

Railway Commissioners, was 125, resulting in 14 persons being killed, and 139 being injured. Of those killed, 7 were employees and 7 were others, and of those injured, 34 were passengers, 89 were employees, and 16 were others. Under "others" are included 11 persons injured in 8 highway crossing accidents. In 5 of these accidents, the crossings were unprotected, and in one case each, they were protected by a watchman, a bell, and gates respectively.

Birthdays of Transportation Men in March.

Many happy returns of the day to:—

W. G. Annable, Assistant Passenger Traffic Manager, Ocean Traffic, C.P.R., Montreal, born at Ottawa, March 3, 1875.

John Archibald, Locomotive Foreman, C.P.R., Coquitlam, B.C., born at Edinburgh, Scotland, March 13, 1872.

G. M. Baillie, Assistant Superintendent, London Division, Ontario District, C.P.R., Windsor, Ont., born at West St. John, N.B., March 31, 1879.

A. B. Buckworth, General Manager, Pacific Great Eastern Ry., Vancouver, B. C., born at Birmingham, Eng., March 2, 1876.

Allan Cameron, Superintendent, Land Branch, Department of Natural Resources, C.P.R., Calgary, Alta., born near Owen Sound, Ont., March 14, 1864.

H. S. Carmichael, ex Passenger and Freight Manager, Canadian Pacific Ocean Service, London, Eng., born at Glasgow, Scotland, March 7, 1874.

F. G. J. Comeau, District Freight Agent, C.P.R., Halifax, N.S., born at Meteghan River, N.S., March 10, 1859.

W. A. Cooper, Manager, Sleeping, Dining and Parlor Cars and News Service, C.P.R., Montreal, born there, March 22, 1871.

A. E. Cox, General Storekeeper, Western Lines, Canadian National Rys., Winnipeg, born at Huddersfield, Eng., March 12, 1863.

Senator N. Curry, Chairman, Canadian Car & Foundry Co., Montreal, born in King's County, N.S., March 26, 1851.

C. C. Curtis, Manager, Cape Breton Electric Co., Sydney, N.S., born at Battle Creek, Mich., March 27, 1883.

H. G. Dring, European Passenger Manager, Canadian Pacific Ry., London, Eng., born at Easton, Northamptonshire, Eng., March 8, 1881.

Patrick Dubee, Secretary - Treasurer, Montreal Tramways Co., Montreal, born there, March 4, 1876.

W. B. Elsworth, Manager, Marine Department, Imperial Oil Ltd., Toronto, born at Bayonne, N.J., March 3, 1869.

M. P. Fennell, Jr., Secretary-Treasurer and Comptroller, Montreal Harbor Commissioners, Montreal, born there, March 13, 1885.

W. R. Fitzmaurice, Superintendent,

New Glasgow Division, Maritime District, Canadian National Rys., New Glasgow, N.S., born at Bedford, N.S., March 19, 1870.

Hon. G. P. Graham, M.P., Minister of Militia and Defence, and of the Naval Service, Ottawa, Ont., born at Eganville, Ont., March 31, 1859.

H. C. Grout, General Superintendent, Ontario District, C.P.R., Toronto, born at Wausau, Wis., March 14, 1881.

J. Halstead, Division Freight Agent, C.P.R., Winnipeg, born at Bracebridge, Ont., March 2, 1877.

R. M. Hannaford, Assistant Chief Engineer, Montreal Tramways Co., Montreal, born there, March 22, 1865.

C. A. Hayes, Vice President, Traffic, Canadian National Rys., Toronto, born at West Springfield, Mass., March 10, 1865.

H. T. Hazen, acting Chief Engineer, Eastern Lines, Canadian Northern Ry. System, Toronto, born at Truro, N.S., March 14, 1870.

J. I. Hobson, Treasurer, Canada Steamship Lines, Montreal, born at Guelph, Ont., March 30, 1872.

N. J. Holden, President, The Holden Co., Montreal, born at Nobleton, Ont., March 22, 1866.

A. R. Holtby, Master of Bridges and Buildings, Mountain Division, Grand Trunk Pacific Ry., Smithers, B.C., born at Rawdon, Que., March 23, 1859.

Frank Lee, Engineer, Maintenance of Way, Western Lines, C.P.R., Winnipeg, born at Chicago, Ill., March 7, 1873.

J. M. McKay, Superintendent, Saskatoon Division, Saskatchewan District, C.P.R., Saskatoon, born at Tiverton, Ont., March 13, 1868.

J. B. McLaren, General Auditor, G.T.R., Montreal, born at Perth, Ont., March 5, 1878.

M. Magiff, Superintendent of Car Service and Telegraphs, Central Vermont Ry., St. Albans, Vt., born at Planks Point, N.Y., March 24, 1852.

H. H. Melanson, Passenger Traffic Manager, Canadian National - Grand Trunk Pacific Rys. and Grand Trunk Pacific Coast Steamship Co., Toronto, born at Seadouc, N.B., March 9, 1872.

W. T. Moodie, Superintendent, Division 3, Central District, Canadian Na-

tional Rys., Port Arthur, Ont., born at Glasgow, Scotland, March 10, 1882.

L. F. Muncey, Superintendent, Canadian National Rys., Kamloops, B.C., born at Kensington, P.E.I., March 15, 1876.

D. B. Niblock, Special Ticket Auditor, Canadian National Rys., Toronto, born at Point Edward, Ont., March 1, 1875.

Peter Paton, ex Purchasing Agent, Canada Steamship Lines, Ltd., Montreal, now President, Mackenzie, Milne & Co., Ltd., Sarnia, Ont., born at New Lovell, Ont., March 13, 1869.

F. W. Peters, General Superintendent, British Columbia District, C.P.R., Vancouver, born at St. John, N.B., March 25, 1860.

J. W. Pugsley, Secretary, Department of Railways and Canals, Ottawa, Ont., born at Amherst, N.S., March 12, 1861.

E. A. Robert, President, Montreal Tramways Co., Montreal, born at Beauharnois, Que., March 3, 1864.

L. G. Roblin, Master Mechanic, Prairie District, Canadian National Rys., Saskatoon, Sask., born in Prince Edward Island, March 24, 1864.

C. J. Smith, Manager and Secretary, Montreal Warehousing Co., Montreal, born at Hamilton, Ont., March 10, 1862.

G. L. Snelling, Secretary - Treasurer, Ottawa Electric Ry., Ottawa, Ont., born there, March 2, 1880.

W. Y. Soper, Vice President, Ottawa Electric Ry. Co., Ottawa, Ont., born at Oldtown, Me., March 9, 1854.

E. F. L. Sturdee, General Agent, Passenger Department, C.P.R., Seattle, Wash., born at St. John, N.B., March 29, 1876.

G. W. Vaux, General Agent, Passenger Department, Union Pacific Rd., Toronto, born at Montreal, March 21, 1866.

A. Watt, Assistant Master Mechanic, Canadian National-Grand Trunk Pacific Rys., Smithers, B.C., born at St. Louis, Que., March 5, 1874.

A. T. Weldon, Assistant Freight Traffic Manager, Eastern Lines, Canadian National Rys., Montreal, born at Dorchester, N.B., March 6, 1876.

D. O. Wood, General Foreign Freight Agent, Canadian National-Grand Trunk Rys., Montreal, born at Kleinburg, Ont., March 16, 1864.

The Railway Association of Canada's Committees.

Following is a complete list of the Railway Association of Canada's committees as elected at the last annual meeting, except the executive committee, which was elected Nov. 2, 1919, for three years.

Executive Committee.—H. G. Kelley, President, G.T.R.; E. W. Beatty, President, C.P.R.; D. B. Hanna, President, Canadian National Rys.; A. H. Smith, President, New York Central Rd.; J. N. Beckley, President, T.H. & B. Ry.

Operating Committee.—Grant Hall, Vice President, C.P.R.; W. D. Robb, Vice President, G.T.R.; S. J. Hungerford, Vice President, Canadian National Rys.; F. F. Backus, General Manager, T.H. & B. Ry.; J. H. Walsh, General Manager, Q.C.R.

Traffic Committee.—J. E. Dalrymple, Vice President, G.T.R.; W. R. MacInnes, Vice President, C.P.R.; C. A. Hayes, Vice President, Canadian National Rys.; G. C. Martin, General Traffic Manager, T.H. & B. Ry.; Carl Howe, Traffic Manager, Michigan Central Rd.

Financial Committee.—I. G. Ogden, Vice President, C.P.R.; F. Scott, Vice President, G.T.R.; A. J. Mitchell, Vice President, Canadian National Rys.; W. H. Maund, Sec.-Treas., T. & N.O. Ry.; E. B. Barber, Comptroller, A.C. & H.B. Ry.

Legal Committee.—W. C. Chisholm, K.C., General Solicitor, G.T.R.; W. H. Curle, K.C., General Solicitor, C.P.R.; Gerard Ruel, General Counsel, Canadian National Rys.; E. D. Cahill, K.C., General Solicitor, T.H. & B. Ry.; F. E. Robson, General Solicitor, M.C.R.

Sub-Committee on Transportation.—A. Price, General Manager, C.P.R.; H. T. Malcolmson, Superintendent, T.H. & B. Ry.; D. Crombie, Trans. Asst. to Vice Pres., Canadian National Rys.; G. C. Bowker, Gen'l Superintendent, G.T.R.; W. H. Farrell, Gen'l Mgr., Algoma Eastern Ry.; W. A. Griffin, Sup't. Traffic, T. & N.O. Ry.; H. Shearer, General Manager, Michigan Central Rd.

Sub-Committee on Car Service.—A.

Hatton, Gen'l Sup't. Transportation, C. P.R.; C. R. Moore, Gen'l Sup't. Car Service, G.T.R.; J. P. Driscoll, Gen'l Sup't. Car Service, Canadian National Rys.; A. E. Lock, Sup't. Car Service, T.H. & B. Ry.; W. M. Hugill, Sup't. Car Service, A.C. & H.B. Ry.; W. S. Moy, Car Accountant, Quebec Central Ry.; J. S. Gordon, General Manager, Quebec Oriental Ry.; C. A. Stewart, Manager, Temiscouata Ry.

Sub-Committee on Rolling Stock.—J. C. Garden, Gen'l Sup't. Motive Power, G.T.R.; W. H. Winterrowd, Chief Mechanical Engineer, C.P.R.; C. E. Brooks, Mech. Asst. to Vice President, Canadian National Rys.; H. L. Rodgers, Mechanical Engineer, T. & N.O. Ry.; W. T. Kuhn, Sup't. Motive Power, T.H. & B. Ry.; G. M. Robins, Master Mechanic, Quebec Central Ry.; G. E. Parks, Mechanical Engineer, Michigan Central Rd.; G. C. Smart, Mech. Asst. to Vice President, Canadian National Rys.

Sub-Committee on Engineering.—F. L.

C. Bond, Chief Engineer, G.T.R.; J. M. R. Fairbairn, Chief Engineer, C.P.R.; C. B. Brown, Mech. Asst. to Vice President, Canadian National Rys.; R. S. McCormick, Gen. Supt. & Chief Engineer, A.C. & H.B. Ry.; R. L. Latham, Chief Engineer, T.H. & B. Ry.

Sub-Committee on Wages and Working Conditions.—George Hodge, Asst. to Vice President, C.P.R.; F. P. Brady, Assistant to Executive, Canadian National Rys.; C. F. Needham, Asst. to Gen'l Supt. Motive Power and Car Depts., G.T.R.

Sub-Committee on Claims.—E. Arnold, Freight Claim Agent, G.T.R.; J. M. Eedson, Freight Claim Agent, T.H. & B. Ry.; H. McDonald, Freight Claim Agent, Canadian National Rys.; G. C. Jackson, Auditor of Claims, C.P.R.

Sub-Committee on Free and Reduced Transportation.—J. Manson, Asst. to Vice President, C.P.R.; D. E. Galloway, Asst. to President, G.T.R.; W. A. Tuxford, Chief of Pass Bureau, C.N.R.

Sub-Committee on Perishable Freight. A. Hatton, Genl. Supt. Transportation, C.P.R.; F. Price, Supt. of Car Service, G.T.R.; G. C. Jackson, Auditor of Claims, C.P.R.; F. J. Watson, Genl. Freight Agent, G.T.R.; R. E. Larmour, Genl. Freight Agent, C.P.R.; E. Arnold, Freight Claim Agent, G.T.R.; H. McDonald, Freight Claim Agent, Canadian National Rys.; J. P. Driscoll, Genl. Supt. Car Service, Canadian National Rys.; A. T. Weldon, Asst. Freight Traffic Manager, Canadian National Rys.

Western Operating Committee.—A. E. Warren, General Manager, Canadian National Rys. and G.T.P.R.; D. C. Coleman, Vice President, C.P.R.; H. H. Brewer, Asst. General Manager, C.N. and G.T.P. Rys.; C. Murphy, General Manager, C.P.R.; C. E. Dafeo, Gen. Supt. Midland Railway of Manitoba, Winnipeg (also representing Great Northern and Northern Pacific Rys.); J. A. Macgregor, Manager, E.D. & B.C. Ry.; A. McCulloch, Gen. Supt. K.V. Ry.; J. Callagan, Gen. Manager, A. & G.W. Ry.

Western Transportation and Traffic Sub-Committee.—A. E. Stevens, Gen. Supt. C.P.R.; A. Wilcox, Gen. Supt. C.N. and G.T.P. Rys.; C. E. Dafeo, Gen. Supt. Midland Railway of Manitoba (also representing Great Northern and Northern Pacific Rys.); W. M. Kirkpatrick, Asst. Freight Traffic Manager, C.P.R.; W. C. Bowles, General Freight Agent, C.P.R.; W. G. Manders, Asst. Freight Traffic Manager, C.N. and G.T.P. Rys.; A. E. Rosevear, General Freight Agent, C.N. and G.T.P. Rys.; E. D. Cotterell, Supt. Car Service, C.P.R.; E. Crawford, Supt. Car Service, C.N. and G.T.P. Rys.; W. E. Duperow, General Passenger Agent, C.N. and G.T.P. Rys.; Geo. A. Walton, General Passenger Agent, C.P.R.

British Columbia Traffic and Transportation Sub-Committee.—F. W. Peters, Gen. Superintendent, C.P.R.; C. A. Cotterell, Asst. Gen. Supt., C.P.R.; C. S. Maharg, Supt. C.P.R.; W. B. Harris, Car Service Agent, C.P.R.; H. A. Plow, Division Freight Agent, C.P.R.; H. W. Brodie, General Passenger Agent, C.P.R.; C. H. Bowles, Asst. Gen. Pass. Agent, C.P.R.; J. R. Cameron, Asst. General Manager, C.N.R.; N. B. Walton, Gen. Supt. C.N.R. and G.T.P. Rys.; J. M. Horn, Gen. Freight Agent, C.N.R. and G.T.R. Rys.; C. F. Martin, Supt. of Transportation, C.N.R.; G. A. McNicholl, Asst. Gen. Freight Agent, C.N.R.; Osborne Scott, Gen. Pass. Agent, C.N. and G.T.R. Rys.; C. McDonough, Supt. G.N. Ry.; E. A. Dye, General Agent, G.N. Ry.; C.

W. Meldrum, Asst. Gen. Pass. Agent, G.N. Ry.; H. Swinford, General Agent, Northern Pacific Ry.; R. T. Bretz, Asst. Gen. Freight Agent, Northern Pacific Ry.; A. V. Brown, Gen. Supt. Northern Pacific Ry.; A. McCulloch, Gen. Supt., K.V. Ry.; O. E. Fisher, Traffic Manager, K.V. Ry.; H. E. Beasley, Gen. Supt., E. & N. Ry.; A. B. Buckworth, Gen. Manager, P.G.E. Ry. (Associate Member); W. D. Power, Gen. Freight Agent, B.C. Elec. Ry. (Associate Member); W. G. Murrin, Asst. Gen. Manager, B.C. Elec. Ry. (Associate Member).

Western Freight Claim Committee.—A. G. Gilmour, Freight Claim Agent, C. N. and G.T.P. Rys.; D. C. MacDonald, Asst. Gen. Freight Claims Agent, C.P.R.; J. W. Connell, Asst. Freight Claim Agent, C.N. and G.T.P. Rys.; F. Elder, Freight Claim Agent, C.P.R.; T. McKeag, Agent, Midland Railway of Manitoba; J. A. Nelson, Chief Freight Claim Agent, G.N. Ry.; O. E. Fisher, Comptroller-Traffic Manager, K.V. Ry.; J. Callaghan, Gen. Manager, A. and G.W. Ry.; E. S. Smiley, Western Claim Agent, Northern Navigation Co. (Associate Member).

Rails and Car Repairing for Canadian National Railways, Etc.

The following order in council, passed by the former Dominion Government, Dec. 21, 1921, contains further information than Canadian Railway and Marine World has published previously, in reference to orders for steel rails and car repairing:—

The committee of the Privy Council have had before them a report, dated Dec. 19, 1921, from the Minister of Railways and Canals, representing that by order in council 3,800 of Oct. 6, authority was given to the Canadian National Railways, and the Grand Trunk Railway managements, to order, on next year's account, a maximum of 75,000 tons of rails, with necessary accessories, and to arrange for the rebuilding or repair of 2,000 cars at suitable points, at fair and reasonable charges, the expenditure so incurred to be provided for in the supplementary estimates at the next ensuing session of Parliament, and to be included in the railway's accounts for next year. This authority was given with a view to relieving the unemployment situation in Canada during the winter, it being explained that, under normal conditions, it is the practice to place such orders during the early spring months, and to confine rebuilding and repair work, as far as possible, to system shops. In view of the present abnormal industrial situation, it was considered that the usual practice might well be varied, to the extent of placing, at an early date, next year's orders for rails and accessories, and, in addition to repair work now being done in railway shops, of arranging with the various equipment companies throughout Canada, to participate in the rebuilding and repair of freight equipment. That, by the Exchequer Court's order of Dec. 6, 1920, authority was given to the Minister of Railways and Canals, as receiver of the Grand Trunk Pacific Ry. System, to borrow from the Dominion Government, or otherwise, \$1,500,000, the money so obtained to be used to defray the cost of overhauling 1,500 box cars, chargeable to capital, and to operating or working expenditure, in accordance with further direction of the court. That the Canadian National Rys. management has furnished an estimate of

the expenditure to be incurred under the above mentioned order in council and Exchequer Court order, the same being, as follows:—

Rails—			
Dominion Iron & Steel Co., 20,000 tons at \$49		\$980,000	
Algoma Steel Corporation, 20,000 tons at \$50		1,000,000	
			\$1,980,000
Accessories.—Fastenings, etc.			
			175,000
Repairs to equipment—			
Under contract, 3,000 cars at \$950 each	\$2,830,000		
Railway company's shops, 500 cars at \$950 each....	475,000	3,325,000	
			\$5,480,000

Of the above estimated expenditure, the following amounts are required up to Dec. 31, 1921, viz., 15,000 tons of rails at \$49, \$735,000. The Minister recommends, therefore, that, pending the voting of the necessary funds by Parliament at its next session, the money required to Dec. 31, 1921, viz., \$735,000, be provided by a Governor General's special warrant in pursuance of the provisions of the Consolidated Revenue and Audit Act, R.S.C., 1906, sec. 42, sub-sec. (b), the carrying out of the work in question being urgent and immediately required for the public good, as set out in order in council of Oct. 6, 1921, and the Minister of Finance and Receiver General having reported that there is no Parliamentary provision for the same. The committee concur in the foregoing recommendation and submit the same for approval.

Michigan Central Railroad Not Electrifying Canadian Lines.

Some weeks ago a daily press report from London, Ont., stated that a rumor which was current at the opening of the Hydro Electric Power Commission of Ontario's Chippewa and Queenston power plant, that the Michigan Central Rd. would electrify its Canadian lines this year, had been given semi-official confirmation by Vice Chairman Pocock, of the London Railway Commission. In pursuance of its usual policy to investigate reports before giving publicity to them, Canadian Railway and Marine World communicated with the Michigan Central Rd. management in Detroit, and received a reply from General Manager Shearer, in which he said: "We have not considered the electrification of our lines in Canada." Some of our contemporaries were not as careful as we were about this matter, but accepted the statement in the press report as a fact as shown by the following examples:—

A New York paper, which is considered a high authority in the electric field, said: "Michigan Central Rd. is now considering electrifying its lines between Niagara Falls, Ont., and Windsor, head officials having recommended the change."

A Toronto technical paper said: "The Michigan Central Ry. plans to electrify its lines in Canada between Niagara Falls and Windsor."

The above shows how absolutely necessary it is for technical papers not to rely on press reports, or daily newspaper statements, but to ascertain the facts for themselves. Had Canadian Railway and Marine World not done so, but had stated that the M.C.R. was about to electrify its Canadian lines, it would not only have published wrong information, but might have put manufacturers of electrical apparatus, etc., to considerable unnecessary trouble in making enquiries, and probably going to some expense.

Orders By Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a complete record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

General order 355. Jan. 5.—Defining duties of caretaker agent appointed at non-agency stations.

General order 356. Jan. 12.—Amending general order 102, Feb. 17, 1913, re covering caboose platform steps.

32,001. Jan. 11.—Approving Hydro Electric Power Commission of Ontario's plan showing details of rest and guard piers for Michigan Central Rd. bridge over Welland River, Chippewa, Ont.

32,002. Jan. 9.—Permitting, when signals are clear, G.T.R. trains and Kitchener & Waterloo St. Ry. cars to pass over crossing at King St., Kitchener, Ont., without first stopping, speed not to exceed 6 miles an hour.

32,003. Jan. 11.—Authorizing Canadian Creosoting Co. to lay tracks across two C.P.R. tracks and one Canadian National Rys. track near Ontario St., Trenton, Ont.

32,004. Jan. 11.—Ordering Great Northern Ry. to install within 90 days, improved type of automatic bell, with wigwag signal, at crossing of Douglas Ave., Burnaby municipality, B.C.

32,005. Jan. 12.—Declaring that for the present, C.P.R. highway crossing at mile 96.4 Oshawa Subdivision, near Agincourt station, Ont., is protected to Board's satisfaction.

32,006. Jan. 12.—Authorizing Canadian National Rys. to connect Canadian Northern Ontario Ry. with Jacques Cartier Union Ry. in St. Laurent Parish, Que.

32,007. Jan. 11.—Approving British Columbia Electric Ry. time table, showing service, effective forthwith, to points to Vancouver, Fraser Valley & Southern Ry.

32,008. Jan. 14.—Authorizing G.T.R. to install wigwag signal at crossing of Argyle Ave., Peterborough, Ont.

32,009. Jan. 14.—Extending to June 12 time within which C.P.R. may build spur for Midland Grain Co., Calgary, Alta.

32,010. Jan. 16.—Approving plan showing additions to half-interlocking plant at crossing of C.P.R. by Quebec Ry., Light, Heat & Power Co.'s tracks at St. Valier St., Quebec, Que.

32,011 to 32,018. Jan. 16.—Authorizing Canadian Northern Western Ry. to build across highways at 8 points in Alberta.

32,019. Jan. 14.—Dismissing Railway Association of Canada's application for order amending concluding paragraph of general order 336, to provide for flag 16 x 16 in., or thereabouts, in lieu of flag 22 x 28 in. in size, re rule 99, Uniform Code.

32,020. Jan. 18.—Ordering Canadian National Rys. to build shelter and platform, standard station type F, at Ste. Genevieve Road, Ste. Genevieve, Que.

32,021. Jan. 14.—Declaring that for the present, G.T.R. crossing of highway 2 miles west of Brantford, Ont., is protected to Board's satisfaction.

32,022. Jan. 16.—Ordering Canadian National Rys., within 90 days, to install an improved type automatic bell and wigwag signal at the crossing of Smith St. and Eighth Ave., Regina, Sask.

32,023. Jan. 14.—Authorizing C.P.R. to substitute standard wire fencing for board fence from 2,147 ft. west of west abutment of Spences Bridge, crossing Nicola River about a mile west of Merritt, B.C., to point 3,000 ft. west of said abutment.

32,024. Jan. 14.—Relieving C.P.R. from maintaining signalman on Sundays to operate crossing of C.P.R. and Canadian National Rys., Peebles, Sask., so long as present character of movements continues.

32,025 to 32,030. Jan. 14.—Approving Bell Telephone Co.'s agreements with Canadian Telephone Co., Compton and Wolfe counties, Que.; Dawn Municipal Telephone System, Lambton and Kent counties, Ont.; Elmsley South Rural Telephone Co., Leeds and Lanark counties, Ont.; Hazeldean Rural Telephone Co., Carleton county, Ont.; Graton Number Seven Telephone Association, Renfrew county, Ont.; Yamaska Telephone Co., Yamaska county, Que.

32,031. Jan. 16.—Ordering Canadian National Rys., within 90 days, to install automatic bell and wigwag signal at crossing of Smith St. and Dewdney Ave., Regina, Sask.

32,032. Jan. 17.—Ordering C.P.R. to erect standard A-3 station at Chato, Alta., by Oct. 1.

32,033. Jan. 14.—Authorizing C.P.R. and G.T.R. to operate trains over Tecumseh St. crossing, Toronto, trains to stop before proceeding over crossing.

32,034. Jan. 21.—Authorizing G.T.R. to operate over crossing of Sarnia St. Ry. at Exmouth and Front Sts., Sarnia, Ont., without first stopping

there.

32,035. Jan. 23.—Authorizing C.P.R. to open for traffic portion of its Lanigan Northeasterly Branch from mile 0 to 49.34, Sask.; speed of trains not to exceed 20 miles an hour.

32,036. Jan. 23.—Authorizing City of Edmonton, Alta., to connect Edmonton Radial Ry. with Canadian National Rys. at 104th St.

32,037. Jan. 21.—Authorizing Toronto, Hamilton & Buffalo Ry. to use footbridge over its tracks at Sherman Ave., Hamilton, Ont.

32,038. Jan. 17.—Ordering Dominion Atlantic Ry. forthwith to file with the Board a tariff, effective Jan. 18, providing for rate of 1½¢ per 100 lb. for handling charges of apples and potatoes, in barrels, for export, at Halifax, N.S.

32,039. Jan. 24.—Ordering G.T.R. to maintain speed restriction of 10 miles an hour in effect at crossing of Water St., Burlington, Ont., and that all Hamilton Radial Ry. cars in either direction stop before passing over crossing.

32,040. Jan. 24.—Authorizing Canadian Northern Ry. to build spur for Ontario Public Highways Department in Lot 38, Con. 1, Markham Tp.

32,041. Jan. 26.—Dismissing application of Ottawa residents for order directing G.T.R. to stop trains 58 and 52 at Bank St. yard office to allow passengers to alight.

32,042. Jan. 24.—Rescinding orders 30,897 and 31,615 authorizing G.T.R. to build spur for Warren Bituminous Paving Co., in part of Lot 18, Con. 1, Downie Tp., Ont.

32,043. Jan. 17.—Apportioning cost of subway under Canadian National Rys. at Water St., Winnipeg.

32,044. Jan. 19.—Authorizing Grand River Ry. to connect with C.P.R. across Bond, Brook and Dundas Sts. and Grantham Ave., Galt, Ont., and to take lands to provide 15 ft. roadway adjacent to its railway.

32,045. Jan. 26.—Authorizing G.T.R. to use overhead bridge at Portage Road, near Stamford, Ont.

32,046. Jan. 24.—Authorizing St. Eustache-sur-le-Lac municipality, Que., to make highway crossing over Canadian National Rys. south of proposed station site opposite Lots 60-48 and 60-79.

32,047. Jan. 26.—Amending order 31,920, Dec. 16, 1921, authorizing Hydro Electric Power Commission of Ontario, inter alia, to build new interchange track between C.P.R. and Guelph Radial Ry., Guelph, Ont.

32,048. Jan. 21.—Approving agreement between Bell Telephone Co. and McKillop, Logan & Hibbert Telephone Co., Huron and Perth counties, Ont.

32,049. Jan. 21.—Authorizing Canadian Northern Pacific Ry. to build spur for R. H. Parker, in Metchoshin District, Vancouver Island, B.C.

32,050. Jan. 20.—Declaring that for the present, crossing of Canadian National Rys., about 1½ miles west of Harrowsmith, Ont., is protected to Board's satisfaction.

32,051. Jan. 21.—Authorizing Canadian Northern Ry. to build spur for British Columbia Public Works Department at Tranquille Sanitarium, mileage 7.9 Kamloops Subdivision.

32,052. Jan. 26.—Approving Hydro Electric Power Commission of Ontario's plan showing high tension power line between Burlington and Queenston, Ont., and reserving Board's rights in respect of protective re-arrangements, if any, in regard to portion of said line west of tower 107, already built.

32,053. Jan. 26.—Declaring that for the present, Toronto, Hamilton & Buffalo Ry. crossing of Governor's Road, 2 miles west of Mineral Springs station, Ont., is protected to Board's satisfaction.

32,054. Jan. 26.—Authorizing Canadian Northern Ry. to build spur for Haight & Dickson Lumber Co., Ltd., Garter Tp., Ont.

32,055 to 32,058. Jan. 26.—Authorizing Canadian Northern Pacific Ry. to build across St. Paul, Ellis, Ethel and Richter Sts., Kelowna, B.C.

32,059, 32,060. Jan. 26.—Authorizing Canadian Northern Pacific Ry. to build across highways in Sec. 30, Tp. 26, and Sec. 23, Tp. 23, Osoyoos Subdivision, Yale District, B.C.

32,061. Jan. 27.—Authorizing G.T.R. to use bridge over Niagara River at Niagara Falls, Ont.

32,062. Jan. 27.—Authorizing British Columbia Public Works Department to build highway crossing over C.P.R. at mile 2.78, at Ioco Sunnyside Road.

32,063. Jan. 21.—Approving agreement between Bell Telephone Co. and Normanby Telephone Co., Grey county, Ont.

32,064. Jan. 27.—Authorizing Canadian Northern Pacific Ry. to cross highway between Sec. 2, Tp. 23, and Sec. 35, Tp. 26, Osoyoos Subdivision, Yale District, B.C.

32,065. Jan. 27.—Extending to June 1 time within which G.T.R. may build two spurs for Ontario Cement Co., North Oxford Tp., Ont., authorized by order 30,664, Feb. 15, 1921.

32,066, 32,067. Jan. 26, 27.—Authorizing Canadian Northern Pacific Ry. to cross highways at mile 20 and 15.4, Vernon-Kelowna Branch, in Osoyoos Subdivision, Yale District, B.C.

32,068. Jan. 30.—Authorizing Esquimalt & Nanaimo Ry. to build spur for the Dominion Public Works Department at mile 3.3, Vancouver Island, B.C.

32,069, 32,070. Jan. 25.—Approving Bell Telephone Co. agreements with Ayton Telephone Co., Grey county, Ont., and Minto Rural Telephone Co., Wellington county, Ont.

32,071. Jan. 30.—Authorizing G.T.R. to build spur for Provincial Paper Mills, Cornwall Tp., Ont.

32,072. Jan. 30.—Authorizing Edmonton, Dunvegan & British Columbia Ry. to build spur for Elizabeth Kelley, Carbondale, Alta.

32,073. Jan. 27.—Authorizing Canadian Northern Pacific Ry. to cross highway in Block 7, Tp. 20, Osoyoos Division, Yale District, B.C., at mile 14.8, Vernon-Kelowna Branch.

32,074. Jan. 31.—Dismissing Railway Association of Canada's application for order amending general order 54, re facilities at flag stations.

32,075. Jan. 30.—Approving protection by watchman from 7 a.m. to 12 midnight from May 1 to Oct. 1 each year at C.P.R. crossing of Golf St., North Bay, Ont.

32,076. Jan. 31.—Authorizing Canadian Northern Ontario Ry. to build spur for Mageau Lumber Co., Field Tp., Ont.

32,077. Jan. 31.—Amending order 19,546, June 10, 1913, by providing that the man in charge of interlocking plant at crossing of Toronto, Hamilton & Buffalo Ry. and Hamilton St. Ry. at Main St. and Gage Ave., Hamilton, Ont., be appointed by Hamilton St. Ry. and Hamilton Radial Electric Ry. instead of by T.H. & B. Ry.

32,078. Jan. 30.—Extending to May 31, time within which Canadian National Rys. may build station at Morin Heights, Que.

32,079. Feb. 1.—Authorizing C.P.R. to use bridge 27.7, Walkerton Subdivision, Ontario District.

32,080. Feb. 1.—Authorizing Vancouver, Victoria & Eastern Ry. & Navigation Co. (G.N.R.) to build spur for Union Oil Co., Vancouver, B.C.

32,081. Feb. 2.—Declaring that Quebec Central Ry. crossing just north of Weedon Jct., Que., is protected to Board's satisfaction.

32,082. Feb. 1.—Authorizing C.P.R. to build its Langdon North Branch, Acme to Empress, across a number of highways in Alberta.

32,083. Feb. 1.—Amending order 31,882, Dec. 9, 1921, authorizing Canadian National Rys. to cross a certain highway, by changing it to read, Sec. 13, Tp. 64, Range 23, and Sec. 18, Tp. 64, Range 22, instead of Sec. 13, Tp. 64, Range 22, and Sec. 13, Tp. 64, Range 23, Alta.

32,084, 32,085. Feb. 1, 2.—Authorizing Canadian Northern Western Ry. to cross highways between Secs. 11 and 12, Tp. 58, Range 9, and between Secs. 34 and 33, Tp. 56, Range 7, west 5th meridian, Alta.

32,086. Feb. 2.—Rescinding order 31,415, Aug. 20, 1921, re C.P.R. temporary farm crossing for McKee & Ferguson, in Sec. 11-12, east of Coast Meridian, Westminster District, B.C.

32,087, 32,088. Feb. 1.—Authorizing Canadian Northern Western Ry. to cross highways between Sec. 12, Tp. 57, Range 8, and Sec. 7, Tp. 57, Range 7, and between Secs. 12 and 13, Tp. 57, Range 8, west 5th meridian, Alta.

32,089. Feb. 2.—Certifying that plan, showing connection of Canadian Northern Ry. and Grand Trunk Pacific Branch Lines' Vegreville Subdivision, should refer to Vegreville Branch instead of Vegreville Subdivision, and amending order 31,922, Dec. 16, 1921, accordingly.

32,090. Feb. 2.—Authorizing G.T.R. to build spur for Canada Grip Nut Co., St. Johns Parish, Que.

32,091. Feb. 4.—Approving Chatham, Wallaceburg & Lake Erie Ry. standard mileage tariff C.R.C. 672.

32,092. Feb. 4.—Authorizing Canadian Northern Ontario Ry. to build spur for Pourpore Lumber Co., near Gogama, Ont.

32,093. Feb. 4.—Declaring that C.P.R. crossing 2½ miles south of Lindsay station, Ont., is protected to Board's satisfaction.

32,094. Feb. 4.—Authorizing Grand Trunk Pacific Ry. to divert road in s.w. ¼ Sec. 15, Tp. 24, Range 9, west 2nd meridian, at mile 299, Toughwood Subdivision, in Stanley rural municipality 215, Sask.

32,095. Feb. 4.—Dismissing Associated Boards of Trade of Vancouver Island, B.C., complaint against arbitrary charges made by railway companies over mainland coast rates on lumber, carloads, from Vancouver Island points, and complaint of B.C. Lumber & Shingle Manufacturers' Association and Lake Lumber Co., Vancouver, against arbitraries over coast rates charged on lumber from points on Vancouver Island.

32,096. Feb. 3.—Ordering G.T.R. to build farm crossing for J. C. Rioux, Warwick, Que.

32,097. Feb. 7.—Authorizing Boston & Maine Rd. to rebuild bridge 123 near Rock Island, Que.

32,098. Feb. 7.—Approving revised location of Canadian Northern Ry. Dundee Branch through Sec. 11, Tp. 11, Range 6, east principal meridian, Man., mile 18.72 to 19.72.

32,099. Feb. 7.—Authorizing C.P.R. to build spur for Montreal Light, Heat & Power Co., at mile 2.4 South Bank Branch, Montreal Terminals Division, Que.

32,100. Feb. 6.—Authorizing Canadian Northern Ontario Ry. to build spur to Foster's spur for J. R. Booth Ltd., at mile 34.9 North Bay Subdivision, Ont.

32,101. Feb. 7.—Authorizing Canadian Northern Ry. to cross highway between Secs. 26 and 35, Tp. 25, Range 15, west principal meridian, Man.

32,102. Feb. 7.—Declaring that second crossing west of Stratford, Ont., over G.T.R. is protected to Board's satisfaction.

32,103. Feb. 6.—Amending order 31,939, authorizing highway diversions and crossing on Canadian National Rys. Vegreville Subdivision, Man., by changing it to read Vegreville Branch instead of Vegreville Subdivision.

32,104. Feb. 6.—Authorizing C.P.R. to rebuild bridge 33.2, Nipigon Subdivision, Ont.

32,105 to 32,108. Feb. 6.—Approving Bell Telephone Co. agreements with Camden Independent Telephone Co., Lennox and Addington county, Ont.; Ravenscliffe Telephone Co., Muskoka Dis-

trict, Ont.; Harvey Municipal Telephone System, Peterborough county, Ont., and Selby Telephone Co., Lennox and Addington and Hastings counties, Ont.

32,109. Feb. 6.—Rescinding order 31,026, May 13, 1921, authorizing C.P.R. to make highway over its tracks on Lot 19, Group 1, Westminster District, B.C.

32,110. Feb. 7.—Ordering Canadian National Rys. to extend waiting room at Youngstown station, Alta., to not less than 20 x 21 ft., and baggage and express room to 21 x 30 ft., with heated room partitioned off not less than 10 x 16 ft., also to have station and platform properly lighted; work to be done by June 30.

32,111. Feb. 2.—Ordering that Douglas Ave., St. John, N.B., be diverted a short distance northeast and carried over St. John Bridge & Railway Extension Co.'s tracks (C.P.R.), by a reinforced concrete arch.

32,112. Feb. 9.—Rescinding order 31,660, Oct. 11, 1921, approving plans of proposed alterations to full interlocker at crossing of Canadian Northern Ry. by Grand Trunk Pacific Ry., at Dana, Sask.

32,113. Feb. 8.—Authorizing Boston & Maine

Rd. to rebuild bridges 96 and 97 over Tomifobia River, at Tomifobia, Que.

32,114. Feb. 8.—Authorizing Canadian Northern Ry. to build Y at Rorketon, Man.

32,115. Feb. 8.—Authorizing C.P.R., until further order, to remove station agent at Osborne, Man., caretaker agent to be appointed.

32,109. Feb. 6.—Rescinding order 31,026, May within which C.P.R. may build extension to Deslormier Ave. shops spur, for Quebec Liquor Commission, Montreal.

32,117. Feb. 9.—Approving revised location of Canadian National Rys. Prince Albert Northeastly branch, mile 0 to 20.81.

32,118. Feb. 8.—Declaring that C.P.R. crossing at mile 33.8 Peterborough Subdivision, west of Cavan station, Ont., is protected to Board's satisfaction.

32,119. Feb. 9.—Authorizing C.P.R. to build connection with Canadian National Rys. in s.e. ¼ Sec. 9, Tp. 29, Range 20, Alta.

32,120. Feb. 8.—Dismissing C.P.R. application to build spur for Eugene F. Phillips Electrical Works, Brockville, Ont., and ordering C.P.R. to use Canadian National Rys. spur there, and ordering C.N.R. to allow C.P.R. to use said spur.

The Minister of Railways' Inspection of Government Railways East of Winnipeg.

During February, the Minister of Railways and Canals, Hon. W. C. Kennedy, went over the Grand Trunk from Montreal to Chicago, Canadian Northern from Toronto to Winnipeg; National Transcontinental from Winnipeg to Quebec; Intercolonial from Levis to Sydney and Halifax, N.S., and St. John, N.B., and part of the Prince Edward Island Ry.

Grand Trunk Ry.—At Montreal on Jan. 30, the Minister had a conference with Sir Joseph Flavelle, Chairman of the Board, G.T.R., and H. G. Kelley, President, and left the following day for Chicago by special train, consisting of the Minister's official car, 104; President Kelley's car, Ottawa; Vice President Robb's car, Ontario; Vice President Dalrymple's car, Canada; and a baggage car. The Minister was accompanied by Major Graham A. Bell, C.M.G., Deputy Minister of Railways and Canals; R. A. C. Henry, Special Engineer, Railways and Canals Department, and a secretary; the G.T.R. party including Sir Joseph Flavelle, H. G. Kelley, W. D. Robb, Vice President, Transportation, Construction and Maintenance; J. E. Dalrymple, Vice President, Traffic; Major F. L. C. Bond, Chief Engineer, lines east of Detroit and St. Clair Rivers; and J. C. Garden, General Superintendent, Motive, Power and Car Department. The general superintendents and some other district officials travelled with the party over their respective jurisdictions, and some division officials travelled similarly within their jurisdictions. Stops were made at a number of the most important points, to look over the company's properties, special attention being paid to the shops at Stratford and London, Ont., Port Huron and Battle Creek, Mich., and Elsdon, Ill. On the return journey, Windsor, Ont., was reached on Feb. 3, when the Minister left the party and remained at home there for the week end.

Canadian Northern and National Transcontinental Rys.—The Minister came to Toronto on Feb. 7, and after a conference with President D. B. Hanna, of the Canadian National Rys., left Don station at 1 p.m. for Winnipeg, by special train, comprising the Minister's car, 104; President Hanna's car, 73; Vice President Hungerford's car, 51; General Manager Kingsland's car, Kaïen, and a baggage car. The Minister was accompanied by Deputy Minister Bell, Special Engineer R. A. C. Henry, and a secretary. The C.N.R. official party included D. B. Hanna, President; C. A. Hayes, Vice President, Traffic; M. H. Macleod, Vice President, Construction; S. J. Hungerford,

Vice President, Operation and Maintenance; Geo. Stephen, Freight Traffic Manager; C. B. Brown, Engineering Assistant; D. Crombie, Transportation Assistant; W. A. Kingsland, General Manager, Eastern Lines; L. S. Brown, Assistant General Manager, Eastern Lines; H. T. Hazen, acting Chief Engineer, Eastern Lines; T. C. Hudson, General Master Mechanic, Eastern Lines, and W. R. Devenish, General Superintendent, Ontario Division. The division superintendents and assistant master mechanics travelled with the party over their respective jurisdictions. Capreol, Ont., was reached at 10 p.m. and the Y.M.C.A. building was looked over. On Feb. 8, Capreol was left at 7.30 a.m. and Hornepayne was reached at 5 p.m., where the locomotive house, new station, etc., were inspected, Port Arthur being reached on Feb. 9 at 6 a.m., where Messrs. Kingsland, Hazen and Devenish left the party temporarily. Several Western Lines officials met the party there, including A. E. Warren, General Manager; H. A. Dixon, Chief Engineer; A. Wilcox, General Superintendent, Central District, and A. H. Eager, General Superintendent, Rolling Stock, who travelled in official car 50. A short stop was made at Fort William to look over the terminals and Winnipeg was reached on the evening of Feb. 10. On Feb. 11, the party went over the terminals, and the Fort Rouge and Transcona shops, leaving Winnipeg via National Transcontinental Ry. Messrs. Kingsland, Hazen, and Devenish, rejoined the party at Armstrong, Ont., where J. E. Morazain, General Superintendent, Quebec District, met them, and then proceeded to Quebec, arriving there Feb. 13 at 9 a.m. The Quebec terminals and the St. Malo shops were looked over and a luncheon was given by the Board of Trade, after which Mr. Hanna and other C.N.R. officials returned to Toronto.

Intercolonial and Prince Edward Island Rys.—The Minister left Quebec on Feb. 13 at 3.45 p.m., his car 104 being attached at Levis to the Maritime Express. He was accompanied by the Deputy Minister and a secretary and reached Moncton Feb. 14 at 9.55 a.m. After visiting the general offices, he left at 11 a.m., reaching Sackville, N.B., at 12.35 p.m., remaining there till 1.15 p.m., arriving at Tormentine at 2.45 p.m., crossing Northumberland Strait by car ferry s.s. Prince Edward Island, leaving Borden, P.E.I., at 4.10 p.m., and reaching Charlottetown at 7 p.m., where he met members of the Board of Trade, who urged the completion of the standardization of the P.E.I.

Ry., more work in the railway shops at Charlottetown, the building of an additional car ferry steamship, and the reduction of freight rates. On Feb. 15 he left Charlottetown at 5.45 a.m., proceeding via Borden, Tormentine and Sackville, N.B., to Amherst, N.S., and thence to Truro, where he remained from 4.45 p.m. to 5.25 p.m., and reached Halifax, N.S., at 8 p.m. On Feb. 16, he visited the new ocean terminals and other I.R.C. properties, and received a deputation from the Board of Trade, who urged the providing of additional port facilities, and especially a grain elevator with larger capacity than the present one. Leaving Halifax at 5.20 p.m., he reached New Glasgow, N.S., at 10.20 p.m., remaining there till 12.27 a.m., Feb. 17, and proceeding to Sydney, N.S., which he reached at 9 a.m., leaving there again at 11.30 a.m. and proceeding via Truro, N.S., to St. John, N.B., where he arrived on Feb. 18 at 7.45 a.m. He left there at 1.40 p.m., arriving at Moncton at 4.40 p.m., leaving there at 10.05 p.m., arriving Montreal Feb. 19 at 7.40 p.m., leaving there at 9 p.m. and arriving at Ottawa at 11.59 p.m.

Grain Shipments Through Port McNicoll.

Following are particulars of grain shipped through Port McNicoll, Ont., by the C.P.R., from Sept. 1, 1921 to Jan. 31, 1922, and from Sept. 1, 1920 to Jan. 31, 1921, respectively:—

	1921-22	1920-21
Total bushels shipped	29,980,921	11,423,712
Bushels shipped per day	195,953	74,658
Total cars shipped	15,902	7,370
Cars shipped per day	104	48

Hamilton Incline Ry.—The Hamilton, Ont., Board of Control was advised by T. H. Simpson, solicitor, recently, that a company was preparing to build an incline railway to the top of the mountain, at Ottawa St., at an estimated cost of \$400,000. He was asked to state in writing what the company expected in regard to right of way, etc. The Ontario Legislature is being asked to incorporate the Ottawa St. Incline Co. with authorized capital of \$500,000 to build an incline railway from the southerly end of Ottawa St., Hamilton, to the summit of the mountain adjacent thereto in Barton Tp. Lee, Simpson & McCallum, Hamilton, are solicitors for applicants.

The Eastern Canadian Passenger Agents' Association met at the Chateau Frontenac, Quebec, Feb. 7.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Esquimalt & Nanaimo Ry.—Work has been started by the Canadian Bridge Co. on the erection of the falsework, and the laying of a spur line for hauling the steel for the bascule span of the Johnston St. bridge, Victoria, B.C. The putting in of the last portion of the substructure work for the approaches was reported to have been started Feb. 13. This section of the work is done by the city's men under F. M. Preston, City Engineer.

Drum-Lummon Mines Railway.—A press report states that it is proposed to build a railway, about a mile long, from the Drum Lummon mines, to the water side at Hartley Bay, B.C., where a shipping wharf will be erected. The drifts are reported to have been driven into the hill side for about 450 ft., and several veins of Copper are reported to have been cut. W. T. Reavley is Superintendent.

Lake Huron & Northern Ry. Co.—The shareholders have been called to meet in Toronto, March 14, to elect directors; to confirm a bylaw for the issue of \$6,000,000 of 8% cumulative preference stock, and to authorize the directors to complete financing for the further construction of the railway. The company took over the old Bruce Mines & Algoma Ry., about 16 miles, extending from Bruce Mines to Rock Lake, and obtained power from the Ontario Legislature to extend the line from Rock Lake to the National Transcontinental Ry. A land grant of 200,000 acres was voted by the Ontario Legislature in 1913, and some clearing was done in 1914 on a right of way for the extension from Rock Lake. From 1915 the company endeavored to raise money in connection with its land grant, which resulted in some discussion in the Ontario Legislature in April, 1917, the Government advising the questioners that the time in which the company could obtain the land grant would expire within a few months, and would not be extended. It was reported in the United States that the company in 1918 had laid 68 miles of track, but nothing had been done. Nothing has been heard of the extension project since, except that in May, 1919, the Ontario Legislature granted one year extension of time for construction. (June, 1921, pg. 305.)

The Montreal Central Terminal Co. is applying to the Dominion Parliament for an extension of time for the construction of its projected terminal station in Montreal, with tunnel or bridge connection with railways on the south shore. This project has been kept before the public for some years. In July, 1921, application was made to the Board of Railway Commissioners for approval of a route map showing location of a tunnel and railways, but owing to opposition by the Canadian National, Canadian Pacific and Grand Trunk Rys., the City of Montreal, and the Montreal Harbor Commissioners the application was refused. (Aug. 1921, pg. 420.)

Montreal, Joliette & Transcontinental Junction Ry. Co. is asking the Dominion Parliament to extend the time within which it may build its projected railway from Montreal northerly through Hochelaga, L'Assomption and Montcalm counties to Joliette, thence northwesterly to St. Michel des Saintes, Berthier County, and thence to a junction with the National Transcontinental Ry. L. J. Kelvie,

Montreal, is solicitor for the company. (July, 1918, pg. 285.)

The Roberval & Saguenay Ry. Co. is asking the Quebec Legislature for authority to build the following lines of railway to be operated by steam or electricity or both:—From Roberval, on the Quebec & Lake St. John Ry., around Lake St. John to the Peribonka River, thence southeasterly crossing the Saguenay River to the junction of the Quebec & Lake St. John Ry. and the Ha Ha Bay Ry.; a branch from the above line west of the Saguenay River southerly to Bruno on the Quebec & Lake St. John Ry.; the branch lines and sidings authorized by the Revised Statutes of 1909, article 647, par. 22, 20 miles; and all sidings and branches useful for connecting the company's lines with those of other companies, with timber limits, or navigable waters; and a branch from its line in Chicoutimi County to a junction with the Quebec & Saguenay Ry. at La Malbaie, Charlevoix County. (Feb., pg. 76.)

The St. Francis Valley Ry. Co. is asking the Quebec Legislature to extend the time within which it may build its projected railway from the International Boundary near Stanstead, via Magog, Melbourne and Drummondville to Sorel, with a branch from Cherry Valley to Granby. The original incorporation was as the L'Avenir and Melbourne Ry. Co.; surveys were made in 1914 for a section of the line from Drummondville to Melbourne, 30 miles; and in 1919 the Quebec Legislature voted a land grant of 2,000 acres a mile to aid in building a line from Stanstead to St. Frances du Lac, 95 miles, and for a line from near St. Bonaventure on the St. Francis River to Sorel, 25 miles. C. B. Hibbard was associated with the company as Vice President. (April, 1919, pg. 191.)

Timiskaming & Northern Ontario Ry. The T. & N.O. Ry. Commissioners are reported to have made a trip of inspection recently from Cochrane, Ont., along the located right of way of the 70 mile extension to near New Post on the Abitibi River. Lt. Col. L. T. Martin, one of the Commissioners, is reported to have said on returning to Ottawa, Feb. 6, that a large force of men and 200 teams had been got together at Cochrane, and that supplies were being hauled in along the route. We are officially advised that the work of building camps and the getting in of supplies and equipment began Feb. 1, and that grading work was to be started as soon as the snow was off the ground. The concrete structure at the first crossing of the Abitibi River will be started as soon as possible. R. K. Campbell will be Superintendent in charge of construction at Cochrane, and Jas. H. Ward will be accountant for the contractors, Grant, Smith & Co., & Macdonnell Ltd. In giving the list of officers, etc., of the company, in our last issue, we omitted to mention that J. A. Campbell is Managing Director. (Feb., pg. 76.)

The Railway Employees' Club Ltd., 328 St. Catharine St. west, Montreal, has had its permit cancelled by the Quebec Liquor Commission, as a result of a police visit to the club's premises Feb. 14, it being charged that intoxicating liquor had been sold after the authorized hours.

D. C. Coleman on Western Freight Rates.

D. C. Coleman, Vice President, Western Lines, C.P.R., was the principal speaker at the Winnipeg Rotary Club's luncheon on Feb. 8. He is reported to have stated that the whole freight rate question is one of operating costs. When the war was on the Dominion Government insisted upon an increase in railway employees' wages by the adoption of the McAdoo scale, and because of this the Board of Railway Commissioners granted an increase in freight rates. In addition, there was government control of miners' wages, and the price of coal, which next to wages is the greatest item of expense in railway operation. Now that the war is over and living costs, so far as the laboring man are concerned, are going down, there is not the same desire on the part of anyone to assist the railway companies or the mining companies to get their wages bill adjusted. So far as the farmers are concerned, it must be conceded that Western Canada grain growers must enjoy a comparatively low scale of rail transportation to meet competition. Western farmers have always had the lowest rail rates in existence on the commodities they produce. The increase in freight rates since 1914 in Canada was not greater than the increases granted in other grain producing countries, consequently the western farmer is relatively in the same position that he was before the war. Canada will recover more rapidly from the effects of the war than other countries, because its exports were the staples or necessities of life.

The Central Ry. Co. of Canada's liquidation came before the Exchequer Court of Canada, at Ottawa, recently, when the preferred creditors applied for an order authorizing the payment of the balance of their claims. The City Safe Deposit & Agency Co., London, Eng., trustee for the bondholders, also asked to have the balance of funds remaining after payment of claims ranking ahead of the bondholders, paid over to it, as trustee for the bondholders, for their benefit. An order was made authorizing the payment of the preferred creditors' claims forthwith, and the motion for an interim payment to the trustee for the bondholders, was enlarged pending the passing of the receiver's accounts. This order was made possible owing to the Supreme Court of Canada's judgment dismissing the appeal of C. N. Armstrong, who claimed \$100,000 for services as Managing Director, etc. The court's registrar decided that not only was Mr. Armstrong not entitled to the amount claimed, but that he ought to repay to the company a sum he received. This decision was upheld by the Exchequer Court and affirmed by the Supreme Court for want of prosecution by the appellant. The Exchequer Court still holds \$22,000 of assets realized from the sale of the steamboat Empress and the Queen's wharf property at Ottawa.

Great Northern Ry. Contract.—Grant Smith & Co., of Spokane, Wash., who are associated with the firm of Grant Smith & Co. & Macdonnell, Ltd., the contractors for the Timiskaming & Northern Ontario Ry. extension, are reported to have given a contract for building 22½ miles of second track on the Great Northern Ry., between Bleustem and Lamona, Wash.

Freight Rate Hearings by Board of Railway Commissioners.

On Feb. 15 the Board of Railway Commissioners began hearing at Ottawa the applications of the maritime provinces and the provinces of Manitoba, Saskatchewan and British Columbia for more favorable freight rates. The maritime provinces interests demand chiefly the restoration of the differentials in force before the granting of the rate increases of 1918 and 1920. These differentials were fully discussed in Canadian Railway and Marine World for May, 1921, pg. 259. Manitoba and Saskatchewan claim that western rates are too high as compared with those prevailing in the east, and seek an equalization, and British Columbia alleges discrimination in that the rates in that province, and rates from and to B.C. points to and from prairie province points are too high. The Canadian Pacific and Canadian National Rys. oppose the applications, maintaining that rates are reasonable, and that discrimination does not exist. The Canadian Railway Association was represented by F. H. Chrysler, K.C., Ottawa; the Canadian Pacific Ry. by W. N. Tilley, K.C., Consulting Counsel, E. P. Flintoft, Assistant General Solicitor, W. B. Lanigan, Freight Traffic Manager, and W. M. Kirkpatrick, Assistant Freight Traffic Manager; the Grand Trunk Ry. by W. C. Chisholm, K.C., General Solicitor, and F. J. Watson, General Freight Agent; the Canadian National Rys. by Alistair Fraser, K.C., General Solicitor, C. A. Hayes, Vice President, Traffic, and Geo. Stephen, Freight Traffic Manager; New Brunswick by I. C. Rand; Manitoba and Saskatchewan by H. P. Symington and A. McDonald; British Columbia by G. G. McGeer and Prime Minister Oliver; Alberta by A. Chard; Halifax Board of Trade, by R. E. Finn; Winnipeg Board of Trade by Isaac Pitzlodo; Montreal Board of Trade by J. K. Smith; Toronto Board of Trade by Thos. Marshall, Transportation Manager; Calgary Board of Trade by J. H. Hanna; Sault Ste. Marie Board of Trade by T. E. Carmichael; Northern Foundry & Machine Co., Sault Ste. Marie, by W. J. Thompson; Canadian Manufacturers' Association by J. E. Walsh, S. B. Brown and G. P. Ruickbie; Canadian Retail Coal Dealers' Association by J. M. Daly and B. M. Caspell, and Dominion Millers' Association by Secretary C. B. Watts.

In opening the proceedings, Chief Commissioner Carvell stated that the investigation would be made by the Board to determine whether or not certain alleged discrepancies exist in the rates in different parts of Canada. W. N. Tilley, for the C.P.R., stated that so far as the British Columbia application was concerned, he C.P.R. denied that the charges made by it on goods from B.C. to points in B.C., Saskatchewan, Manitoba and Ontario were unjust, that charges on goods going into B.C. were unjust, and that the tolls were discriminatory. To demonstrate this, Mr. Chrysler examined Mr. Lanigan, this examination continuing throughout Feb. 15, and Mr. Lanigan was also the railway's chief witness on Feb. 16 and 17 also. Mr. Lanigan's testimony showed that the C.P.R.'s net income in relation to the value of the property devoted to serving the public, is contrary to the general opinion, extraordinarily moderate. He stated that in 1917, when the total investment in the property was \$814,393,395, the net earnings were \$44,577,336, and fixed charges,

dividends and contribution to pension fund totalled \$32,156,420, leaving a surplus of \$12,420,916. This represented a return on the investment of 5.473% and a contribution to surplus of 1.525%. In 1918, when the total investment was \$822,397,933, the net earnings were \$34,308,411 fixed charges, dividends and contribution to pension fund totalled \$32,104,790, the rate of return was 4.712% and the surplus 27/100 of 1%. In 1919, when the investment was \$28,221,727, net earnings were \$32,933,036, fixed charges, dividends and contribution to pension fund were \$32,088,787, the rate of return on investment was 4.078% and the contribution to surplus 1/10 of 1%. In 1920, the total investment was \$858,464,921, net earnings \$33,153,044, fixed charges, dividends and contribution to pension fund \$32,702,686, the return on investment was 3.862% and the surplus was 5/500 of 1%. In 1921, the investment was \$894,807,714, net earnings \$34,201,740, fixed charges, dividends and contribution to pension fund \$33,502,277, the rate of return on investment was 3.822% and the contribution to surplus 8/100 of 1%. The above figures made it evident that nobody could rightly complain that rate are high because of an unduly large financial return to investors in the C.P.R. enterprise.

Mr. Lanigan presented figures to show that British Columbia is not discriminated against in rates. He showed that operating costs are much higher in B.C., on account of traffic conditions and physical operating conditions. Reducing train loads to the basis of the loading for a 100% locomotive (one of 20,000 lb. tractive power), he showed that such a locomotive hauled, in 1920, a train of 618 tons in Manitoba, 538 tons in Saskatchewan, 471 tons in Alberta, 547 tons in the three prairie provinces taken as a whole, and but 373 tons in British Columbia. He then compared the rates as they affect British Columbia with those affecting the State of Washington, and showed that the B.C. rates are lower. He compared rates on fish, paper, rice and sugar, all comparisons showing that the B.C. claim of discrimination has no foundation in fact. He pointed out that the last reduction by the railways in the eastbound rate on lumber was made to place Vancouver and other B.C. manufacturers in a position to meet, in the eastern market, the competition of southern pine from the U.S. He filed exhibits dealing with import rates on commodities taken into Vancouver, showing their entire reasonableness, and further showed how the B.C. coast cities get lower rates on many commodities, because of water competition, than would otherwise exist. An interesting part of his testimony dealt with rates on the Pacific & Great Eastern Ry., operated by the B.C. Government. In every case the rates on the P.G.E. are higher than on the C.P.R., which makes it appear strange that the B.C. Government should be looking for rate reductions on the C.P.R. while it continues to charge the people of the province still higher rates on its own railwa. G. G. McGeer, representing B.C., attempted to defend this situation by stating that the construction of the P.G.E. is not yet complete, but it was shown that the portion of the line which the B.C. Government is operating is complete.

On Feb. 16 T. E. Carmichael, repre-

senting the Sault Ste. Marie Board of Trade, stated that city's case. He asked that the city be included in schedule A territory, at present limited by Parry Sound and Sudbury. W. J. Thompson, of the Northern Foundry & Machine Co., Sault Ste. Marie, explained why he thinks his business is being discriminated against. He said that it costs him 72½c. per 100 lb. to ship certain goods to Three Rivers, Que., whereas it costs manufacturers at Welland and Windsor, Ont., but 49c., while on products consigned to the west, his natural advantage, due to closer location to the market, is spoiled by the rate structure. He said he was not asking for anything he did not feel he was entitled to, to which the Assistant Commission replied: "Then you are in exactly the same position as everyone else who applies to this Board. No one applies to us for anything he does not think he is entitled to. That is what makes our work so simple."

After further discussion concerning the Sault Ste. Marie application, Mr. Lanigan's examination was resumed, and he showed that so far as rates on grain are concerned, even grain from Winnipeg takes a rate 2½c. cheaper to Vancouver than to St. John. He showed that when rates were relatively lower to Vancouver than to the east than they are now, no grain moved via the Pacific, but that when the rates to Vancouver became relatively higher than they were, a fair volume of grain began to move, via Vancouver. He compared prairie distributing rates with the distributing rates from Toronto under schedule A, rates between points in Eastern Canada with rates between points in Western Canada, rates on grain from U.S. points to Duluth with rates from prairie points to Fort William, and class rates from St. John, N.B., to cities in Eastern Canada with those in effect from Montreal to points of equal distance. All of his comparisons showed that the alleged discriminations are nonexistent.

On Feb. 17 Mr. Lanigan's examination was continued, and T. Marshall, Manager, Transportation Department, Toronto Board of Trade, filed a statement showing the railway mileage of the different provinces and the amount of traffic provided by each province. J. M. R. Fairbairn, Chief Engineer, C.P.R., testified as to operating costs and conditions in the British Columbia territory and the changes made by the construction of the Connaught tunnel.

The hearings were adjourned from Feb. 17 to Feb. 20, and on the latter date G. G. McGeer, for the B.C. Government, asked for an adjournment of the hearing, but the majority of those in attendance were in favor of continuing till all evidence was presented.

On Feb. 20 and 21, Mr. Lanigan's examination was continued, and on the latter day he was cross examined by H. J. Symington, counsel for the Manitoba Government, the effect of water traffic via the great lakes on the all rail rate between Fort William and Montreal figuring prominently in the examination. Mr. Symington argued that the eastbound grain traffic from the western provinces made the greater part of the railways' freight traffic on eastern lines, and said that it had been stated that the eastern lines were carrying the west, but he added that if it were not for the grain traffic, the C.P.R. would be in the same

position as "some other railways we could mention." Mr. Lanigan claimed that the eastern and western lines are complementary to each other, and that there is no question of one section of the railway "carrying" the other.

On Feb. 21, C. A. Hayes, Vice President, Traffic, Canadian National Rys., was examined by F. H. Chrysler, and stated that the mountain scale of rates in British Columbia did not constitute an injustice, owing to the difficulties and expense of construction, operation and maintenance.

On Feb. 22, D. O. Lewis, formerly Assistant Engineer, Maintenance of Way, Canadian National Rys., Toronto, but now associated with the Engineering Corporation Ltd., Vancouver, gave evidence in support of the British Columbia application. He stated that the grades on the Canadian National lines through B.C. are less severe than those on U.S. lines to the south, and in order to show that operating costs in B.C. are not as great as commonly thought, he mentioned the poor quality of the water supply on the prairies. C. A. Hayes was examined further on the same day, and stated that the Canadian National Rys. westbound grain traffic this season will be about 7,000,000 bush.

The hearing was then adjourned till March 13, and it is said that G. G. McGeer, counsel for British Columbia, will then examine Mr. Lanigan further.

In addition to pressing their case before the Board of Railway Commissioners, Premier Oliver of British Columbia and the members of the delegation accompanying him appeared before Prime Minister King on Feb. 16, Mr. Oliver representing that British Columbia is being discriminated against in regard to freight rates, and that the present rates constitute a breach of the terms under which British Columbia entered Confederation, and it was argued that the Dominion Government should insist on equitable rates being established. Mr. King promised to give the demands his consideration. An Ottawa press dispatch of Feb. 16 quotes Premier Oliver as stating that if B.C. does not win its case before the Board of Railway Commissioners it will be laid before the Imperial Government, on the ground that the Confederation agreement is being violated, and that he doubted the right of the Board of Railway Commissioners' right to settle the matter, and that he stated his belief that it is wholly a problem for the Dominion Government.

U. S. railway freight traffic during 1921 was less than during 1919, but the volume of traffic handled per employe was greater than in 1919.

The Atlanta Ry., which is being built by the U.S. Government, will not be officially opened until next summer of 1922, in the expectation that President Harding will be able to be present.

International Bridge Sunday and Holiday Traffic.—The United States Supreme Court has reversed a lower court's decision in an action brought by the International Ry. against the U.S. Collector of Customs at Niagara Falls, N.Y. in connection with the inspection of baggage, etc., at the bridge crossing the Niagara River at Niagara Falls. The first decision would have caused the closing of the two bridges across the river on Sundays and holidays, but the U.S. Supreme Court has reversed this.

The Delaware & Hudson Co. has ordered 12,000 tons of steel rails in the U.S.

Self Propelled Cars on Steam Railways.

A recent press report stated that the Michigan Central Rd. intended to place self propelled gasoline cars on one of its Canada Division's branch line, to supplant steam trains. We are officially advised, however, that the announcement was premature, and the fact is that although the management has been looking into the question of using gasoline, or some other type of self propelled cars, on some of its minor branch lines, no decision has been arrived at. The M.C.R. has several short branch lines and connecting lines in Canada on which the introduction of self propelled cars in passenger service would probably be an economical proposition. The chief one is the St. Clair Branch, from St. Clair Jct., 4.23 miles west of St. Thomas, to Court-right, 62.15 miles. Running at right angles to this line are two branches, one from Oil City to Eddy's, 5.18 miles, and one from Petrolia Jct. to Petrolia, 4.88 miles. There are also the lines from Niagara-on-the-Lake to Bridgeburg, 29.55 miles; from Comber to Sea Cliff Park, 15.91 miles; and from Essex to Amherstburg, 16.88 miles.

The storage battery car operating on the Canadian National Rys. Maritime District, full details of which were given in previous issues of Canadian Railway and Marine World, has been running between Bathurst and Campbellton, 62.96 miles, throughout the winter, and has given very satisfactory results. It is normally equipped with four motors, one geared to each axle, but as one of the motors was burned out, by one of the leads coming into contact with the armature coils, it was necessary to temporarily operate the car on three motors. While in this condition, in starting or in slow running, the tractive effort was equal to that from two pairs of wheels instead of four pairs, as when all motors are operative, but at road speed the tractive effort was three quarters of the normal. Notwithstanding the fact that the car was operated on three motors, it has shown great ability in meeting conditions of heavy snowfall and cold weather, and in maintaining schedule time. A recent performance report stated that on Jan. 23, while on the westbound trip, the car struck a severe storm, and encountered drifts 3 ft. deep, the temperature being between 20 and 30 degrees below zero. The car got through the frozen drifts successfully and reached Campbellton only 30 minutes late, but as 14 minutes of the time lost was due to the car being held up by a meet, only 16 minutes was lost on account of the severe weather conditions. On the return trip, the car was late in leaving but made up time. On Jan. 25 it was blocked at a station en route for 27 minutes by an opposing passenger train, but arrived at its destination on time. Three men are used in the operation of this car, this number being considered desirable, as it is being operated on a heavy traffic main line. Two men would be sufficient on a light traffic branch line. As is natural, current consumption increased during the severe winter weather. While the car was operating between Belleville and Trenton, on the Ontario District, the current consumption ran at 0.75 k.w.h. per car mile, and while operating between Bathurst and Campbellton under summer conditions the current consumption averaged 0.875 k.w.h. per car mile,

the increased consumption being due to heavier grades and more frequent stops. Under unfavorable winter weather conditions, the current consumption has been running at 1.25 k.w.h. per car mile, and on one occasion, when snow was badly drifted on the track, and the temperature was 30 degrees below zero, the current consumption for the trip was 1.34 k.w.h. per car mile.

It was stated in Canadian Railway and Marine World for February that the Canadian National Rys. had ordered another gasoline propelled car from the Ledoux, Jennings Co., Montreal, for the Brockville-Westport run on the Ontario District. We have since been informed that this order has not yet been placed, although designs for the car are being worked out.

The Bad Order Car Situation.

The Railway Association of Canada reported the total number of cars on Canadian lines for the 15 day period ended Jan. 15 as 206,353. The allowance for bad order cars on the A.R.A. basis, which assumes a total of 7% of the cars in bad order, worked out to 14,445, while the actual number of cars in bad order was 18,210, an excess of 3,765 on the 7% basis. This figure represented 8.82% of the cars in actual bad order. Of surplus cars in good order there were 44,928, making a total number not in use of 63,138, or a total of 48,693 idle cars on the basis of 7% of the cars being in bad order.

For the 15 day period ended Feb. 1 the total number of cars on Canadian lines was 203,671. The allowance for bad order cars on the A.R.A. basis of 7% worked out to 14,257, while the actual number of cars in bad order was 19,048, an excess of 4,791 on the A.R.A. basis. The actual number of bad order cars represented a percentage of 9.3. Of surplus cars in good order there were 45,700, making the total number not in use 64,748, or a total of 50,491 idle cars, on the basis of 7% being in bad order.

The percentage of 8.82 of the cars in bad order on Feb. 1 and 9.3 on Jan. 15 compared with 9.12% in bad order on Jan. 1.

The 44,928 surplus cars in good order Jan. 15 and 45,700 on Jan. 15 compared with 45,333 in good order on Jan. 1. These figures show that while the bad order situation improved somewhat toward the middle of January, compared with the beginning of the month, by Feb. 1 the percentage had again increased to more than it was on Jan. 1. Similarly, while the number of surplus cars on Jan. 15 was smaller than on Jan. 1, on Feb. 1 the number had become greater than on Jan. 1.

Freight equipment on Canadian lines is still in a better state of maintenance than on U.S. lines. The American Railway Association, Car Service Division, reported the number of cars in bad order in the U.S. on Jan. 15 as 319,512, or 13.9% of the total, compared with 313,190 or 13.7% on Jan. 1. On Jan. 23 the number of surplus freight cars in good repair and available for service when required, on U.S. lines, was 396,192.

The Denver & Rio Grande Ry. has ordered 20 locomotives.

Railway Wages and Working Conditions in Canada and the United States.

February was not marked by any development of outstanding importance in the railway wage situation in Canada, but there has been no lack of demonstrations of enmity between the international labor organizations having membership among certain railway employees in Canada, and purely Canadian organizations having membership among employees engaged in similar work. There certainly is no great affection between the Canadian Brotherhood of Railway Employees and the international organizations embracing railway clerks, freight handlers, express and station employees and men engaged in similar capacities.

M. R. Carr, of St. Louis, Mo., an official of the clerks' international organization, had arranged for a meeting at London, Ont., on Jan. 19, to which all railway employees who would be suitable for inclusion in its membership were invited, but the attendance was extraordinarily small. Undaunted, he called another meeting for Jan. 24, and issued a statement to railway employees generally in which he said: "I assure you that there will be no attempt to coerce anyone into joining this organization, as we are charitable enough to realize that we are dealing with people who are capable of thought and who can be relied upon to use their own best judgment. The meeting is called for one purpose only, and that is to enlighten you as much as is possible on conditions which confront employees at this particular time, and to point out to them the necessity of concerted action, and the best method of securing what we feel is justly due them. Special invitation is extended to lady employees." In the meantime, members of the Canadian Brotherhood of Railway Employees' London branch held a meeting at which they decided to flatly refuse to have anything to do with Mr. Carr's meeting. The determination to stand by the Canadian organization was affirmed, and it was agreed that there was no reason why employees should send their money into the United States to support highly paid officials who, they claim, do nothing for them. W. J. McPherson, representative of a C.B.R.E. Toronto division, who was at the meeting, complimented the London members on their stand, and it is stated that A. R. Mosher, Grand President of the brotherhood, who was in Chicago at the time, was telegraphed to go to London immediately to use his influence to prevent any wavering C.B.R.E. members from deserting to the international camp. We have no exact information as to how many were in attendance at Mr. Carr's second meeting, but are informed that the C.B.R.E. London membership intend to stand solidly behind their Canadian institution and build it up independently of the U.S. one.

The C.B.R.E. general grievance committee for Canadian National lines east of Port Arthur met at Moncton, N.B., Feb. 8, when many matters concerning wages and working conditions were discussed. A. R. Mosher, Grand President, called the delegates' attention to the fact that while the award of the wage arbitration board, which investigated the dispute between the Canadian National Rys. and the Canadian Brotherhood of Railway Employees, had been made months ago, the railways had not put into force the modifications in wage reductions recommended by the arbitrators. While

the C.N.R. management had offered to introduce modifications in the wage reduction independently of the arbitrators' award, particularly on the western lines, the employees' attitude had been that they did not care to discuss changes in the wage scale unless the arbitrators' recommendations were adopted. As a consequence, the original reductions made July 16, 1921, have remained in effect. No information was given out, following the Moncton meeting, as to what action the C.B.R.E. proposes to take in this connection. At a public meeting in Moncton city hall on Feb. 8, Mr. Mosher pointed out the supreme importance of a Canadian labor organization being controlled in Canada. After speaking on a variety of subjects, including possibilities in connection with Canadian water power development, the lack of success of labor candidates in the recent Dominion elections, the inadvisability of shipping goods to Europe when there are people lacking goods in Canada, the shortage of houses due to the surprising fact that the owners of timber tracts are not content to operate without a profit, and the proposed separation of the Intercolonial Ry. from the Canadian National system, he stated that he had no quarrel with any of the international labor unions, except those that were "trying to chase the C. B.R.E. off its own grounds." Presumably he was referred to the International Brotherhood of Railroad Stationmen, the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees, et al.

However, encouragement for Mr. Mosher may be seen in a statement made by Premier Taschereau in the Quebec Legislative Assembly on Feb. 16, when he said that his Government would do everything it possibly could to encourage national unions, but that it had no sympathy for any international union that stepped in and attempted to dictate to Canadian workers. While Mr. Taschereau's remarks were caused primarily by a printers' strike called by the International Typographical Union, they may be taken as expressive of the thought of a large number of people in Canada in connection with national vs. international trade unionism generally. International trade unionism is being challenged in this country now more seriously than in the past, and in the railway industry this is shown by the fact that the C.B.R.E. membership is steadily growing. According to Mr. Mosher, of the 18,000 to 20,000 railway employees capable of being unionized in the field covered by the C.B.R.E., about 12,000 belong to that organization, while the majority of the remainder are as yet unorganized.

It is reported that C.P.R. and Canadian National switchmen employed in and near London, Ont., have decided to withdraw from the Brotherhood of Railroad Trainmen and join the United Switchmen of America.

A Toronto press report of Feb. 15 stated that a new railway union, the United Association of Railway Employees of America, which is not affiliated with the American Federation of Labor, was preparing to invade Canada in a campaign for members. The union was formed among U.S. railway employees as a result of dissatisfaction with the administration of labor affairs recently. It is an industrial rather than a craft union, and the executive has decided to give

complete autonomy to Canadian members. The President is R. C. Greenley, who opposed W. G. Lee for the presidency of the B. of R.T., and the chief organizer for Canada is H. J. Harte, who created a stir in Canadian railway labor circles by supporting Dr. Sheard in opposition to Jas. Murdock, now Minister of Labor, in the Dominion election campaign in South Toronto.

A Montreal press dispatch of Feb. 13 stated that working conditions and wage scales affecting 140,000 railway employees throughout Canada were under preliminary review by railway officials, and that in some circles, the report was current that re-arrangements in 1922 will have to do largely with adjustments in working conditions rather than in rates of pay. Canadian Railway and Marine World has not been able to get any confirmation of this report from railway officials in Toronto who are in close touch with the wage situation.

United States.—The various U.S. railways have been holding conferences with their employees preliminary to hearings before the Railway Labor Board on the question of a further general reduction of wages. The situation now is that the majority of the class 1 roads have made application to the Board for wage reductions for classes of employees specified by each. Practically all classes of employees are affected. In opposition to the requests made by the railway executives to the Board, many of the labor organizations have applied to the Board for increases in wages of employees represented by them. Included among these are the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees, the American Train Dispatchers' Association, the Order of Railroad Telegraphers, and the various branches of the federated shop crafts making up the A. F. of L. railroad department. While the Board has not indicated how it is going to handle the large number of applications for wage reductions and increases now before it, it seems probable that the only way it can come to any decision, in a reasonable time, is to consolidate the applications and hear them as one case.

As stated in Canadian Railway and Marine World for February, conferences between railway executives and the leaders of the locomotive and train service brotherhoods were arranged by Secretary of Commerce Hoover, with the backing of the U.S. Government, and as a result a meeting of railway executives was held on Jan. 21, at which it was decided that committees representing the railways of the western, southeastern and eastern territories should be formed to meet the representatives of the four locomotive and train service brotherhoods in connection with the determination of future wages and working conditions. The idea is that by these conferences the matter of wage adjustments as between the railways and the locomotive and train service employees could be adjusted without reference to the Labor Board. The decision arrived at by the executives to form these regional committees also provided that if any railway management saw fit to deal with its own employees, independently of the regional committee, it would be entirely free to do so. The eastern carriers took prompt action following the meeting, and on Feb. 8 the officials of some 50 roads in the

eastern territory met in New York and appointed a conference committee which includes in its membership Elisha Lee, Vice President, Eastern Region, Pennsylvania System, and J. G. Walber, Chairman of the Association of Railway Executives' Bureau of Information. The committee immediately notified the locomotive and train service employees' representatives of its desire to meet them in the near future for a discussion of wage matters, and it is probable that conferences will be got under way quickly. The expectation is that agreement will be reached between the managements and the locomotive and train service employees in this manner, but if it is found that agreement is impossible, the disputes will have to be referred to the Labor Board in the usual way.

The Labor Board has, as stated in Canadian Railway and Marine World for February, been working some time on the formation of new rules for clerks, express and station employees, etc., and it has issued decision 630, effective Feb. 1, which contains rules and regulations governing the service of these employees and replacing the national agreement which the clerks secured from the U.S. Railroad Administration. The chief change brought about by the new rules is in connection with the payment of punitive overtime. Time and one half will henceforth be paid after the 9th hour of service instead of after the 8th hour. Generally speaking, the rules requiring punitive payments for various services have been modified considerably in favor of the railways, as for example in connection with clerks being notified to report for duty, and then not used, for work during meal hours, work for less than a full day, and for time when travelling. The decision also provides that clerks may be worked on split tricks, that is, they may be required to work part of a shift, lay off for some hours, and then work for a sufficient number of hours to make up a day. This rule in particular will be of great benefit to the railways, as it will in many cases enable small stations to be opened which have been closed altogether for the reason that two shifts would have been required to look after the morning and evening business, and it will also permit many services to be operated with one shift of employees instead of two.

The Labor Board's opinion in the decision on the rules governing clerks' employment was by no means unanimous, the three railway members holding that punitive payments for overtime within a 10 hour limit were undesirable. A. O. Wharton, a labor member, filed an opinion to the effect that punitive overtime should begin after the completion of the 8th hour of duty.

On Feb. 13 the Board gave a decision concerning rules and working conditions for signalmen. The signalmen had also been given a national agreement by the U.S. Railroad Administration, shortly before the termination of Federal control, and the rules contained in the Board's recent decision are to replace those of the national agreement. Of the 78 rules in the national agreement, however, more than half are retained in the new schedule of rules, and only 12 were changed, while 16 were left for settlement as between individual railways and their employees. The most important change is that concerning punitive overtime. Time and a half will now be paid after the 10th hour of service instead of after the 8th hour. Employees regularly assigned to service on Sundays and holidays will

be paid straight time for such service. The new rules are also more favorable to the railways in that there will be no payments at time and a half for employees travelling. The national agreement provided for payment of half time to employees while travelling in boarding car trains. The new rules do not provide for such payment.

A coal strike in the U.S. about April 1 does not seem improbable. J. L. Lewis, President of the coal miners' labor organization, sent recently to the leaders of the various railway labor brotherhoods an invitation to a meeting to be held at Chicago on Feb. 21. It is thought that his object was to enlist the support of railway labor organizations in case a coal strike materializes. Whether he expects this support to take the form of a sympathetic strike by railway employees, or to be confined to a refusal to handle coal produced in non union mines, is not clear. The railway brotherhood's leaders accepted the invitation to attend.

Much has been heard of the great wastes in railway operation caused in the U.S. by the operation of the national agreement made when the roads were under Federal control, and applying to shop employees' service. Some interesting correspondence on the effect of this agreement, exchanged between W. H. Chandler, President, U.S. National Industrial Traffic League, and T. DeWitt Cuyler, Chairman, Association of Railway Executives, has come to our attention recently. Mr. Chandler wrote Mr. Cuyler, wanting to know about the effect of the national agreement with the shop crafts as put into force by the Railroad Administration. Statements made by W. D. Hines, formerly Director General of Railroads, concerning the operation of this agreement, indicated to Mr. Chandler that there was a great difference between Mr. Hines' estimate of the waste caused thereby, and the estimate of railway officers. In his reply, Mr. Cuyler said: "The most burdensome and injurious interpretations of the provisions of the agreement were never experienced by the Director General of Railroads." In support of this statement he quoted decisions given by Railway Board of Adjustment no. 2, all of which increased railway expenses without any service being rendered by the shop employees concerned, and all of which became effective after the termination of Federal control. An example of the agreement's operation, Mr. Cuyler wrote, was the insistence of the shop committee in the Baltimore & Ohio Rd.'s Riverside shops that the following forms of labor be used in the work of renewing staybolts. 1. Pipe fitter and helper to remove injector and other pipes. 2. Machinist and helper to remove injector. 3. Sheet iron worker and helper to remove jacket. 4. Carpenter to remove lagging and running boards. 5. Boiler makers to remove and renew staybolts. 6. Engine restored to operating condition by reverse of first four processes. The shop committee tried first to introduce this method of doing business on the coming in for repairs of locomotive 1610 less than three months before the termination of Federal control, and during 1920 this became the standard practice for the renewal of staybolts on all railways subject to the national agreement.

Mr. Cuyler also called Mr. Chandler's attention to the fact that when the railways were returned to private operation, on March 1, 1920, they had 261,000 more employees than in Dec. 1917. Of the total increase in number of employees, 221,576

was accounted for in three of the classes of railway employment covered by the national agreements, as follows: shop crafts, 140,946; clerks, 54,630, and section hands, 26,000. The railways moved the traffic of 1920 with no increase in the number of train service employees, but they were burdened with an increase in shop employees of 140,946, or 47% more than in Dec. 1917. Mr. Cuyler said in conclusion: "While the railways cannot make an exact computation on each and every line of the effect of every rule in the national agreement, and of every interpretation given to that rule by the Director General, or by a railway board of adjustment, it is our belief that between excessive increases in employees covered by these rules, and decreases in the productivity per man, the estimate of their having added \$300,000,000 to the operating expenses of 1920 is conservative."

A Chicago press dispatch of Feb. 23 stated that another pay cut, affecting 10,000 railway firemen and oilers, was made on that date by the U.S. Railroad Labor Board, when it promulgated new rules, effective March 1, eliminating punitive overtime until after the 10th hour and setting up a split trick of 8 hours within a period of 12 hours without overtime pay.

Grain in Store at Elevators.

Returns made to the Dominion Bureau of Statistics, Internal Trade Branch, for quantity of grain in store at the different week ended Feb. 10, show that the total elevators throughout Canada had decreased by 3,307,822 bush., made up as follows: wheat 3,224,969 bush., flax 43,097 bush., rye 39,756 bush., while there were increases in oats and barley of 6,568 and 124,718 bush. respectively. In the western country elevators, 36,488,811 bush. were held, classified by provinces as follows: Manitoba, wheat 2,587,308, oats 923,076, barley 839,889, flax 72,542, rye 135,300; Saskatchewan, wheat 13,835,000, oats 5,048,751, barley 707,759, flax 653,210, rye 360,020; Alberta, wheat 6,204,692, oats 3,906,806, barley 726,809, flax 82,920, rye 232,129.

The receipts at western country elevators were 2,288,832 bush., and the shipments were 2,623,300 bush. Interior terminal elevators showed decreases, wheat 34,776 bush., oats 11,384 bush., flax 1,408 bush., and increases, barley 5,105 bush., and rye 1,137 bush.

In public and private terminal elevators at Fort William and Port Arthur, there were increases of barley 98,764 bush., and rye 27,327 bush., and decreases, wheat 15,713 bush., oats 21,867 bush., flax 3,860 bush. Receipts of all grains were 256,287 bush., shipments by ship 135,943 bush., and by rail 161,671 bush.

Winnipeg private terminal elevators showed these decreases, wheat 42,660 bush., flax 6 bush., rye 7 bush., and increases, oats 23,228 bush., barley 3,760 bush.

Eastern public elevators had the following decreases: wheat 887,596 bush., oats 176,974 bush., barley 9,705 bush., flax 10,000 bush.; increases, rye 8,147 bush. The receipts of wheat were, by rail, 256,971 bush., and the shipments, by ship, 235,000 bush., and by rail 935,554 bush.

There were 4,119,494 bush. of U.S. grain in store at eastern public elevators, compared with 727,730 bush. for the same period in 1921. U.S. lake ports showed decreases of 1,516,779 bush.

Mainly About Railway People Throughout Canada.

W. R. Baker, C.V.O., formerly Secretary, C.P.R. Co., was a passenger on the C.P.R. s.s. *Empress of Britain*, which sailed from New York, Feb. 21, for a cruise to the West Indies.

Major General J. L. Biggar, C.M.G., Quartermaster General of the Canadian Militia, who died at Montreal, Feb. 18, following a paralytic seizure, was a brother of W. H. Biggar, K.C., Vice President and General Counsel, G.T.R.

W. C. Bowles, Assistant Freight Traffic Manager, Eastern Lines, C.P.R., Montreal, was entertained at dinner by C.P.R. Freight Traffic Department officials and staff at Winnipeg, Jan. 27, on leaving the city, where he had been General Freight Agent, Western Lines.

H. W. Brodie, General Passenger Agent, C.P.R., Vancouver, and Mrs. Brodie, visited eastern Canada recently.

A. B. Calder, who has been appointed Assistant to Chief Commissioner, Colonization and Development Department, C.P.R., Montreal, was born at London, Ont., Aug. 24, 1867, and from 1882 to 1887 was in various capacities on C.P.R. construction west of Winnipeg, Man. He entered C.P.R. service in 1887, since when he has been, in Passenger Department, Winnipeg; 1889 to Oct. 1893, Ticket Agent, Tacoma, Wash.; Oct. 1893 to July 1895, Travelling Passenger Agent, Tacoma, Wash.; July 1895 to Dec. 1897, Travelling Passenger Agent, San Francisco, Cal.; Dec. 1897 to Nov. 1904, Travelling Passenger Agent, Tacoma, Wash.; July 1895 to Dec. 1897, Travelling Passenger Agent, San Francisco, Cal.; Dec. 1897 to Nov. 1904, Travelling Passenger Agent, Seattle and Tacoma, Wash.; Nov. 1904 to Nov. 1910, General Agent, Passenger Department, Seattle, Wash.; Nov. 1910 to Sept. 1911, Chicago, Ill.; Sept. 1, 1911, to Dec. 1916, General Agent, Passenger Department, associated with his father in a general ticket agency at Winnipeg; Jan. 1917 to Jan. 1921, Assistant General Passenger Agent, Winnipeg; Jan. 1921 to Feb. 14, 1922, on the executive staff, Montreal.

Mrs. Cochrane, widow of Hon. Frank Cochrane, at one time Minister of Railways and Canals, and Miss Edith Cochrane, are spending the winter at Santa Barbara, California.

Edgar P. Cooney, for the past four years Secretary to Grant Hall, Vice President, C.P.R., has resigned to enter the insurance brokerage business.

Henry Cooke Porter Cresswell, who has been appointed Superintendent, Colonization and Development Department, C.P.R., Montreal, was born at Melbourne, Australia, Nov. 8, 1892, and entered transportation service in 1909, since when he has been, to 1912, clerk, Lancashire & Yorkshire and London & North Western Rys. joint service, Londonderry and Belfast, Ireland; 1912 to 1914, clerk and stenographer, Natural Resources Department, C.P.R., Calgary, Alta.; 1914 to 1916, secretary to Assistant to President, C.P.R., Calgary, Alta., and Montreal; 1916 to 1919, on military duty; 1919 to 1921, secretary to Chief Commissioner, and for a short time acting Superintendent, Colonization and Development Department, C.P.R., Montreal.

Peter Joseph Johnson, whose appointment as Locomotive Foreman, C.P.R., White River, Ont., was announced in a recent issue, was born at Richmond, Que.,

Oct. 19, 1891, and entered railway service in Oct. 1905, since when he has been, to Feb. 1906, call boy, Motive Power Department, G.T.R., Belleville, Ont.; Apr. to May 1906, call boy, Traffic Department, G.T.R., Belleville, Ont.; May to Sept. 1906, car checker, G.T.R., Belleville, Ont.; Sept. 1906 to Apr. 1907, clerk to Locomotive Foreman, C.P.R., White River, Ont.; Apr. 1907 to Apr. 1910, machinist apprentice, C.P.R., Chapleau, Ont.; Apr. 1910 to May 1912, machinist apprentice, Angus Shops, C.P.R., Montreal; May to Dec. 1912, machinist, White River and Schreiber, Ont.; Dec. 12 to Feb. 1918, fitter, C.P.R., at Chapleau, Ont., Angus shops, Montreal, Winnipeg, Sortin, Que., and Glen Yards, Montreal, respectively; Feb. to May 1918, Assistant Foreman, C.P.R., Brownville Jet., Me.; May to Dec. 1918, Locomotive Foreman, C.P.R., McAdam, N.B.; Jan. 1919 to Oct. 1920, fitter, Glen Yards, C.P.R., Montreal; Oct. 1920 to Dec. 1921, Assistant Foreman, C.P.R., Ottawa, Ont.

R. L. Latham, Chief Engineer, Toronto, Hamilton & Buffalo Ry., Hamilton, Ont., and Mrs. Latham, were passengers on the C.P.R. s.s. *Empress of Britain*, which sailed from New York, Feb. 21, for a cruise to the West Indies.

Arthur St. Laurent, B.Sc., C.E., heretofore Assistant Deputy Minister of Public Works, has been appointed Chief Engineer, Public Works Department, Ottawa, Ont., vice E. D. Lafleur, deceased. He was born at Rimouski, Que., Nov. 20, 1859, and graduated from l'Ecole Polytechnique, Montreal, in 1885, and for three years was engaged in Temiscouata Ry. location and construction. He entered the Public Works Department's service, Sept. 18, 1888, and to 1898 was Assistant Engineer, Winnipeg. He was afterwards engaged on various works throughout the Dominion, for the Department, and in 1908 was appointed Assistant Deputy Minister.

Lieut.-Col. R. W. Leonard, formerly National Transcontinental Ry. Commissioner, has been presented by the Engineering Institute of Canada with the Leonard gold medal, founded by himself, for the best paper presented before the Institute during the past year.

Andrew Maxwell, engineer and architect, who died at Holland, Man., Feb. 9, aged 76, was engaged in survey work for the Dominion Government, in connection with the C.P.R. in its early days, and was subsequently in Hudson's Bay Co.'s service, and built the first bridge across the Assiniboine River for that company.

William Henry McEwan, who has been appointed Chief Dispatch, G.T.R., Montreal, was born at Belleville, Ont., Nov. 4, 1873, and entered railway service Apr. 10, 1888, since when he has been, to Oct. 1891, call boy, G.T.R., Brockville, Ont.; Oct. 1891 to June 1900, operator, G.T.R., at various points; June 1900 to Oct. 1906, operator and agent, C.P.R., at various points; Oct. 1906 to July 12, 1908, dispatcher and chief dispatcher, Canadian Northern Ontario Ry., Toronto; July 23, 1908 to Aug. 2, 1918, Dispatcher, C.P.R., at Cranbrook, B.C., Moose Jaw, Sask., Medicine Hat, Alta., and Farnham, Que., consecutively; Aug. 18 to Dec. 18, 1918, dispatcher, G.T.R., Richmond, Que.; Dec. 1918 to Jan. 16, 1922, night chief dispatcher, G.T.R., Montreal.

John A. McGill, who has been appointed General Agent, Passenger Department, C.P.R., Ottawa, Ont., was born at Acton, Ont., Dec. 23, 1880, and entered railway service in Oct. 1896, since when he has been, to Oct. 1897, assistant agent, G.T.R., at Guelph and Acton, Ont.; Feb. 1900 to April 1913, not in railway service; April 1913 to Sept. 1915 to Jan. 1916, City Passenger Agent, C.P.R., Cleveland, Ohio; Jan. to July 1916, Travelling Passenger Agent, C.P.R., Chicago, Ill.; July 1916 to Feb. 1922, City Passenger Agent, C.P.R., Ottawa, Ont.

Capt. Robert McKillop, who has been appointed Superintendent, Bruce Division, Ontario District, C.P.R., Toronto, was born at Perth, Scotland, Dec. 26, 1884, and entered C.P.R. service June 22, 1905, since when he has been, to Apr. 1, 1912, draftsman, in Chief Engineer's office, Montreal; Apr. 1, 1912, to Feb. 8, 1915, Assistant Engineer in charge of Building Department; Feb. 8 to Dec. 13, 1915, Division Engineer, Eastern Division, Montreal; Dec. 13, 1915 to June 12, 1916, Superintendent, District 2, Atlantic Division, Woodstock, N.B.; June 12, 1916 to Feb. 28, 1917, Superintendent, District 3, Eastern Division, now Laurentian Division, Quebec District, Montreal. On Feb. 28, 1917, he was granted leave of absence, to take command of the 2nd Section Skilled Railway Employees, and went overseas Apr. 16, 1917, returning May 22, 1919, demobilized May 22, 1919, and transferred to the general list of officers, the C.P.R. granting him an additional six months leave of absence. From Nov. 1, 1919 to March 1920, he acted as relieving Superintendent, Ontario District, C.P.R., at various points, and from March 1920 to Feb. 15, 1922, Superintendent, London Division, Ontario District, C.P.R., London, Ont.

Lt. Col. R. L. Nelles, ex Local Freight Agent, G.T.R., Toronto, who died there Dec. 27, 1921, left an estate of \$24,055 to his two sons.

Geoffrey Gream Ommanney, whose appointment as Development Engineer, Department of Colonization and Development, C.P.R., Montreal, was announced in our last issue, was born in England, Dec. 9, 1879, and received his technical education at King's College, London, afterward serving an apprenticeship with Stothert & Pitt, Bath, Eng. From 1900 to 1901 he was engaged on the breakwater at Folkestone; 1901 to 1902, Assistant Engineer, Admiralty harbor works at Dover; 1902 to 1903, Assistant Engineer, Colombo harbor works, Ceylon; 1903 to 1904, Assistant Engineer, Hodbarrow mines, England; 1904 to 1907, Assistant Engineer on harbor works on west coast of Africa and at Singapore; 1907 to 1911, Assistant Engineer in charge of lake steamship terminals, C.P.R., Port McNicoll, Ont.; 1911 to 1912, in charge of C.P.R. exploration and surveys on Vancouver Island; 1912 to 1915, Special Engineer to President, C.P.R., Montreal; 1915 to 1919, on active service in France, ranking from Lieutenant to Major; 1919 to Dec. 1921, Investigation Engineer, Department of Colonization and Development, C.P.R., Montreal.

Capt. D. H. Pearson, formerly Publicity Agent, Canadian Pacific Ocean Services, Ltd., and, since the appointment of the C.P.R., as Traffic Agent, employed by the latter company, has been appointed editor of British Dominions Trade.

W. Tyng Peters, formerly station agent, Canadian National Rys., at Rothesay, N.B., who died there recently, was brother of F. W. Peters, General Superintendent, C.P.R., Vancouver, B.C.

Leonard L. Price, whose appointment as Stores Inspector, Canadian National Rys., Moncton, N.B., was announced in a recent issue, was born at Campbellton, N.B., Sept. 18, 1891. From May 15, 1906 to May 31, 1918, he was employed by Sumner & Co., hardware dealers, and from June 3, 1918 to Sept. 1, 1921, was systems clerk, Canadian National Rys., all at Moncton, N.B.

E. C. Rice, City Passenger Agent, C. P.R., Windsor, Ont., has been granted extended leave of absence, on account of ill health, and has gone to Florida for a holiday.

Richard Richardson, whose appointment as Assistant Secretary and Registrar, Board of Railway Commissioners, Ottawa, Ont., was announced in our last issue, was born in London, Eng., Dec. 30, 1857, and entered the Board's service April 12, 1905, since when he has been, to Nov. 7, 1914, private secretary to Chief Commissioner; Nov. 7, 1914 to Dec. 5, 1921, Assistant Secretary of the Board. On Aug. 7, 1909, under sec. 24 of the Railway Act, he was appointed acting secretary, during the absence of the Secretary from illness or any other cause, and on Dec. 5, 1921 he was appointed Assistant Secretary and Registrar.

Fred M. Rutter, who has been appointed Superintendent, London Division, Ontario District, C.P.R., London, Ont., was born at Toronto, Dec. 26, 1880, and educated at Upper Canada College and the University of Toronto. He entered C.P.R. service Apr. 21, 1902, since when he has been, to Sept. 10, 1902, chairman, Labelle Extension; Sept. 10, 1902 to Apr. 18, 1903, clerk, Operating Department, Woodstock, N.B.; Apr. 18, 1903 to Apr. 7, 1904, rodman, North Bay, Ont.; Apr. 7 to Sept. 19, 1904, transitman, Sudbury, Ont., and Megantic, Que.; Sept. 19, 1904 to Feb. 8, 1906, Resident Engineer on construction, Toronto-Sudbury Line; Feb. 8, 1906 to Mar. 22, 1907, Assistant Engineer, Maintenance of Way, District 3, Eastern Division, Montreal; Mar. 22, 1907 to May 9, 1911, Resident Engineer, Maintenance of Way, Woodstock, N.B.; May 9, 1911 to July 16, 1913, Resident Engineer, Toronto; July 16, 1913 to May 1, 1915, Assistant Division Engineer, Eastern Division, Montreal; May 1, 1915 to Feb. 1, 1916, Assistant Superintendent, District 3, Ontario Division, Toronto; Feb. 1, 1916 to Feb. 15, 1922, Superintendent, District 3, Ontario Division, now Bruce Division, Ontario District, Toronto.

A. L. Sauve, who has been appointed City Passenger and Ticket Agent, C.P.R., Ottawa, Ont., was born at Portage du Fort, Que., Oct. 2, 1888, and entered C. P.R. service, July 6, 1906, since when he has been, to Dec. 11, 1907, stenographer and ticket clerk, Ottawa, Ont.; Dec. 11, 1907 to June 5, 1908, stenographer, General Passenger Department, Montreal; June 5, 1908 to May 1, 1909, ticket agent, s.s. Empress of Britain; May 1 to Dec. 10, 1909, City Ticket Agent, Quebec, Que.; Dec. 10, 1909 to Oct. 4, 1911, chief clerk, City Ticket Office, Ottawa, Ont.; Oct. 4, 1911, to Apr. 14, 1915, City Passenger Agent, Detroit, Mich.; Apr. 14, 1915 to Feb. 1922, City Ticket Agent, Ottawa, Ont.

Lord Shaughnessy, Chairman of the Board, C.P.R. Co., Lady Shaughnessy and

Hon. Marguerite Shaughnessy, sailed from Halifax, N.S., for England, Feb. 2, on the s.s. Montcalm. They expect to be away about three months, and will spend some time in the south of France.

J. Harry Smith, who has been appointed Canadian Press Representative in charge of the Press Bureau, C.P.R., Montreal, was borne at Bristol, Eng., Jan. 27, 1882, and from 1901 to 1912 was reporter and assistant financial editor, Toronto Globe; 1912 to 1919, on Toronto Saturday Night; 1919 to 1921, on Toronto World, and from 1921 to his present appointment, financial editor, Montreal Gazette.

Lord Mount Stephen, first President of the C.P.R. Co., who died in England in Nov. 1921, left an estate in the United Kingdom valued at £1,414,319, on which the death duties will be over £500,000. He left an annuity of £5,000 to Lady Mount Stephen; £10,000 to the Barnardo Homes, £2,000 to the Royal Victoria



John G. Sullivan, C.E.,
President, Engineering Institute of Canada.

Hospital, Montreal, and a few other bequests. The residue of the estate is left to the King Edward Hospital Fund. His will confirms gifts by deed to his niece, Mrs. R. W. Reford, Montreal, with the use for life of property at Rimouski, Que., and to his nephew, Col. F. S. Meighen, director, C.P.R. Co., of books at Brocket Hall.

John G. Sullivan, C.E., who has been elected President of the Engineering Institute of Canada for the current year, was born at Bushnell's Basin, N.Y., Jan. 11, 1863, and graduated C.E. from Cornell University in June, 1888. He entered railway service in July 1888, since when he has been, to Mar., 1889, rodman, Great Northern Ry.; Apr., 1889 to Aug. 1890, rodman, instrument man and assistant engineer, Spokane Falls & Northern Ry.; Aug. 1890 to May 1893, Assistant Engineer, Great Northern Ry. coast lines; July 1893 to Feb. 1894, Assistant Engineer, Alberta Ry. & Coal Co.; July to Oct., 1894, section foreman, Northern Pacific Ry.; Oct. 1894 to Apr. 1895, Lo-

cating Engineer, Butte, Anaconda & Pacific Ry.; Apr. to Dec. 1895, Division Engineer, Kaslo & Slocan Ry.; Dec. 1895 to Feb. 1901, Locating and Reconnaissance Engineer, and Engineer in charge of construction, Columbia & Western Ry.; Feb. 1901 to Sept. 1905, Division Engineer of Construction, Western Lines, C.P.R.; Sept. 1905 to Feb. 1907, Assistant Chief Engineer, Panama Canal; Feb. 1907 to Sept. 15, 1908, Manager of Construction, Eastern Lines, C.P.R., Toronto; Sept. 15, 1908 to Jan. 1, 1911, Assistant Chief Engineer, Eastern Lines, C.P.R., Montreal; Jan. 1 to Oct. 9, 1911, Assistant Chief Engineer, Western Lines, C.P.R., Winnipeg, and from Oct. 1911 to July 1, 1918, Chief Engineer, Western Lines, C. P.R., Winnipeg. He was President of the American Railway Engineering Association for 1917. He resigned from C.P.R. service July 1, 1918, and commenced practice at Winnipeg as a consulting engineer.

J. H. Walsh, General Manager, Quebec Central Ry., Sherbrooke, Que., with Mrs. Walsh and their son, were on the s.s. Empress of Britain's cruise from New York to the West Indies, between Jan. 21 and Feb. 19.

Charles Marshall Walton, whose appointment as Superintendent of Transportation, Eastern Lines, G.T.R., Montreal, was announced in our last issue, was born there, Jan. 24, 1885, and entered G. T.R. service Dec. 1, 1899, since when he has been, to May 1, 1911, clerk, Superintendent's office, Montreal; May 1, 1911 to Nov. 1, 1915, car distributor, Montreal; Nov. 1, 1915 to Nov. 18, 1917, Assistant Trainmaster, Island Pond, Vt.; Nov. 18, 1917 to Feb. 1, 1920, chief clerk to General Superintendent of Transportation and General Superintendent of Car Service, Montreal; Feb. 1 to March 16, 1920, relieving Trainmaster, Montreal; March 16, 1920 to July 19, 1921, Inspector of Terminals, Montreal; July 19, 1921 to Jan. 16, 1922, acting Superintendent of Terminals, Montreal.

F. L. Wanklyn, General Executive Assistant, C.P.R., and Mrs. Wanklyn, were passengers on the C.P.R. s.s. Empress of Britain, which sailed from New York, Feb. 21, on a West Indian cruise.

H. J. Watts, who has been appointed Soliciting Freight Agent, Canadian National Rys., Vancouver, B.C., was born at Winnipeg, June 2, 1896, and entered railway service in Oct. 1913, since when he has been, to June 1914, in Sleeping and Dining Car Department, G.T.R.; June 1914 to Dec. 1915, clerk, General Superintendent's office, Midland Ry. of Manitoba, Winnipeg; Dec. 1915 to Apr. 1917, clerk, Freight Traffic Department, Canadian Northern Ry., Winnipeg; Apr. 1917 to July 1919, overseas with Royal Air Force; July 1919 to Oct. 1920, secretary to Assistant Freight Traffic Manager, Canadian National Rys., Winnipeg; Oct. 1920 to Jan. 1, 1922, in charge of grain desk, Freight Traffic Department, C.N.R., Winnipeg.

H. K. Wicksteed, B.A.Sc., addressed the Engineering Institute of Canada's Montreal branch, on Feb. 13, on South American railways.

The United Association of Railway Employees of America has been established by a number of U.S. railway employees organizations, which are dissatisfied with present union conditions. The new organization is not affiliated with the American Federation of Labor, and it is reported that organizers are to visit Canada in the interests of the new body.

Canadian Pacific Railway Construction, Betterments, Etc.

St. John, N.B., Crossing.—The Board of Railway Commissioners passed order 32,111 Feb. 2, ordering that Douglas Ave., St. John, be diverted a short distance to the northeast and carried over the St. John Bridge & Railway Extension Co.'s tracks (C.P.R.) by a reinforced concrete arch. This matter came up for discussion by the St. John City Council Feb. 11. The estimated cost of the work is \$120,000, of which the Board of Railway Commissioners is prepared to recommend that \$15,000 be provided by the Dominion Government out of the amount appropriated for the elimination of level crossings, the C.P.R. to build and maintain a concrete bridge over the railway, and the city to build and maintain the approach, construction costs to be paid 25% by the city, 25% by the N.B. Power Co., and 50% by the C.P.R., the work is to be started within three months from the date of the order, and to be completed within nine months.

St. John River Bridge.—A press report that tenders had been invited for the removal of the old cantilever bridge at the Reversing Falls, St. John, N.B., recently supplemented by a new structure, is stated to be unfounded.

Peterborough Union Station.—The proposal for the erection of a union station at Peterborough, Ont., has been revived owing to the necessity for the improvement of the C.P.R. station facilities. It is reported that the C.P.R. management has advised the city authorities that it is willing to join in the erection of a union station, if suitable arrangements can be made, rather than undertake the enlargement or rebuilding of its present station. A site is under consideration for a union station at the diamond where the C.P.R. crosses the G.T.R. Peterborough-Belle-ville line, and it is thought that this plan will be carried through.

Carleton Place Station.—We are officially advised that the new station at Carleton Place, Ont., is a one storey structure, 122 ft. long, 32 ft. wide and 16 ft. high, with a basement 7 ft. high, and having a superficial area of 900 sq. ft., in which the heating plant and coal bins are placed. The hipped roof is of wooden truss construction with slate covering. The doors and frames are of oak, and the cornices of pine. The floor plan provides for a waiting room 28 x 72 ft., with men's and women's lavatories, each 10½ x 13 ft.; and a ticket office 14 x 21 ft. The waiting room has a terrazzo floor with red quarry tile, the walls are wainscoted 11 ft. high with semi-glazed brick, with plaster above and on ceiling, and white oak seats are built in against the outside walls. The lavatory floors are terrazzo with sanitary cove base, and the ticket office has a brick floor. Adjoining is a baggage room 23 x 28 ft., with concrete floor, brick walls and plaster ceiling, and C.P.R. standard sliding doors 7 ft. wide. This room has access to the basement and is heated. The express room is also 23 x 28 ft., and is fitted with three 7 ft. standard doors, but is without access to the basement. The platform on the track side is 13 x 192 ft., the station roof projecting over it for 8 ft.; and a 10 ft. platform extends around the ends and at the rear of the building with the roof projecting 6 ft. over them. Work was started on the structure Sept. 20, 1921, and it was expected to have it completed ready for occupation Feb. 15. M. Sullivan & Sons

were the contractors.

Islington Station.—The new station at Islington, Ont., replacing the one destroyed by fire Jan. 5, has been completed. Wells & Gray, Toronto, were the contractors.

Windsor Freight Shed, etc.—We are officially advised in connection with the enlargement of the local freight yard trackage, and the erection of a new freight shed at Windsor, Ont., that press reports of the remarks by Grant Hall, Vice President, as to the expenditure involved are rather overdrawn. While the general project has received approval, many of the details has yet to be determined. In a general way the work to be undertaken will be the erection of a frame freight shed 40 x 300 ft., with a brick office extension 40 x 60 ft., on Caron Ave., a short distance from Elliott St. The tracks serving the freight shed will have accommodation for 20 cars and, in addition to this, there will be team trackage for 30 cars. It is expected that tenders for building the shed will be called for shortly and that work will be started as soon as weather conditions will permit.

Western Lines Extensions and Betterments.—D. C. Coleman, Vice President, Western Lines, on returning to Winnipeg at the end of January, after being in consultation with other members of the company's executive in Montreal, issued the following statement:—"Commercial conditions as they exist at the moment have imposed on the Canadian Pacific, as on all other business organizations, a policy of caution with respect to embarking on large expenditures on capital account. It has been decided, therefore, to announce a beginning on such works only as are of an urgent character. Consideration of further expenditure, including that for the construction of branch lines, has been postponed until March or April, when it is hoped that the outlook will be more clear and that the indications of a steady revival in railway traffic will be more definitely apparent. The most important work to be undertaken at once is the building of a large ocean pier at Vancouver. This is justified by the constant growth of ocean traffic through Canadian Pacific ports. It will take approximately 18 months to complete the work. The filling and dredging for the site has been completed. The pier will be 800 ft. long, with provision made for further extension later, 328 ft. wide, and will carry 4 railway tracks, to enable freight to be handled expeditiously between ship and cars. It will be equipped with the most modern facilities for handling passengers and freight. With the construction of this pier, following on the reinforcement of the ocean fleet by the great steamships the Empress of Canada and the Empress of Australia, the company is confident that it will hold for Canada for many years the blue ribbon of supremacy of the Pacific. To assist in the prompt movement of traffic, mechanical coaling plants of an improved type will be erected at Eagle River, Ont., LaRiviere, Man., Estevan and Swift Current, Sask., and Medicine Hat, Alta. The growth of the fruit traffic on Okanagan Lake justifies the building of an additional ice storage building at Okanagan Landing, B.C., and this will be undertaken at once. Automatic protection signals will be installed at Sidney, Man., and Ruby Creek, B.C.

Water supplies at the following plants will be improved to meet the demands of increased traffic which may be expected, viz., Rathwell, MacGregor, and Wheatlands, Man.; Bredenbury, Hirsch, Frys, Weyburn, Macoun, Elbow, Parkbeg, Fauna, Outlook and Gull Lake, Sask.; Bow Island and Lundbreck, Alta., and Elko and Creston, B.C. The new office building at Moose Jaw and the important extension to the island coal dock at Fort William will be pressed to conclusion, and a considerable amount of work will be carried on in the replacement and standardization of bridges on the line."

Fort William Island Coal Dock.—We are officially advised that the Island coal dock at Fort William, Ont., erected some years ago, provided for a storage ground to take a maximum of about 700,000 tons of soft coal. It has now been decided to increase its capacity by practically duplicating the present storage ground, locating the extension immediately behind and paralleling the present storage ground, and spanning the new storage area with a main trolley bridge, similar to that spanning the present storage. The new bridge will be equipped with a screening plant and box car loader, which will be used in loading cars on tracks back of the new storage, the present storage being equipped to load cars at the front or dock side.

Automatic Signals.—We are officially advised that the signals to be erected at Sidney, Man., and Ruler Creek, B.C., as mentioned in Vice President Coleman's statement given above, will be merely isolated signals for station protection purposes.

Coaling Plants.—We are officially advised that the coaling plants to be erected at Eagle River, Ont., and La Riviere, Man., will each have a capacity of 100 tons, and those to be erected at Swift Current, Sask., and Medicine Hat, Alta., will each have a capacity of 280 tons. They will be of the usual C.P.R. type, with continuous chain and bucket conveyor. The plant at Estevan, Sask., will replace an old trestle chute with one of similar design.

Vancouver Pier.—We are officially advised that the new pier at Vancouver, B. C., will be 800 ft. long by 328 ft. wide, supported on creosoted timbers and piling. The superstructure will consist of two double deck sheds, each 100 ft. by about 750 ft. Between the two sheds will be space for four railway tracks and between the shed and the ship berths there will be space for two railway tracks to facilitate handling shipments direct to and from ships without the same having to pass through the freight sheds. Ample facilities will be provided for passengers, customs and cargo handling, with a full equipment of elevators or other means of connecting the two decks of the freight shed. It is proposed to call for tenders for this structure in the near future and to press work to an early completion. (Feb., pg. 70.)

W. L. Malpothor, President, Louisville & Nashville Rd., in testifying recently before the Interstate Commerce Commission, at he general rate hearing, expressed the opinion that railway employees' wages should be more flexible, and in a larger degree determined by the railway managements.

The Pere Marquette Ry. has ordered 500 automobile box cars. They will have wood upper frame and steel underframe, double sheathed, and 40 tons capacity.

The Maritime Provinces' Demands for Local Railway Management.

The agitation in the Maritime Provinces for the separation of the Intercolonial Ry. and other units of the former Canadian Government Rys. System from the Canadian National Rys. System, culminating in the sending of a delegation to Ottawa to state the case to the Meighen Government, was dealt with fully in Canadian Railway and Marine World for June and July, 1921. Mr. Meighen assured the delegation that their demands would be given thorough consideration, and during the general election campaign he stated that steps would be taken to meet their views by placing the Maritime Province lines of the Canadian National Rys. in a grand division under management centralized in those provinces. The elections having resulted in a clear sweep of Nova Scotia and Prince Edward Island by the Liberals, with New Brunswick divided between the two old parties, the Liberal members from those provinces decided to press the matter on the new Government, and a delegation, consisting of H. J. Logan, of Cumberland, N.S.; E. M. Macdonald, of Pictou, N.S., and Messrs. Leger and Turgeon, of New Brunswick, waited on members of the Government in Ottawa on Feb. 1, being received by Prime Minister King; the Secretary of State, A. T. Copp, and the acting Minister of Railways, G. P. Graham. An Ottawa press report stated that the delegation presented a carefully prepared brief to the Prime Minister, but he has informed Canadian Railway and Marine World that no brief was submitted, the representations made being entirely oral. Canadian Railway and Marine World therefore asked H. J. Logan, M.P., to furnish a statement of the case as presented to the Government, and he has complied as follows:—"I am delighted to see that there is one Toronto paper which is 'desirous to present the Maritime Province's case in regard to the Intercolonial Ry. fairly.' Our case briefly is as follows:—The Intercolonial Ry. was built as part of the Confederation pact, to give old Canada winter seaports and to bridge the distance between the Maritime Provinces and the new market of Canada which was to be substituted for the old market of the New England States. The Maritime people at that time were particularly prosperous. In New Brunswick the trade was \$66 per head, in Nova Scotia \$56, and it was only \$35 in Canada. A strong delegation came from Canada, including Sir John A. Macdonald, George Brown, D'Arcy Magee and other leading statesmen, and promised the Maritime Provinces that they would bridge the distance by building the Intercolonial Ry. Mr. Brown held out a bait by stating that the Maritime Provinces would bring their products to 'our three millions of inhabitants.' Sir John A. Macdonald and all the other statesmen said distinctly that the Intercolonial would never be a commercial success but was a political necessity. Mr. Brown, speaking in Toronto, said that he had formerly been opposed to the building of the Intercolonial, but he said: 'It would be better for us to build half a dozen Intercolonials, rather than that the union of the provinces should not take place.' Sir John A. Macdonald, after referring to it as a political necessity, said it was one of the conditions on which our constitution was adopted. Sir George E. Cartier said in

Montreal that the Intercolonial was being built as the price of securing maritime ports.

"Even the verbal assurances of Canadian statesmen were not accepted by the people of the Maritime Provinces. They insisted that the road should be made a part of the Confederation pact, and it was therefore inserted in the British North America Act, sec. 145, as follows: 'Inasmuch as the provinces of Canada, Nova Scotia and New Brunswick, have joined in a declaration that the construction of the Intercolonial Ry. is essential to the consolidation of the union of British North America, and to the assent thereto of Nova Scotia and New Brunswick, and have consequently agreed that provision should be made for its immediate construction by the Government of Canada, therefore, in order to give effect to that agreement, it shall be the duty of the Government and Parliament of Canada to provide for the commencement; within six months after the union, of a railway connecting the River St. Lawrence with the City of Halifax, in Nova Scotia, and for the construction thereof without intermission, and the completion thereof with all practicable speed.'

"After the consummation of Confederation it was found necessary that the money to build the road should be procured by Imperial guarantee. This guarantee was refused unless the road were built as a military one around the northern part of New Brunswick by a route previously surveyed under the direction of the Imperial Government by Major Robinson, a military engineer. As far as we were concerned in the Maritime Provinces, the road was to provide inter-provincial trade, if we should lose at any time the New England trade, so important to us at that time. If the Maritime Provinces people had been told prior to 1867 that rates would be established which would be prohibitive of inter-provincial trade there would never have been any British North America Act, as far as we are concerned.

"For 50 years the road was operated according to the true intent of the Confederation pact and a very valuable trade was created and carried on between the Maritime Provinces and Quebec and Ontario, when suddenly it was linked up with the Canadian Northern System, its management transferred to Toronto, and by order in council the Canadian Northern Ry. directors became its managers. Its rates were increased to such an extent as to prohibit the very purposes of its creation. Take, for instance, coal, one of the big products of Nova Scotia and New Brunswick. Under the old management large quantities of coal were shipped to Quebec and even to Ontario. The Canadian Northern management raised the rate on coal 150%, and as a result not a ton now goes out of the Maritime Provinces to Ontario and Quebec consumers by rail. We contend that the rates on this road cannot be based on commercial considerations. Rates which prevent trade between this part of Canada and old Canada are a distinct violation of pre-Confederation promises. The management of the Intercolonial having been taken away 800 miles west, has put the headquarters out of touch with our people. Two-thirds of our difficulties could be overcome if the management was back at Moncton, where it

would be accessible to the people. The matter of rates is absolutely vital to our existence. We are shut out by the highest United States tariff of 30 years from the New England market, and now being shut out from the Canadian market, we have to look forward to the happy future of swapping jackknives with ourselves, while our industries languish and the grass will grow upon our streets.

"We are not asking for charity, but we claim and are in deadly earnest in claiming, that the solemn pledges of Confederation confirmed by Imperial statute shall not be violated. The deepening and extension of the Canadian canal system was also made a part of the Confederation pact, but while the rates on the Intercolonial Ry. have been made excessive, the Ontario canals have been made as free as the ocean. The only satisfactory solution of this problem is that the road be operated from Moncton, which is the center of the Maritime Provinces system, under a management with full knowledge of the purposes for which the road was built, and fully cognizant of the terms of the contract made in 1864 to secure 'the assent thereto of Nova Scotia and New Brunswick' and answerable and responsible only to the Railways Department at Ottawa."

Premier King promised the delegation every consideration, and stated that the matter would be taken up as soon as the Minister of Railways, Mr. Kennedy, returned from his inspection trip of the National lines, which he was then making.

The Maritime Provinces' demands put both the old and the new Government in a difficult situation. If the Intercolonial is not restored to Maritime management, the Government will doubtless encounter serious trouble from its support in that section of the country; if the demands are acceded to, the feeling among the Progressives and the Conservatives and Liberals from other sections of the country who are favorable to railway consolidation will be directed against the Government. Whether the demands will be acceded to remains to be seen. While it is possible that some arrangement involving the division of the Canadian National Rys. into two or three great operating divisions, with large powers and authority delegated to the management of each, may be brought about, the fact remains that the prospects of Canadian National Rys. operating being maintained free from political interference have not been brightened by these Maritime Provinces' demands.

Grain Inspected at Western Points. Grain in Store at Elevators.

The following shows the number of cars of grain inspected at Winnipeg and other points on the Western Division during Jan. 1922, and for five months ended Jan. 31, 1922 and 1921, as reported to the Dominion Bureau of Statistics, Internal Trade Division:—

	Jan. 1922	5 mos. to 5 mos. to	
		Jan. 31 1922	Jan. 31 1921
Canadian Northern Ry.	4,864	57,918	41,125
Canadian Pacific Ry.	5,530	78,728	21,142
Grand Trunk Pacific Ry.	1,538	20,679	15,507
Great Northern Ry. (Duluth)	38	749	157
Totals.....	12,015	158,074	137,931

Canadian National Railways Construction, Betterments, Etc.

Lunenburg, N.S., station was completely destroyed on Feb. 7, with its freight and express contents. The building was an old frame structure, the rebuilding of which has been discussed for some time. Lunenburg is the terminus of the old Nova Scotia Central Ry., which was taken over by the Halifax & South Western Ry.

St. John, N.B., Island yard offices were burned Jan. 31. It is said that a new building will be erected at an early date.

St. John Terminals.—The Deputy Minister of Railways is reported to have advised the St. John, N.B., Board of Trade that the C.N.R. management is considering improvements in the terminals at St. John to further the interests of Canadian trade, into and out of this port.

Western Lines Betterments.—Canadian Railway and Marine World for February gave on pg. 72 information about a number of the larger works and betterments done in 1921 on the Western Lines. We have been further advised that in 1921 there were erected on lines under construction 13 stations and shelters, 10 section houses, 29 loading platforms, 13 stockyards, 7 water tanks, 4 pump houses with necessary auxiliary plant, 1,775 lineal feet of pipe line, 1 pumpman's dwelling, 110 miles of telegraph line, and 230 miles of new fencing. The construction of these new lines involved the handling of 1,400,000 cubic yards of material for embankments, the use of 600,000 cubic yards of ballast, 465,000 f.b.m. culvert timber, 8,000 ft. of culvert pipe, 4,015,000 ft. of timber on 12,216 lineal ft. of bridges, 118,250 lineal feet of piling, and 170,600 tons of iron. On betterments, 844,000 cubic yards of material was used in bridge filling, 35,000 cubic yards of material in bank widening, and 1,200,000 cubic yards of ballast were spread. Yard extensions at South Saskatoon, Sask., involved the laying of 9.6 miles of new track, and yard improvements and sidings at other points 41.5 miles of track. The water supply at Melville, Sask., provides for a storage of 250,000,000 gall., and necessitated the laying of 15,600 ft. of pipe. Pipe lines were laid at the following points:—Dana, 20,500 ft.; Maymont, 20,800 ft.; Humboldt, 20,125 ft.; Margo, 4,655 ft.; and Watson, 3,200 ft.; and reservoirs were built at eight other points.

Saskatchewan Branch Lines.—The Saskatchewan Legislative Assembly has passed a resolution unanimously authorizing petitions to the Dominion Government asking appropriations of money at the earliest possible date for the completion of C.N.R. branch lines projected in the province; and for the continuance of construction on branch lines until completed. The preamble stated that a number of branch lines have been projected for many years, that some construction has been done on a number of them, and that it is essential in the interests of the province that they be completed at the earliest possible date. Figures given in Canadian Railway and Marine World for February on pg. 72 showed that 342 miles of branch lines in Saskatchewan had been graded, and 231 miles of track laid thereon. The Saskatchewan Government has also guaranteed the bonds of the Canadian Northern Railway in respect of other lines on which construction has not yet been started.

Riverhurst-Craik Subdivision Connection.—We are officially advised in connection with the Board of Railway Commissioners' recent order authorizing the building of a line across three road allowances on a route from the Grand Trunk Pacific Ry. Riverhurst Subdivision and the C.N.R. Craik Subdivision, that the line will cross sections 34, 17, 20 and sections 3, 10 and 15, 18, 20, all west of the Second Meridian. When this connection is completed portion of the old Qu'Appelle, Long Lake & Saskatchewan Ry., between the G.T.P. Ry. crossing and the north end of Ardmore siding, will be abandoned. This will entail the abandonment of the C.N.R. yards at North Regina, and the siding at Ardmore. The length of the proposed connecting line is 3.58 miles.

Entwistle-Magnolia Cutoff.—A press report states that a cutoff is to be built from a point on the Grand Trunk Pacific Ry., east of Entwistle, Alta., station, to the Canadian Northern Ry., close to Magnolia, Alta., which will mean the abandonment of the C.N.R. line from Magnolia, for some miles westward. The bridge across the Pembina River, on this section of the line, will, it is said, be removed and re-erected on the Brazeau section, and the C.N.R. section at Evansburg will be moved over to the G.T.P. Ry. line, to enlarge the accommodation at the station there.

Vancouver Island.—We are officially advised in connection with the proposed laying of track on a further 10 miles on the Vancouver Island line, that grading has been completed for several years for a number of miles beyond the point to which it is now proposed to lay track. The only work to be done is to clear up the right of way, and to lay the track. This will be done by C.N.R. forces, and will be gone on with as soon as weather conditions are favorable.

Prince Rupert Coal Bunkers.—We are officially advised in respect to the proposed erection of coal bunkers on the water front at Prince Rupert, B.C., that these facilities are not to be provided by the C.N.R. The question of the lease of a site for the same has not yet been settled. (Feb., pg. 72.)

Prince Rupert Salmon Wharf.—In the paragraph respecting the erection of the salmon wharf and warehouse at Prince Rupert, B.C., in Canadian Railway and Marine World for February, on pg. 72, it was stated that the capacity of the warehouse will be 50,000 cases of salmon. As stated in our January issue, on pg. 27, the capacity of the warehouse will be 350,000 cases of salmon, which figures were reproduced in the copy for the February issue, but owing to a typographical error, the figures 50,000 were given instead of 350,000.

Railway Lands Patented.—Letters patent were issued during January, for Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Canadian Northern Ry.	44.17
Canadian Pacific Ry.	41.22
Edmonton, Dunvegan & British Columbia Ry.	29.97
Total.....	115.36

An English railway is painting its freight cars hand rails white, so that trainmen may see them more easily at night.

Grand Trunk Railway Construction, Betterments, Etc.

Portland, Me., Pier.—The Maine Legislature in 1919 passed an act which was subsequently approved by the people, authorizing an issue of \$1,150,000 of bonds for the construction of a pier at Portland. The Cities of Portland and South Portland subsequently provided a site for the pier, adjacent to the G.T.R. terminus. Plans for a pier 320 x 1,000 ft. were prepared, and approved by the civic, state and U.S. governments, and construction work has been started recently. The G.T.R. will have a track connection with the pier. (Feb., pg. 76.)

Montreal Elevator Enlargement.—The Montreal Warehousing Co., a G.T.R. subsidiary, is inviting tenders for the construction of a 1,000,000 bush. storage annex to the G.T.R. elevator at Montreal, together with a car dumping machine for unloading purposes, and a carrier for delivering grain to ocean vessels. The addition will increase the elevator's capacity to 8,000,000 bush. It is expected to have the work completed during the summer.

Guelph Freight Sheds and Trackage.—The G.T.R. has applied to the Board of Railway Commissioners for approval of plans for a new freight shed and additional tracks at Guelph, Ont. A press report says that the plans show that the entire block from Huskisson St. to Gordon St. between Farquhar and Waterloo Sts., will be used for this purpose and that it is proposed to run tracks along Waterloo St. on an elevation. The city council on Jan. 31 authorized its railway committee to oppose the application.

New Hamburg Station.—A press report says that a new station is to be erected at New Hamburg, Ont., at an estimated cost of \$5,000.

Stratford Level Crossing.—Negotiations are in progress between Stratford, Ont., City Council and G.T.R. officials for the elimination of the level crossing between Nile and King Sts. The estimated cost of a bridge is about \$200,000 and that of a subway might be about \$500,000. Several sites were looked over at a conference on Feb. 13.

London District Track Relaying.—It is reported that work will be started early in March on relaying sections of the line east of London, and west of London between Hyde Park and Sarnia, Ont., with 100 lb. rails. It is expected that 100 miles will be relaid during this year.

Railway Rolling Stock Orders and Deliveries.

The C.P.R. received the following rolling stock recently from Canadian Car & Foundry Co.: 5 pit cars, 3 depressed center flat cars, and 15 mail cars.

An Associated Press Dispatch from Novorossisk, Russia, Feb. 7, stated that 394 oil tanks had been received there from Canada, and 304 more were en route. The order was for 500 oil tank cars, and these were shipped from Montreal on the Canadian Government Merchant Marine steamships Canadian Seigneur, Canadian Ranger, Canadian Challenger, Canadian Commander and Canadian Miller. It may be taken from the dispatch that four of these steamships had arrived at Novorossisk, with approximately 400 cars, and that the fifth, with the balance of the order for 500, was then en route.

Sumas River Bridge Lift Span.

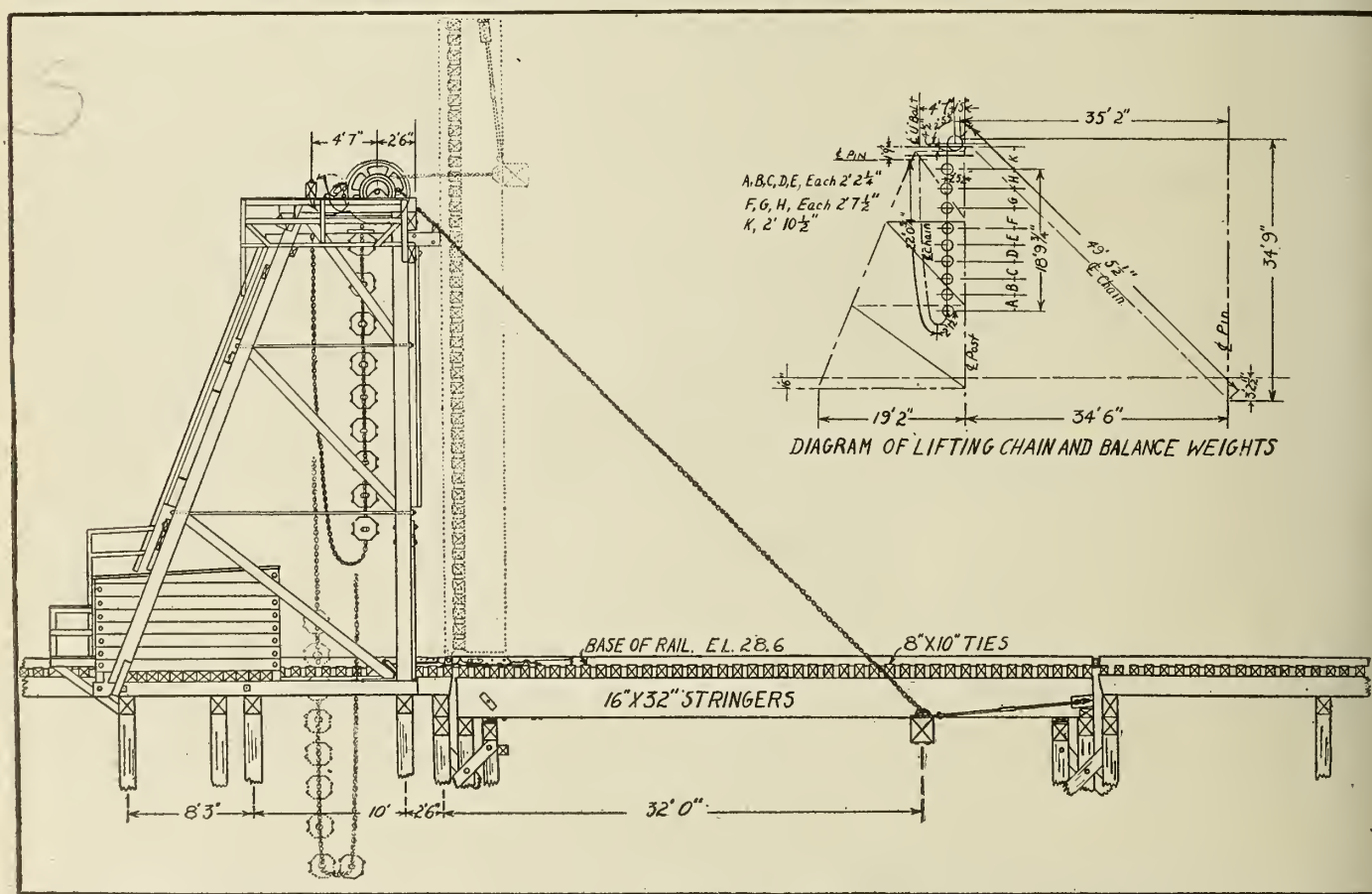
The Canadian National Rys.' line crosses Sumas River practically at its confluence with the Fraser River 53 miles east of Vancouver, B.C. The crossing is effected by a standard pile trestle bridge 405 ft. long, and having a maximum height from bottom of river to rail level of 38 ft. Back water from the Fraser River creates the high water elevation at the bridge, which is within a few feet of rail level. Sumas River, in its upper reaches, empties into Sumas Lake, while the lower reaches of the river provide an outlet from the lake to Fraser River.

The possibility that, infrequently, boats or dredges might require to pass from the Fraser River through this bridge, on the way to Sumas Lake, prompted the C.N.R., when the bridge was built in 1911, to so arrange the portion between bents 11 and 14 (about 40 ft.) that ties, string-

ally, had to be brought from a divisional point.

During the winter of 1920-1921 it became evident that something in the nature of a movable span, not requiring outside equipment to handle it, must be provided, and with this object in view, a temporary lift span was designed and built. Once the project of draining and reclaiming the Sumas Lake region is accomplished, the need for a movable span at this point will not exist, hence the necessity of adopting an expedient which would at once be effective but comparatively inexpensive. The accompanying plan illustrates how the work was accomplished. The existing movable portion of the deck was turned into a lift span operated by a hand winch, by the application of balance weights and chains and the provision of strong hinges. A

the span to be accurately balanced. The balance weights aggregate about 27,000 lb. on each side. The loose ends of the chains are hung back to the top of the tower, in such a way that, as the span rises and the pull in the chain is reduced, the weight of each balance weight is successively transferred to this back chain, until, when the span is full open, but one balance weight on each side remains acting on the span. In this way the span is overbalanced and underbalanced alternately, the difference between balance weight and chain pull at any point being taken up by the winch. The winch has a double crank, and drives one chain wheel on each side of the tower, the other chain wheel on each side running loose on a fixed shaft. This prevents variation in the link centers affecting the operation of the winch. Universal couplings on the



Sumas River Bridge, Canadian National Railways. Side elevation of lift span, with diagram of lifting chain and balance weights.

ers, bents, etc., could be removed and again replaced with a minimum of difficulty. This arrangement sufficed until 1920, when the Sumas Lake reclamation project, with the prospective passing of large barges and dredges up the Sumas from the Fraser, made an improvement in bridge opening facilities necessary. Accordingly, bents 12 and 13 were removed altogether, and the entire space between bents 11 and 14 was spanned by 6 timber stringers, each 16 in. x 32 in. x 42 ft. long. After this change was made it became only necessary to remove, and later replace, 42 lin. ft. of deck to pass a boat through. This arrangement, of course, having in view the weight of the timber in the deck, each stringer weighing nearly 3 tons, involved the use of equipment for handling it, which, norm-

timber tower was built over the track close to the movable span, standard clearance being allowed. This tower provides support for shafting, chain wheels, hand winch and balance weights. Four 1 in. diam. chains, two on each side of the deck, are attached at one end of each to a timber yoke which passes underneath the stringers. Back stays are provided, transferring the components of the chain pulls parallel to the deck into the stringers. The chains pass over chain wheels, fixed on shafting at the top of the tower, and have attached to them a series of 9 balance weights are built up of segments, each segment being in two halves bolted together over a horizontal cross bar connected to the two chains. This arrangement provides for adjustment and allows

shaft connecting the two driving chain wheels allow for any settlement that may occur. The hinges are of ample size, built up of steel castings, plates and angles. The hinge pins rest in slotted holes, the slots being vertical, providing for some free vertical movement of the lift span relative to the fixed deck when traffic is passing. When the span is closed the hinge pin is located in the center of the slot and must fall to the bottom before the load is taken by the hinge when raising. Two large boxes filled with gravel, one on each side of the tower, provide the weight necessary to balance the tower against the pull of the lift span when raising.

The work of installing the towers, machinery, etc., was completed during Aug. 1921, and the structure has proved to

be eminently satisfactory. It provides a clear span of 36 ft., and the operations of raising and lowering the span each occupy 4 minutes, using 4 men. In all probability this record will improve after more extended use.

The problem at this structure was to provide a navigation opening which could be available at short notice, but which would be required only for a compara-

tively short period of time. Hence the necessity for limiting expenditure. The completed structure cost only \$8,160, and was installed without delaying traffic or discarding any portion of the original structure.

Canadian Railway and Marine World is indebted to J. G. Legrand, Bridge Engineer, Canadian National Rys., Western Lines, for the foregoing information.

traries over coast rates charged on lumber from points on Vancouver Island. Upon hearing the complaints at Victoria, April 11, 1921, the complainants, the Canadian Pacific and the Canadian National Railways being represented, and what was alleged, the Board orders that the complaints be dismissed.

Aerial Transportation Notes.

R. H. Nisbet is reported to have said in speaking at Quebec recently that while the aeroplane is the photographer par excellence in most of the work undertaken in surveys in Canada, it is of little service for survey work with the present mechanical devices at its disposal, and that co-operation with ground surveyors is essential to its success.

Captain Maxwell and a pilot are reported to have completed a round aerial trip carrying mail, from Cochrane to Moose Factory, Ont., Feb. 6. The northward trip was made Feb. 4, the distance being covered in two hours and 10 minutes, and the return trip was made on Feb. 6. On the latter date several stops were made in the vicinity of the Abitibi River to test the machine on different kinds of snow.

A successful test of an experimental helicopter is reported to have been made at Farnborough, Eng., Feb. 9. The machine, which weighed over a ton, and carried a pilot and over 250 lbs. of excess weight, together with a large supply of gasoline, is said to have risen from the ground, to have hovered in the air for some minutes and then landed practically on the spot from which it rose.

A mechanical air pilot is reported to have been given a successful test at London, Eng., recently. The aeroplane is fitted with twin engines, and the piloting device is placed between them. It is said that at the test the plane, carrying 12 persons, ascended to a height of over 1,000 feet, and that the pilot then put his hands in his pockets and let the mechanical device take charge. The test lasted for half an hour, the plane travelling at 80 miles an hour.

Freight and Passenger Traffic Notes.

Prince Edward Island shipped 48,000 bush. of certified seed potatoes during 1921 to the United States.

The C.P.R. recently carried several cars of snow as freight from Lake Louise to Calgary, Alta., recently, for the winter carnival.

The Great Northern Ry. has announced special rates from Idaho, Washington and Oregon, to Vancouver, B.C., for the Rotarians' convention there April 3 and 4.

The Dominion Atlantic Ry. is reported to have moved 105,000 barrels of apples of the 1921 crop to Halifax, N.S., for export, and it is said that there are still 350,000 barrels in storage for export.

Traffic through the G.T.R. tunnel at Sarnia, Ont., is reported to have increased recently so as to require three additional train crews. It is said that 1,150 cars were hauled through the tunnel in one day recently.

The Canadian Pacific Ry. up to a recent date hauled 2,048 cars of grain containing 4,285,903 bush. to the elevators at West St. John, N.B., against 2,068 cars containing 3,473,545 bush. for the corresponding period of 1920-21.

Traffic Orders by Board of Railway Commissioners.

Rates on Western Grain Milled in Eastern Canada.

General order 357. Feb. 14.—Re application of Canadian National Millers Association and Dominion Millers Association for an order suspending tariffs or supplements to tariffs filed with the Board in pursuance of its general order 354, Jan. 4, 1922, increasing the rates for out of line haul on western grain milled in Eastern Canada. Upon reading the application and what was alleged in support thereof, the Board orders that the tariffs or supplements to tariffs filed by railway companies in accordance with the requirements of general order 354, in so far as such tariffs or supplements to tariffs increase the charge for out of line haul on western grain moving all rail or lake and rail to milling points in Eastern Canada, be suspended from their effective dates, with leave to the railway companies to apply to the Board for an adjustment of rate, if necessary.

Chief Commissioner Carvell gave the following judgment:—During the hearing of all phases of the milling in transit case, since I have been a member of the Board, and from reading all of the evidence and correspondence before that date, the question of the out of line haul on grain for milling purposes was never mentioned, or even thought of, and, therefore, when writing the judgment in the milling in transit case a few weeks ago, it was not my intention to in any way interfere with the existing rates for the out of line haul, and the only time it was mentioned was on page 4, where I used these words: "and, therefore, I find that all grain produced in Canada should be allowed the same stop over privileges for milling purposes, no matter in what part of Canada the milling operation takes place. This, of course, has nothing whatever to do with the out of line haul. In such cases, reasonable rates off the through line should be granted the transportation companies."

My only object in introducing the subject in the judgment was that there should be no misunderstanding as to the fact that the milling in transit fee should in no way interfere with the out of line haul charge and to leave the door open by which the railways could file reasonable rates for the out of line haul on Ontario and Quebec grains, because, as I understand it, heretofore there has been no such thing as an out of line haul on these grains, it was simply a rate in and a rate out. Now that Ontario and Quebec grain is enjoying the milling in transit privilege, it naturally presupposes a new tariff, giving the through rate plus the 1c. stop over charge for milling purposes, and, therefore, without expressing any opinion as to whether the tariff filed for that particular business is fair or not, some tariff must be provided, and I think that portion of the tariffs filed effective Feb. 1, viz., that

applying to Ontario and Quebec grain for milling in transit purposes, should be allowed to remain, with leave reserved to the millers, or any interested party, to apply to the Board for a change. No great injury can be done to any interested by this arrangement, because, in a telegram from the Dominion Millers Association, Feb. 9, it is stated as follows: "No Ontario grain moving, as crop practically all marketed, so statistics asked valueless."

It was never my intention, however, that the railway companies should in any way interfere with existing out of line hauls, which, of course, would affect all western grains, and I do not see how such an interpretation could properly have been applied to the words hereinbefore quoted, and, even if such interpretation could be justified, I do not think the companies would be justified in filing a rate effective on a given date without giving the public an opportunity to investigate. Therefore, in my opinion, so much of the tariffs above referred to as applies to the out of line haul on western grains should be suspended as of Feb. 1, with leave to the transportation companies to apply to the Board for an adjustment of rates, if the same be necessary.

Unloading Charges at Halifax on Apples and Potatoes.

32,038. Jan. 17.—Re application of the Nova Scotia Shippers' Association for an order rescinding order 30,619, dated Feb. 2, 1921, providing for unloading charges at Halifax, on export freight traffic, of 1½c. per 100 lb. on perishable freight and 3c. per 100 lb. on other freight. Upon hearing the application at Moncton, N.B., March 7, 1921, and in Halifax, N.S., Jan. 17, 1922, the Nova Scotia Shippers' Association, the Department of Agriculture, the Canadian National and the Dominion Atlantic Railways being represented, and what was alleged, the Board orders that the Dominion Atlantic Ry. forthwith file with the Board a tariff, effective Jan. 18, 1922, providing for a rate of 1¼c. per 100 lb. for handling charges of apples and potatoes, in barrels, for export, at Halifax, N.S.

Chatham, Wallaceburg & Lake Erie Ry. Freight Tariff.

32,091. Feb. 4.—Approving Chatham, Wallaceburg & Lake Erie Ry. Standard Freight Mileage Tariff, C.R.C. 672.

Arbitrary Charges on Lumber from Vancouver Island.

32,095. Re complaint of Associated Boards of Trade of Vancouver Island, B.C., against arbitrary charges made by railways over the mainland coast rates on lumber, in carloads, from Vancouver Island points; and re complaint of British Columbia Lumber & Shingle Manufacturers, Victoria Branch, and the Lake Lumber Co., Vancouver, against arbitrary

Railway Earnings.

Canadian Government Railways.

Following are total operating revenues, total operating expenses, and net operating deficits, for the Intercolonial, Prince Edward Island, National Transcontinental, and local lines in the Maritime Provinces and Quebec which have been acquired by the Dominion Government and added to the Canadian Government Rys., as far as they are available to date.

	Revenue	Expenses	Net deficits
	1921	1921	1921 1920
Jan.	\$3,527,304	\$4,347,728	\$ 820,423 \$ 508,178
Feb.	3,526,658	4,367,491	840,833 1,205,925
Mar.	3,595,144	4,538,904	943,761 1,235,265
Apr.	3,363,072	3,915,995	552,923 115,191
May	2,914,973	3,728,499	813,526 618,809
June	2,859,986	3,811,205	951,219 608,456
July	2,988,552	3,547,379	558,827 508,569
Aug.	3,366,391	3,436,475	70,084 795,428
Sept.	3,515,200	3,774,283	259,083 877,618
Oct.	3,812,673	3,533,685	278,988* 655,445
Nov.	3,830,974	3,574,632	256,342* 855,033
Dec.	3,663,467	3,974,876	311,409 2,402,260

\$40,964,304	\$46,551,602	\$5,587,298	\$10,449,877
Decr.	\$3,573,498	\$8,436,077	\$4,862,579

*Net revenue.

Canadian National Railways.

Following are approximate monthly gross earnings for the Canadian Northern Ry. System and Canadian Government Rys., the latter including the Intercolonial Ry., Prince Edward Island Ry., National Transcontinental Ry., and various local lines in the Maritime Provinces and in Quebec, which have been acquired by the Dominion Government.

	1922	1921
January	\$6,695,480	\$8,781,839

Canadian Northern Railway System.

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920, as far as they are available, to date, for all lines in the Canadian Northern Ry. System, except electric railways:—

	Revenue	Expenses	Net deficits
	1921	1921	1921 1920
Jan.	\$5,851,220	\$ 7,538,786	\$1,687,566 \$1,672,283
Feb.	5,575,782	6,861,337	1,285,555 1,839,756
Mar.	5,812,790	6,746,912	934,122 1,280,887
Apr.	4,994,027	6,327,739	1,333,712 911,321
May	4,427,994	5,742,052	1,314,058 1,044,273
June	4,295,881	5,536,771	1,240,890 1,084,815
July	5,027,917	5,448,014	420,097 1,603,874
Aug.	5,638,538	5,421,271	217,267* 1,454,666
Sept.	6,247,753	5,473,618	774,135* 2,180,065
Oct.	6,811,315	6,170,588	640,727* 1,001,804
Nov.	6,631,682	6,203,501	428,178* 596,025
Dec.	6,088,542	6,510,153	421,611 1,768,387

\$67,403,440	\$73,980,745	\$6,577,304	\$16,438,156
Incr.	\$2,299,567		
Decr.		\$7,561,285	\$9,860,852

*Net revenue.

Approximate gross earnings for Jan. 1922, \$3,805,000, against \$5,094,100 for Jan. 1921.

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1921, compared with 1920:—

	Gross	Expenses	Net	Increases
				or Decreases
Jan.	\$14,465,430	\$13,824,005	\$641,425	\$55,484
Feb.	12,768,987	11,955,595	813,392	99,618
Mar.	14,705,727	12,254,818	2,450,909	493,144
April	13,761,840	11,115,709	2,646,131	304,285
May	13,892,045	10,598,493	3,293,552	95,609
June	14,461,643	11,356,885	3,104,758	473,940
July	15,772,929	13,718,613	2,054,316	434,839
Aug.	17,064,266	14,488,126	2,576,140	375,327
Sept.	19,494,761	15,174,712	4,320,050	411,395
Oct.	22,089,624	15,378,137	6,711,487	*989,336
Nov.	18,787,679	15,115,878	3,671,801	*401,218
Dec.	15,756,924	13,839,142	1,917,782	*304,291

\$192,021,855	\$158,820,113	\$34,201,742	\$1,048,696
Incr.			\$1,048,696
Decr.	\$23,619,495	\$24,668,191	

*Decrease.

The discrepancies between the above figures and those issued by the Dominion Bureau of Statistics are owing to the fact that the Bureau is, at its request, furnished with figures by the C.P.R., including the Esquimalt & Nanaimo Ry., and the Montreal & Atlantic Ry. earnings, as well as the C.P.R. ones. The figures supplied the Bureau are exclusive of certain income items which are included in figures supplied Canadian Railway and Marine World.

Approximate gross earnings for Jan. 1922, \$11,066,000, against \$14,208,000 for Jan. 1921.

Grand Trunk Railway.

Following are total operating revenue and total operating expenses for lines in Canada for 1921, also total net operating revenue or deficit for 1921 and 1920, with increases or decreases in totals, as compared with those for 1920, as far as they are available to date:—

	Gross	Expenses	Net revenue or deficit
	1921	1921	1921 1920
Jan.	\$6,187,539	\$6,886,930	\$699,391* \$624,310*
Feb.	5,468,732	5,439,039	29,693 690,857*
Mar.	6,271,921	5,584,721	687,200 398,589
Apr.	5,659,813	5,241,107	418,706 651,789
May	5,957,779	5,596,194	361,585 605,310
June	6,672,766	5,919,063	753,702 456,747
July	6,563,693	5,620,730	942,963 863,642
Aug.	7,472,694	6,084,883	1,387,811 1,345,926
Sept.	7,240,823	7,085,571	155,252 501,078
Oct.	7,132,231	6,210,919	921,312 910,012
Nov.	6,370,483	6,187,587	182,896 847,349

\$70,998,474	\$65,856,744	\$5,141,729	\$5,265,545
Decr.	\$2,411,272	\$2,287,456	\$123,816

Approximate gross earnings for January, \$7,339,605, against \$8,877,703 for Jan. 1921.

Grand Trunk Pacific Railway.

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920, as far as they are available to date:—

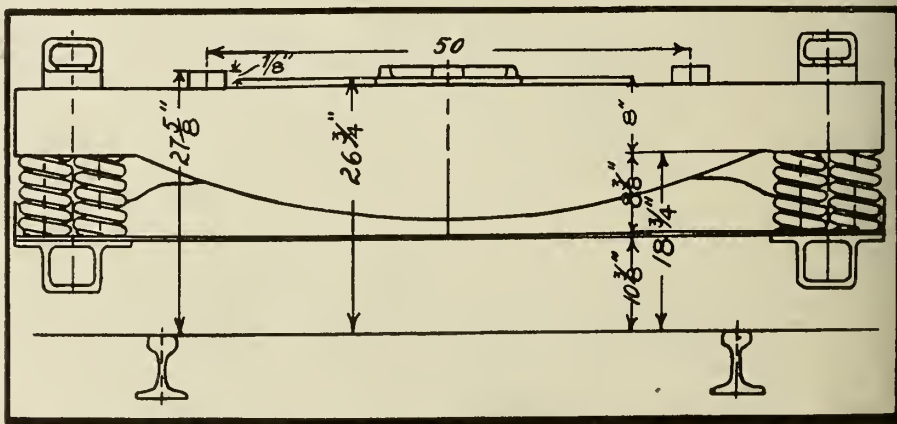
	Revenue	Expenses	Net deficits
	1921	1921	1921 1920
Jan.	\$1,441,225	\$1,813,982	\$ 372,757 \$ 737,357
Feb.	1,013,712	1,872,946	859,234 670,817
Mar.	1,007,499	1,664,227	656,728 655,660
Apr.	908,147	1,645,916	737,769 596,625
May	965,763	1,373,613	407,850 985,655
June	1,109,053	1,488,366	379,313 1,516,152
July	1,085,359	1,423,516	338,160 1,411,615
Aug.	1,348,912	1,488,745	139,833 1,795,380
Sept.	1,535,234	1,601,059	15,775 1,082,596
Oct.	2,146,418	2,025,705	120,713* 552,794
Nov.	2,228,943	2,186,147	42,796* 87,756
Dec.	1,798,366	2,051,943	253,577 42,178

\$16,638,661	\$20,636,165	\$3,997,487	\$10,134,485
Incr.	\$2,230,130		
Decr.		\$3,906,868	\$6,136,998

*Net revenue.

Standards for Freight Car Trucks.

The American Railway Association, Mechanical Division, has issued the following circular:—According to the votes by the members of the Association, all of the fundamentals in the recommendations made by the car construction committee at the June, 1920, convention, are



Truck Side Frame Dimensions, American Railway Association, Mechanical Division.

now standard. As it is very desirable that all new construction shall be uniform and in accord with these fundamentals, it is intended that new designs for truck side frames and bolsters, in fact for the complete truck, be made, but in order to provide the best that can be obtained some time will elapse. Until such designs have been prepared, and adopted as standard, it is recommended that for new construction and for replacements the truck side frames be made to conform with A.R.A. sheet B, as limiting dimensions, that the tension and com-

pression members be U-section, and that the dimensions relating to trucks, which are given below, be adhered to:—

	Inches
Height from rail to center of brake shoe...	13
Height from rail to bottom of truck springs	10 1/2
Height from rail to brake beam hanger fulcrum	24 1/2
Height from rail to top of springs, empty car	18 1/2
Height from rail to center plate bearing surface	26 1/2
Height from rail to top of truck side bearings	27 1/2
Distance from center to center of side bearings	50

The distance of either the U.S.R.A. or A.R.A. standard bolsters is recommended, provided that such modifications in the shape are introduced that the truck heights as given in the foregoing are maintained. This involves making the vertical distance between center plate bearing surface and bolster spring bearing surface 8 in. The bolster sections should remain as before, or if slightly modified to provide sufficient clearance between bottom of bolster and spring plank, the section moduli should remain as before. (See accompanying drawing.)

Among the Canadians, etc., who were reported to have been invited to Princess Mary's wedding in London are Lord Shaughnessy, Chairman, C.P.R. Co., Lady Shaughnessy, Hon. Marguerite Shaughnessy; Lady Nanton, wife of Sir Augustus Nanton, Winnipeg, one of the C.P.R. directors; Lady Schreiber, widow of Sir Collingwood Schreiber, formerly Consulting Engineer, Dominion Government; Senator J. D. Reid, ex Minister of Railways and Canals, and Mrs. Reid; and Sir Edgar Bowring, of Bowring Bros., shipowners, etc., St. John's, Newfoundland, who is Agent General for Newfoundland in England.

Toronto Transportation Club had a largely attended luncheon at Bingham's on Feb. 27, the President, Thos. Symington, Superintendent, Shedden Forwarding Co., being in the chair. Rev. W. R. Mackay, of Bond St. Congregational Church, spoke eloquently, his remarks being interspersed with several humor-

ous stories. The great success of the luncheon will probably result in similar ones being held monthly in future.

Exchange and Surcharge on International Traffic.—In accordance with the Board of Railway Commissioners' judgment of Jan. 14, 1921, the rate of exchange in connection with shipments of freight between points in Canada and the United States from Feb. 1 to 28 was 4 7/16% and the surcharge on the traffic was 3%. The rate of surcharge on international passenger business was based on 4% exchange.

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EDITORIAL NOTES.

Industrial Research.—Robert Hobson, President of the Steel Co. of Canada, who waited on the Dominion Government recently, with other Canadian Manufacturers Association's members, urged the establishment at Ottawa of a bureau for industrial research. There is a great need of such work, which is of the utmost importance to all industries, including the transportation ones, and it is to be hoped that the Government will act on the suggestion.

Drydock for North Vancouver.—It is to be hoped that the Dominion Government's request to the Burrard Drydock Co., not to go on with the construction of the floating drydock at North Vancouver, for which it obtained a subsidy agreement from the former Government is only of a temporary nature, and that it will be withdrawn at an early date. Vancouver has needed a drydock very badly for many years, and its construction should be gone on with at once, and be pushed to completion as rapidly as possible.

Keep Politics out of the Canadian National Railways.—One of the Trades and Labor Congress of Canada's requests, submitted to the Dominion Government recently, viz., that the order promulgated by President Hanna, of the C.N.R., forbidding employees to become candidates for the Dominion House of Commons, or any of the provincial legislative assemblies, be cancelled, should be promptly and firmly refused. There has been too much political interference with the management, ever since the lines went under Government ownership, and this should not be intensified by allowing employees to become parliamentary or legislative representatives.

Aids to Navigation.—The Shipping Federation of Canada's President, in his report at its recent annual meeting, which is given fully on pages 157 and 158 of this issue, calls attention to what seems to have been somewhat extraordinary action by the Naval Service Department, in closing six radio telegraph stations on the St. Lawrence River and Gulf, without consulting the shipping interests, or even issuing the customary notices to mariners. The strong protests which were made resulted in most of the stations being re-opened, but the one at Cape Ray remains closed, and it seems to be all important that it should be put in operation again this year. Economy may be carried too far when it takes the form of abolishing what may now be considered an absolutely necessary aid to navigation. Direction finding stations established by the Department have proved of great value to mariners, and should be increased as rapidly as possible.

Wheat Exports via Vancouver.—The figures given on page 165 of this issue will probably surprise a good many people, especially those east of the Great Lakes. They show that receipts of wheat at Vancouver from the prairie provinces, principally from Alberta, have risen from 73,419 bush. in the 1916-1917 crop year, to 2,485,611 bush. in 1921-22, including in the latter year up to Jan. 20 only. The table showing destinations of shipments from Vancouver during the current crop year up to Jan. 20, are very interesting. Exports to Japan aggregated 328,073.50 bush.; to the United Kingdom, 176,276.50; and to Holland 110,533.20. The trade via Vancouver will undoubtedly continue to increase. While the Minister of Railways was on an in-

spection trip of the Canadian National Rys., as far west as Winnipeg, recently, a Fort William, Ont., press dispatch credited him with having stated there that eastbound freight rates on grain would be reduced so as to cause grain grown on the western portions of the prairies to be sent out via the head of the Great Lakes. A later Winnipeg press dispatch credited him with denying the Fort William report, and with saying that the question of routing was one for shippers alone, and not one that the Government could undertake to influence, by the development of one port to the detriment of another. It is not at all likely that Mr. Kennedy made the statement attributed to him by the Fort William dispatch.

Harbor Commissions and Politics.—One of the worst remaining features of the political patronage system is the practice of changing various harbor commissions' personnel with each change of Dominion Government. In Montreal, the presidency was vacated a few months ago by W. G. Ross resigning to become a candidate for the House of Commons in the Dominion general election. The Meighen Government did not fill the vacancy, and the King Government, of course, had to do so, but there was no valid reason why the other two commissioners should have had to retire and be replaced by political supporters of the Government. In the case of the Quebec Harbor Commission, the change amounted to an outrage. On returning from the Great War, in which he performed never to be forgotten services, Major General Sir David Watson was appointed President of the Commission by the Borden Government, Senator L'Esperance having resigned, owing to ill health. Surely it would have been a graceful thing for the new Government to have retained Sir David in that position, but as is shown by a memorandum he made shortly before his recent death, and which was found among his papers, it was intimated to him that he should resign, no deference being paid to the great work he performed overseas for Canada and the Empire. In spite of this, Prime Minister King, and the Minister of Marine, Mr. Lapointe, who was no doubt particularly responsible for Sir David's resignation, went to Quebec to attend his funeral. More chivalrous treatment during his lifetime would have been preferable to post-death courtesy.

Error in Numbering Canadian Railway and Marine World's Issues.

After Canadian Railway and Marine World for February had been issued, it was pointed out that its consecutive number should have been given as 288 instead of 287. In tracing the error back, it was found that the April and May 1921 issues were each numbered 278, instead of 278 and 279 respectively, and the error was continued up to the Feb. 1922 issue, which was numbered 287 instead of 288. The numbering has been rectified in the current issue (March), which is the 289th consecutive one. And it "is still going strong."

W. D. Hines, formerly Director General of U.S. Railroads in the U.S., in testifying before the Interstate Commerce Commission recently, stated that in his opinion railways paid too much attention to effecting economies in the road haul, and not enough to effecting of economies in terminal operation.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian National Rys. — A. BROSTEDT, General Traffic Agent for the Orient, has opened his offices in the Glen Line Building, on the Bund, corner Peking Road, Shanghai, China.

J. HAWKINS, heretofore locomotive man, and formerly Assistant Master Mechanic, Rideau, Ont., has been appointed Assistant Master Mechanic, Hornepayne, Ont.; vice J. F. Spiegel, resigned on account of ill health.

H. J. WATTS, heretofore in General Freight Department, Winnipeg, has been appointed Soliciting Freight Agent, Vancouver, B.C.; vice D. E. Ross, appointed Traffic Representative, Shanghai, China.

EUROPEAN TRAFFIC AGENTS. — The following traffic agents have been appointed for Canadian National-Grand Trunk Rys.

Asia Minor:—Smyrna, T. Bowen Rees & Co.

Belgium:—Antwerp, De Keyser, Thornton & Co.

France:—Paris, Havre, Dunkirk and Boulogne, Hernu, Peron & Co.; Bordeaux, Robt. Vandercruyce and James Moss & Co.; Marseilles, Watson & Parker, and P. A. Young; Tonnay-Charente, Goguet & Williamson.

Germany:—Hamburg, Adolf, Blum & Popper.

Greece:—Patras, W. Morphy & Son.; Patras and Piraeus, Panos D. Panaguli.

Holland:—Rotterdam, P. A. Van Es & Co.

Italy:—Naples, Cunard-Anchor Line; Genoa, Lertora Bros. & Courtman, and Cunard-Anchor Line; Leghorn and Trieste, Cunard-Anchor Line.

Sicily:—Messina, Carrara Bros; Catania, Carbo A. Ali; Palermo, Cunard-Anchor Line.

Spain:—Barcelona, Andres Rosa; Taragona, Sucessores & Modesto Fenech; Valencia, J. Aguirre Matiol; Denia, Ribes & Co.; Alicante, Juan Guardiola y Hijo; Almeria, Antonio Gonzalez Agea; Malaga, Rafael Carbon; Cartagena, P. Miller; San Feliu de Guixols, J. Yrla & Co.; Gijon, Juliana & Co.; Santander, Doriga & Casuso; Bilbao, San Sebastian, and Pasages, A. E. Dawson & Co.

Canadian Pacific Ry.—W. A. ARMSTRONG, heretofore chief rate clerk, District Passenger Agent's office, Toronto, has been appointed City Passenger Agent, Windsor, Ont., vice E. C. Rice, who is on leave of absence owing to illness.

J. ASHCROFT, heretofore Assistant Boiler Foreman, Winnipeg, has been appointed Boiler Foreman, Ogden, Alta., vice T. W. Hind, transferred to Winnipeg.

A. B. CALDER, heretofore of the executive staff, has been transferred to the Colonization and Development Department, as Assistant to the Chief Commissioner. He will also be available for such other duties as may be given him from time to time by the President.

H. C. P. CRESSWELL, heretofore acting Superintendent, has been appointed Superintendent, Colonization and Development Department, vice E. G. White, on extended leave of absence. Office, Montreal.

T. R. FLETT, heretofore Superintend-

ent, Portage Division, Manitoba District, Winnipeg, has been appointed Superintendent, Cranbrook Division, British Columbia District, vice W. S. Hall, transferred to Portage Division, Manitoba District. Office, Cranbrook, B.C.

H. W. GILLIS, heretofore Assistant Foreign Freight Agent, Montreal, has been appointed Assistant General Freight Agent, Eastern Lines, vice S. C. Hurkett, appointed Assistant Foreign Freight Agent. Office, Montreal.

W. S. HALL, heretofore Superintendent, Cranbrook Division, British Columbia District, Cranbrook, B.C., has been appointed Superintendent, Portage Division, Manitoba District, vice T. R. Flett, transferred to Cranbrook Division, British Columbia District. Office, Winnipeg.

T. W. HIND, heretofore Boiler Foreman, Ogden, Alta., has been appointed Boiler Foreman, Winnipeg, vice J. J. Smith, appointed General Boiler Inspec-



A. B. Calder.
Assistant to Chief Commissioner, Colonization and Development Department, C.P.R.

tor, Eastern Lines.

S. C. HURKETT, heretofore Assistant General Freight Agent, Eastern Lines, Montreal, has been appointed Assistant Foreign Freight Agent there, vice H. W. Gillis, appointed Assistant General Freight Agent, Eastern Lines.

J. A. MCGILL, heretofore City Passenger Agent, Ottawa, Ont., has been appointed General Agent, Passenger Department, Ottawa, Ont.

Capt. R. McKILLOP, heretofore Superintendent, London Division, Ontario District, London, Ont., has been appointed Superintendent, Bruce Division, Ontario District, vice F. M. Rutter, transferred to London Division. Office, Toronto.

F. M. RUTTER, heretofore Superintendent, Bruce Division, Ontario District, Toronto, has been appointed Superintendent, London Division, Ontario District, vice Capt. R. McKillop, transferred to

Bruce Division. Office, London, Ont.

A. L. SAUVE, heretofore City Ticket Agent, Ottawa, Ont., has been appointed City Passenger and Ticket Agent, there.

J. L. A. SINCLAIR, heretofore locomotive man, West Toronto, has been appointed Assistant Superintendent, Toronto Terminals Division, Ontario District, Office, West Toronto.

J. HARRY SMITH, heretofore financial editor, Montreal Gazette, has been appointed Canadian Press Representative, in charge of the C.P.R. Press Bureau, with office at Montreal. We are officially advised that the work of the Bureau, which was established in 1913, has grown so much that this appointment became necessary and that Mr. Smith will be in full charge of the Bureau. There will be no change at present in the titles of F. W. Fox, Editor, Press Bureau, or M. A. Hargadom, Assistant Editor, Press Bureau, but Mr. Fox is going on a special mission to England, which will entail his absence for probably six months.

J. J. SMITH, heretofore Boiler Foreman, Winnipeg, has been appointed General Boiler Inspector, Eastern Lines, vice J. Gollan, superannuated. Office, Montreal.

A. STEWART, heretofore boiler maker, Ogden, Alta., has been appointed Assistant Boiler Foreman, Winnipeg, vice J. Ashcroft, appointed Boiler Foreman, Ogden, Alta.

Grand Trunk Ry.—W. H. McEWAN, heretofore Night Chief Dispatcher, has been appointed Chief Dispatcher, Districts 4 and 5, and Montreal Terminals, Montreal Division, Montreal, vice O. Masse, whose appointment as Superintendent of Terminals, Montreal, was announced in our last issue.

J. B. REEVE, heretofore Night Chief Dispatcher, Richmond, Que., has been appointed Night Chief Dispatcher, Districts 4 and 5, Montreal Division, Eastern Lines, Montreal, vice W. H. McEwan, promoted.

(See also Canadian National Rys.)

Grand Trunk Pacific Ry.—W. P. HINTON, who was Consulting Officer to the Receiver, the Minister of Railways and Canals, at Winnipeg, since July 1920, was relieved of those duties Feb. 28.

New York Central Rd.—G. H. CLARK, formerly Division Freight and Passenger Agent, Ottawa Division, Ottawa, Ont., has been transferred to New York, N.Y., as Division Freight Agent, vice A. McMichael, appointed Coal Freight Agent. The Ottawa Division is now under the jurisdiction of W. H. Northrop, Division Freight and Passenger Agent, Utica, N.Y.

G. C. HAMILTON, heretofore chief clerk, Division Freight and Passenger Agent's office, Ottawa, Ont., has been appointed Travelling Freight and Passenger Agent, Ottawa Division, with headquarters at Ottawa.

Reid Newfoundland Co.—Reports as to R. C. MORGAN, Superintendent, Winnipeg Terminal Division, C.P.R., who was given six months leave of absence to act as Chairman, Management Committee, Reid Newfoundland Co., are very contradictory. The St. John's, Nfld., Daily News of Feb. 14 said: "Mr. Morgan, it is now learned, severed his connection with the Reid Newfoundland Co. some days ago. He has not left the city, but it is understood that he is remaining at the Government's request or direction."

Steam Railway Operating Revenues, Expenses and Other Statistics for November 1921.

The following comparative table for November, 1921, and 1920, has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics.

Transportation Branch.
The figures in the column headed "All railways," include all steam railways with an annual operating revenue of \$500,000 and over, except the St. Lawrence and Adirondack Ry., which is not able to give the 1920 figures, and is therefore being omitted from 1921 reports, as its inclusion would not show a true comparison. The 1921 figures, however, will be available for comparative purposes for 1922.

The column headed "Canadian Government," includes the Intercolonial, Prince Edward Island, National Trans-

	All railways		Canadian Government		Canadian Northern		Canadian Pacific etc.		Grand Trunk		Grand Trunk Pacific	
	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920
Operating revenues												
Freight	\$32,757,215	\$39,508,921	\$2,988,056	\$3,903,823	\$5,347,855	\$5,745,884	\$14,353,947	\$18,016,797	\$4,765,442	\$6,057,707	\$1,962,376	\$1,435,635
Passenger	6,129,786	8,602,411	509,478	745,859	786,419	1,092,262	2,822,804	4,110,675	1,069,954	1,318,972	190,617	285,496
Mail	568,240	277,137	75,311	40,245	74,185	37,379	252,027	116,908	105,112	45,083	20,826	11,835
Express	1,170,865	1,823,702	105,333	117,783	173,340	424,797	568,474	915,854	221,050	248,915	18,481	28,937
All other	1,668,603	1,962,390	152,794	161,313	249,880	313,956	885,702	917,802	208,922	319,167	36,641	34,871
Total railway operating revenues	\$42,112,710	\$52,174,563	\$3,830,974	\$4,969,025	\$6,631,681	\$7,614,280	\$18,882,955	\$24,108,039	\$6,370,482	\$7,989,846	\$2,225,943	\$1,796,776
Operating expenses												
Maintenance of way and structures	\$7,378,639	\$8,381,003	\$682,924	\$1,399,601	\$1,443,521	\$1,827,542	\$2,995,881	\$2,881,869	\$1,139,096	\$983,878	\$462,505	\$450,206
Maintenance of equipment	8,663,022	11,230,205	826,143	1,173,988	1,487,578	1,576,795	3,378,987	4,997,222	1,629,499	1,908,212	508,516	461,903
Traffic	866,297	982,446	107,757	107,757	72,773	161,573	570,881	505,992	125,586	102,094	22,856	31,073
Transportation	17,594,933	24,342,216	1,951,131	2,931,831	3,042,033	4,400,261	6,841,046	10,007,453	3,041,998	3,870,141	1,146,621	918,186
Miscellaneous operation	446,275	496,811	52,069	59,979	91,553	107,366	214,490	258,292	26,069	16,943	7,060	11,470
General	982,927	1,222,343	43,320	150,900	133,316	201,540	382,082	436,420	232,787	266,639	60,819	11,691
All other	97,147	70,471	Cr. 67,272	Cr. 64,772	Cr. 67,272	Cr. 64,772	Cr. 67,272	Cr. 64,772	Cr. 67,272	Cr. 64,772	Cr. 67,272	Cr. 64,772
Total railway operating expenses	\$35,834,951	\$46,584,655	\$3,475,631	\$5,824,058	\$6,203,503	\$8,210,305	\$14,363,919	\$19,087,250	\$6,187,587	\$7,142,500	\$2,186,147	\$1,884,532
Net operating revenue	6,277,759	5,589,907	256,342	256,342	428,178	428,178	4,519,036	5,020,788	182,895	847,346	42,796	7,755
Net operating deficit	85.09%	89.29%	98.31%	85.03%	93.54%	107.82%	76.06%	79.17%	97.13%	89.39%	98.07%	104.88%
Ratio of operating expenses to revenue												
Mileage and operating statistics												
Average no. of miles of road operated	38,449.80	38,163.51	4,535.05	4,538.55	9,917.4	9,674.4	13,785.8	13,772.1	3,571	3,571	2,807.3	2,807.3
Tons moved (revenue)	9,601	11,550	869	1,326	1,400	1,477	3,088	3,651	1,960	2,296	527	301
Tons moved one mile (revenue)	2,930,344	3,358,029	302,225	365,353	490,516	453,044	1,344,571	1,649,967	394,240	439,091	187,993	169,257
Tons moved (all freight)	11,027	13,309	1,023	1,510	1,618	1,724	3,635	4,520	2,244	2,611	605	342
Tons moved one mile (all freight)	3,223,985	3,716,219	332,850	398,195	553,691	531,897	1,484,900	1,848,510	417,040	468,186	218,253	184,457
Passengers carried	3,282	3,638	483	589	358	439	1,131	1,259	557	878	77	67
Passengers carried one mile	211,014	255,572	21,484	28,432	27,579	32,115	95,591	124,884	27,566	36,389	6,745	6,862
Freight train miles	5,059	6,122	516	657	1,039	1,104	1,959	2,626	813	928	347	333
Passenger train miles	3,479	3,719	363	414	502	502	1,514	1,570	613	630	129	140
Mixed train miles	526	592	73	113	146	156	140	164	61	59	29	21
Loaded freight cars	110,651	129,177	12,632	15,500	19,114	19,122	44,670	58,655	16,436	17,524	7,214	6,725
Empty freight cars	65,441	76,874	3,607	8,010	13,488	14,397	23,543	34,180	5,115	9,937	5,985	4,880
Passenger cars	25,271	26,869	2,700	3,136	3,566	4,022	11,318	11,955	3,684	3,802	1,238	1,160
Total amount of pay roll	\$20,022,605	\$27,389,387	\$2,429,515	\$4,217,444	\$3,879,677	\$5,108,054	\$7,663,222	\$10,065,039	\$3,691,482	\$4,743,091	\$924,274	\$1,107,072
Averages per mile of road operated												
Operating revenue	\$1,095,26	\$1,367,13	\$844,75	\$1,094,85	\$668,69	\$787,05	\$1,369,74	\$1,750,50	\$1,788,95	\$2,237,43	\$793,98	\$640,04
Operating expenses	\$931,99	\$1,220,66	\$788,22	\$1,233,24	\$625,52	\$848,66	\$1,041,94	\$1,385,94	\$1,782,73	\$2,000,14	\$778,74	\$671,30
Net operating revenue	\$163,27	\$146,47	\$56,53	\$56,53	\$43,17	\$43,17	\$327,80	\$364,56	\$51,22	\$237,29	\$15,24	\$68,74
Net operating deficit	76,212	87,991	66,642	81,161	49,460	46,829	\$61,61	\$61,61	110,400	122,960	66,966	\$81,26
Tons moved one mile (revenue)	83,849	97,376	73,396	87,736	55,830	54,980	97,533	119,805	116,785	131,108	77,745	65,706
Tons moved one mile (all freight)												
Averages per freight and mixed train mile												
Freight receipts	\$5,83	\$5,88	\$5,06	\$5,06	\$4,51	\$4,56	\$6,84	\$6,46	\$5,45	\$6,13	\$5,21	\$4,04
Tons of freight (revenue)	524,6	500,1	511,5	477,8	413,7	359,2	640,3	591,4	450,7	444,4	499,3	476,5
Tons of freight (all freight)	577,1	553,5	563,3	516,5	466,9	521,7	707,1	662,5	476,8	473,9	579,7	519,3
Loaded freight cars	19,8	19,2	20,1	20,1	15,2	15,2	21,3	21,0	18,8	17,7	19,2	18,9
Empty freight cars	11,7	11,4	9,5	10,4	13,1	11,4	11,2	12,3	10,4	10,1	15,9	13,7
Averages per passenger and mixed train mile												
Passenger receipts	\$1,53	\$1,98	\$1,16	\$1,41	\$1,21	\$1,70	\$2,39	\$2,39	\$1,59	\$1,91	\$1,20	\$1,76
Passengers carried	52,7	58,9	49,1	53,8	42,5	41,9	57,8	72,0	55,8	52,7	42,6	52,7
Passenger cars	6,3	6,2	6,2	5,9	5,5	5,2	6,8	6,9	5,5	5,5	7,8	7,2
Averages per freight, passenger and mixed train mile												
Operating revenue	\$4,64	\$4,99	\$4,01	\$4,19	\$3,93	\$4,07	\$5,23	\$5,53	\$4,28	\$4,94	\$4,41	\$3,62
Operating expenses	\$3,95	\$4,45	\$3,75	\$4,39	\$3,68	\$4,39	\$4,97	\$5,48	\$4,16	\$4,82	\$4,32	\$3,80
Aver. length of haul (rev. freight) miles	305,2	290,7	347,6	277,7	306,7	306,7	445,1	451,9	201,1	191,2	356,3	560,9
Average passenger journey, miles	64,3	70,2	44,4	48,2	76,9	73,1	84,5	99,2	43,9	41,4	86,6	102,1
Average tons per loaded freight car	29,1	28,8	26,3	25,7	29,0	27,8	33,2	31,5	25,4	26,7	30,3	27,4
Ratio loaded to total freight car	62,8%	62,7%	69,2%	65,9%	55,2%	57,0%	65,5%	63,2%	64,3%	63,8%	54,7%	57,9%
Ratio of pay roll to operating revenue	47,5%	52,5%	68,4%	84,9%	58,5%	67,1%	40,6%	41,7%	57,9%	59,4%	41,5%	61,6%
Ratio of freight receipts to operating revenue	53,9%	58,3%	63,0%	72,4%	62,5%	62,2%	53,4%	52,7%	63,7%	66,4%	42,5%	58,7%
Aver. freight receipts per revenue ton mile	1,112c.	1,171c.	1,060c.	1,086c.	1,090c.	1,086c.	1,068c.	1,092c.	1,086c.	1,092c.	1,041c.	1,041c.
Aver. passenger receipts per pass. per mile	2,905c.	2,366c.	2,371c.	2,623c.	2,851c.	3,401c.	2,963c.	3,316c.	2,841c.	3,625c.	2,826c.	4,160c.

continental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.

The column headed "Canadian Northern," includes the lines operated as the Canadian Northern Ry. System, prior to

its acquisition by the Dominion Government.

The column headed "Canadian Pacific, etc.," includes also the Montreal and Atlantic, and Esquimalt & Nanaimo Railways.

The column headed "Grand Trunk" includes its Canadian lines only up to Sep-

tember. The subsequent figures are for all the company's lines. The revenues of these additional lines located in the United States averaged for the first nine months of 1921 less than one third of 1% of the revenue for October. Their inclusion will, therefore, have little effect on the report.

The Railways' Operating Results for November 1921.

The total railway operating revenues for Canadian railways as a whole for Nov. 1921 showed a large decrease from those of Nov. 1920, the drop from \$52,000,000 to \$42,000,000 being a decrease of 19%. Compared with Oct. 1921, the total revenues show decreases of 11%. October being the peak month for freight traffic, this decrease in November gross earnings was to be expected. The reduction in freight earnings from October to November was \$3,272,921, out of a reduction in total gross earnings of \$4,787,197. With all conditions in the industry considered, gross earnings were maintained at a satisfactory level throughout November. Comparing November gross earnings of individual railways, Canadian Government Rys. were 0.5% more than for October; Canadian Northern were 3% less; C.P.R. gross earnings were 15.3% less; Grand Trunk were 10.7% less, and Grand Trunk Pacific were 3.8% greater.

For the railways as a whole, the decrease in operating expenses as between Nov. 1921 and Nov. 1920 was large, and, considered in connection with traffic changes, shows clearly that the costs of railway operation were reduced in great measure within the year. While substantial reductions were shown in maintenance of way and maintenance of equipment accounts, the greatest reduction, proportionately, was in transportation expenses, and this is an indication of a desirable condition, since it shows that maintenance has not been curtailed as compared with 1920. The decrease in the amounts spent in maintenance work as between Nov. 1921 and Nov. 1920 are amply explained by the decreased labor and material costs, and it is evident that as much work was done in maintaining the properties and their equipment as in Nov. 1920, despite the decreased amounts spent. As compared with October, there was a decrease in total operating expenses for all railways, which, while substantial, was scarcely in proportion to the reduction in gross earnings. The operating ratio of 85.09 for the railways as a whole compares well with one of 89.29 for Nov. 1920, but does not compare as favorably with that of Oct. 1921, when it was 79.10.

Compared with Nov. 1920, the number of revenue ton miles of freight handled by the railways as a whole showed a reduction of 12.8%. Freight train miles showed a reduction of 17.4%. These figures indicate that a considerable improvement in operation was made in Nov. 1921, as compared with Nov. 1920, as proportionately more ton miles were handled in proportionately fewer train miles. These figures are borne out by those for loaded and empty freight car miles, revenue freight loading per train mile, and for car loading, while the longer average haul in Nov. 1921 was also an advantage. As compared with October, however, revenue freight ton mileage fell off 14.2% and freight train mileage was reduced only 13.8%, indicating that as

between the two months the freight train mileage was not reduced quite in proportion to the falling off in revenue ton mileage. A less favorable ratio of loaded to total freight cars in each train, combining with fewer cars per train to make a lighter train load, brought this about, overcoming the advantage gained by the average car loading being slightly better in November than in October.

Compared with Nov. 1920, passenger traffic shows a large falling off, despite the greater inducement to travel on account of the lower rates, while passenger train mileage and passenger car mileage were not reduced at all proportionately to the falling off in passenger traffic. As before pointed out by Canadian Railway and Marine World this inability to reduce passenger train mileage, and passenger car mileage, in accordance with reductions in passenger traffic is one of the conditions which goes to largely increase the unit costs of conducting transportation when a slump in traffic occurs. As compared with October, passenger traffic in November again shows a falling off, and this decrease has been evident since the peak month of Aug. 1921. In addition to there being fewer passengers carried in November than in October, the average journey was much shorter, making a large decrease in the total number of passenger miles.

The total amount of the Nov. 1921 pay roll as compared with that of Nov. 1920 shows a large reduction, accounted for not only by the wage reduction taking effect in 1921 and by the reduced traffic, but by the economy being exercised, and by the improvement in operation as concerns the number of freight train miles operated in relation to the ton miles handled. The ratio of the pay roll to operating revenue, 47.5 in Nov. 1921, compared with 52.5 in Nov. 1920, shows an approach to a more normal figure, as does the ratio of the pay roll to operating expenses, 55.9 in Nov. 1921, compared with 58.8 in Nov. 1920.

The decreases which have taken effect in freight and passenger rates since Nov. 1920 are illustrated by a comparison of the average receipts per revenue ton mile and per passenger mile for the respective months. The Canadian Government Rys. show an increase of 7% in revenue ton miles over October, but a decrease of 4% in passenger miles. As stated above, revenues were greater than in October, as were expenses, but both were well below those of Nov. 1920. The decrease in operating expenses from Nov. 1920 was 38%. Maintenance expenses decreased 41%, and transportation expenses 33%, while revenue ton miles decreased 18% and revenue passenger miles 24%. Excluding \$892,971 of back pay included in Nov. 1920, the pay roll for Nov. 1921 shows a decrease of \$894,957.

The Canadian Northern System, with an operating ratio of 93.54, shows a great improvement over Nov. 1920, when it was 107.83. While the revenues were

802 less. Maintenance expenses were reduced \$982,599 less, the expenses were \$2,006, reduced 14%, and transportation expenses 31%. Revenue ton mileage increased 5%, and passenger mileage decreased 14%. The freight and mixed trains showed an average loading 15% heavier, while car loading was 4% heavier than in Nov. 1920. \$847,809 of the difference of \$1,228,377 in the pay rolls is back time included in the Nov. 1920 figures.

C.P.R. revenue from freight decreased 20% from Nov. 1920, and from passengers it decreased 32%. Expenses as a whole were reduced 25% and transportation expenses were reduced 31%. Revenue tons of freight per train mile increased 8% and the average car load increased 5%.

The G.T.R. operating ratio was higher than that of Nov. 1920 by 8%, and higher than that of Oct. 1919 by 10%. Freight revenue decreased 20%, and revenue freight ton mileage decreased 10% from Nov. 1920. Passenger mileage decreasing 3%, and the average passenger rate decreasing as shown, the passenger revenue was 19% smaller than in Nov. 1920. G.T.R. train loading was heavier in Nov. 1921 than in Nov. 1920, but the average train load ran from 48 to 90 tons lighter than on the Canadian Government, C.P.R. and G.T. Pacific lines, despite the greater density of traffic on the G.T.R. The fact of the G.T.R. not sharing in the heavy western grain movement will no doubt help to account for this.

The G.T. Pacific shows for Nov. 1921 a net operating revenue of \$42,796, against a loss of \$87,775 in Nov. 1920. Passenger traffic decreased but slightly, while revenue freight ton mileage increased 11%.

Any analysis of the trend of Canadian railway operating costs and results during the past year is complicated by the rapidly varying conditions. This applies particularly as to rates for transportation service and also to a wage scales. In any consideration of the results the following changes in rates and wages have to be borne in mind: (1) The increase in wages in the summer of 1920, retroactive to May 1, with various lines making back time payments to their employees as late as Dec. 1920. (2) Increases in rates Sept. 13, 1920; 40% on eastern lines and 35% on western lines on freight; 20% increase in passenger rates, 50% on sleeping and parlor car rates, and 20% on excess baggage rates. (3) On Jan. 1, 1921, the increases in freight rates on eastern and western lines were reduced to 35 and 30% respectively, and passenger rates were reduced till only 10% higher than prior to Sept. 13, 1920. (4) On July 1, 1921, the remaining 10% increase in passenger rates was removed. (5) On July 16, 1921, wages were reduced by about 12%. In addition, effective Dec. 1, 1921, increases in freight rates on eastern and western lines were reduced to 25 and 20% higher than prior to Sept. 13, 1920, respectively, and the sleeping and parlor car rates

were reduced to but 25% higher than prior to Sept. 13, 1920.

While these changes necessarily complicate a study of the developments in the railway industry, it is evident, from the figures published by Canadian Railway and Marine World from month to month, that a great improvement was effected in Canadian railway operation throughout 1921. While, unfortunately, traffic was not as heavy during the greater part of 1921 as could be desired, the fact remains that operating expenses

were reduced steadily in greater ratio than were the gross earnings, with an improvement in operating ratio. This condition gives a favorable indication for the future, and although the additional handicap of the rate reduction of Dec. 1, 1921, remains to be overcome, it seems entirely reasonable to suppose that with the increased traffic incidental to an improvement in business conditions, Canadian railways will be able to still further improve their respective financial positions.

Canadian Railway Club's Annual Dinner.

The Canadian Railway Club held its annual dinner at Montreal, Jan. 28, the President, Arthur Crumpton, Valuation Engineer, G.T.R., being chairman.

W. F. Tye, consulting engineer, Montreal, formerly Chief Engineer, C.P.R., replied to the toast of the railways and dealt at some length with the Canadian railway problem. He expressed the opinion that the present Government will imitate the late Sir John A. Macdonald's course and turn the national railways over to a private company in a few years. After this is done, and if the new company exercises the maximum of economy and if the Board of Railway Commissioners would not make rates unduly low, the road would, in the course of time, prove successful. This would take some time to bring about, for the reason that there had been too many mistakes in the past to permit of immediate successful operation. He pointed out that the margin of success of even the most successful railway is very narrow, and that such success cannot be attained under Government operation, as the political atmosphere is not a good one in which to develop railways successfully. Taking into consideration interest at 4% on the cost of the Government controlled roads, their operation for the past three years by the Government resulted in a deficit of \$230,000,000. This condition was due, in his opinion, to a misconception by the Government as to the country's actual railway requirements, and to a misconception by the railway builders as to the character of the railways needed. Successive Governments had given, first, large sums of money, then lands, and later had guaranteed bonds of practically any railway which asked such assistance, which had led to a debauch of railway construction that had given Canada a railway mileage far in excess of its requirements. Canada, with a population of some 8,500,000, has a greater railway mileage than European countries with populations from five to ten times greater, and also twice as much railway mileage per capita as the United States. He said there was a popular belief that all railways were great money makers. In 1919 the total amount paid out in interest and funded debt, dividends, etc., amounted to only 3% of the total capitalization of Canadian railways. While the C.P.R. had always been held forth as an example in this connection, the fact was that the 10% dividend paid by that company really only represented 5 1/4% on the money invested in the road, which could not be considered too high for the most progressive railway on the continent, after 40 years of struggling. Notwithstanding the large deficits, and the duplication and triplication of lines, with three transcontinental lines where two

would have a hard struggle to break even, he felt that a way could be found out of the present difficulties, in view of the fact that the C.P.R., originally built through a wilderness producing no traffic, had developed into the most successful railway on the continent. He pointed out that the National Railways, including the Grand Trunk, had earnings of \$9,500 a mile in 1920, which the C.P.R. had not obtained till as late as 1911.

Prof. B. K. Sandwell, of McGill University, in responding to the toast of the guests, spoke against what he termed some fundamental errors of current taxation policy. He described the prevalent practice of taxing the transportation industry as penalizing production at its most sensitive point. Cheap transportation, and that, alone, was responsible for the vast enlargement of the sphere of production of the last two generations, and anything having a tendency to make transportation dearer than it need be, meant a curtailment of competition and a driving out of those competitors who were producing at the best advantage and therefore exerting the most influence for the reduction of prices. He urged his hearers to use their influence in favor of a policy which would throw the burden of taxation as much as possible on consumption rather than on production, and pointed out that in no country in the world is a tax on transportation more detrimental than in Canada, whose producers are probably on an average farther from their markets, at any rate so far as railway distance is concerned, than those of any other country.

Lt. Col. Paul Hanson, in replying to the toast of the railway supply men, asked the railway managements to co-operate with them in the rehabilitation of business, by dispensing optimism and orders.

Size of Flags for Train Flagmen.

The Board of Railway Commissioners passed general order 336, April 2, 1921, repealing the Uniform Code for Canadian Railways rule 99, paragraphs 6 and 9, and substituting new paragraphs as follows:—

"If recalled before another train arrives, he must, in addition to the two torpedoes, leave a fusee, burning red, at the point he returns from, and, while returning to his train, when snow ploughs or flangers may be running, curvature, weather, or other conditions governing, a fusee burning red must be placed at such points, or times, as the flagman may find necessary to ensure full protection. To maintain the proper interval between trains, a fusee burning red must be left by the protected train, at the point from which it moves.

"Flagmen must each be equipped for

day time with a red flag, 22 x 28 in., on a staff, at least 6 torpedoes and 5 red fusees; and for night time, and when weather or other conditions obscure day signals, a red light, a white light, with a supply of matches, at least 6 torpedoes, and 5 red fusees."

The Railway Association of Canada, on behalf of its member railways, applied to the Board last year for a further amendment, judgment on which was given on Jan. 10, 1922, by Assistant Chief Commissioner McLean, Chief Commissioner Carvell, and Commissioner Boyce concurring, as follows:—

On May 17, 1921, the Board heard an application of the Railway Association of Canada, on behalf of the several railway companies, for an order to amend the concluding paragraph of general order 336 so as to provide for a flag 16 x 16 in., or thereabouts, in lieu of a flag 22 x 28 in. The flag in question is one which flagmen are required to be equipped with. The recommendation of the Board's Chief Operating Officer that the flag should be 22 x 28 in. was, in common with other amendments proposed, communicated to the parties on Jan. 28, 1921, for submission of their positions in regard thereto. On March 10, 1921, the Board received from the Railway Association of Canada a communication from which the following extract bearing on the question of the size of the flag is quoted:—

"Concerning proposed amendment of rule 99, sec. 9: At the present time the Association has under consideration standardization of size of flags used for signalling purposes. It is probable that the size adopted will be 16 x 16 in., as it has been demonstrated that a flag of this size properly serves the purpose for which it is intended, and has the added advantage of being economical, as the material from which it is cut is 36 in. wide. In the circumstances, it is respectfully suggested that the Board may see its way clear to omitting at this time any reference to size of flag to be used, or if this is thought necessary, the specification should require a flag 16 x 16 in. or larger."

On consideration and further reports of the Board's Operating Department, general order no. 336, of April 2, 1921, issued, containing a provision regarding the size of the flag, to which exception was taken as set out at the hearing on May 17, 1921. On consideration of the steps leading up to the provision in general order 336 and on consideration of the additional evidence submitted at the hearing on May 17, 1921, which was in effect an application for a rehearing, I am of the opinion that a case for the variation of the order in respect of the size of the flag has not been made out.

Order 32,019 was issued Jan. 14 as follows:—Upon hearing the matter at Ottawa, May 17, 1921, the Railway Association of Canada, the Canadian Pacific, Grand Trunk and the Canadian National Railways, the Michigan Central Rd., the Brotherhood of Locomotive Enginemen, the Brotherhood of Locomotive Firemen and Enginemen, the Brotherhood of Railroad Trainmen being represented at the hearing, and what was alleged, the Board orders that the application be refused.

The Canadian National Rys. will, it is said, take a complete deck, on the British trade ship, which it is proposed to have make a trip round the world. The space will be utilized to exhibit Canada's natural resources and industries.

Canadian Pacific and Canadian National Railways' Earnings and Expenses.

C.P.R. gross earnings for December, 1921, amounting to \$15,756,923, showed a large decrease from those of November, when they were \$18,787,679, and also from those of Dec. 1920, when they were \$20,604,167. The net earnings for the month, \$1,917,781, were \$1,754,020 smaller than in November, and \$304,291 smaller than in Dec. 1920. The gross earnings for December, compared with those of November, and of October, in which month they were \$22,089,624, reflect the falling off in traffic following the heavy-grain movement of the two latter months, and also reflect the rate reduction which took effect Dec. 1. The decrease in gross as compared with Dec. 1920, while reflecting some decrease in traffic handled, was caused in greater degree by the large rate reductions which took effect within the year.

Operating expenses for December, \$13,839,142, were \$1,276,736 less than those of November, and \$4,542,953 less than those of Dec. 1920. The decrease in expenses as between December and November may be attributed to the decrease in traffic handled; the decrease in expenses as between Dec. 1921 and Dec. 1920 reflects the lower wages prevailing, the advantages accruing to the railway through decreased commodity prices, and also to the enforcement of a strict economy in operation. The operating ratio for December was 80.77, compared with 80.06 in November and 89.2 in Dec. 1920.

C.P.R. gross earnings for the calendar year 1921 were \$193,021,854, compared with \$216,641,349 in 1920. Operating expenses decreased in greater ratio, being \$158,820,114 in 1921, and \$183,488,304 in 1920, so that the operating ratio was 81.2 in 1921, against 85 in 1920.

The fact of the company's gross earnings being smaller in 1921 than in 1920, while the average rates for the year 1921 as a whole were probably considerably greater than for 1920 as a whole, is not so important as an indication of how large a traffic the C.P.R. can obtain, as it is as a recorder of the serious setback which commerce received in this country, as in all countries, during 1921. In view of the depressed conditions, lower gross earnings were logically to be expected. The important fact is that operating expenses were reduced to a point where better net earnings were secured from the smaller gross earnings, and it is this feature which is particularly gratifying to the C.P.R. management.

There is one feature of the December earnings which is worthy of note, however, viz., that while the operating ratio for Dec. 1921 was so much more favorable than that of Dec. 1920, the net earnings for Dec. 1921 were smaller, which shows that no matter how great economy is effected in handling traffic, the final results are bound to be adversely affected by a reduction in the gross earnings caused by decreased business or inadequate rates, or both. The success of any enterprise is impossible without a proper relationship as between receipts and expenditures, but the success of any enterprise and its ability to pay a return on the capital invested in it is made possible primarily through it having adequate gross earnings, and a mere superficial comparison of the C.P.R. results for Dec. 1921 with those of Dec. 1920, shows plainly that despite the reductions in expenses which have been effected, the reduction in gross earnings, caused prim-

arily by a reduction in rates, has been such as to give a smaller net return.

It is logical, under the prevailing conditions, that C.P.R. earnings and expenses should go a long way in determining the rate levels for Canadian railways as a whole, with the operating losses and fixed charges of the National lines, operating on the same rates, paid out of taxes for the time being. It is quite probable that the 10% reduction in rates which became effective Dec. 1, 1921, was made only after a thorough study of the situation and in full expectation that the new rates, in combination with reduced expenses, would produce net earnings for the C.P.R. as large as those which had been earned in preceding months, and which may be described as no more than adequate. The December returns indicate that it is very doubtful whether these rates will produce as good net earnings. With such rates in effect, it would take but a very small reduction in traffic, over a number of months, with higher expenses in moving each unit of traffic caused by that very reduction in traffic itself, to make the rates thoroughly inadequate. Price changes have long since become less pronounced; the great price decline was over before the rates were decreased, and many commodity prices have lately shown an upward trend, which indicates that the railways can expect little relief from still lower material prices. No wage decreases accompanied the rate reduction. While an optimistic person may see justification in looking forward to an immediate increase in traffic, involving increased gross earnings and reduced unit expenses, in the near enough future to be of immediate assistance to the railways, it nevertheless seems, on examination, and taking into consideration the value of the reduction to industry generally, that the justification for the rate decrease of Dec. 1, 1921, was very doubtful. So far as the results on the C.P.R. are concerned, the ultimate advantage to Canada of having that railway maintained on a basis on which it can put aside sums for the provision of needed future facilities, in addition to paying its dividends, extremely moderate in relation to the value of the property, cannot be over emphasized. So far as the results on the National railways are concerned, it is evident that the operating costs not met by revenue will have to be met by taxation. The less met by taxation the better. If there be such a thing as equity, the man who is supplied transportation and reaps the benefit of it, should pay for it. The man who receives no benefit from transportation should not be required to help pay for it.

Tables showing the operating revenues and expenses of the Canadian Government Rys., the Canadian Northern Ry. and the Grand Trunk Pacific Ry., by months, and comparisons as between the results for the years 1921 and 1920, are given on another page of this issue, and by referring to them it will be seen that the improvement made by the three chief lines of the Canadian National Rys. system has been nothing short of remarkable. The Canadian Government Rys. reduced the operating loss of \$10,449,877 in 1920 to one of \$5,587,298 in 1921, a decrease of \$4,862,579. Operating results exhibited the same tendency as those of the C.P.R., in that while gross revenues decreased, operating expenses decreased

still more. The Canadian Northern, with an increased gross revenue of \$2,299,567, showed a decrease from 1920 in operating expenses of \$7,561,285, reducing the operating deficit from \$16,438,156 to \$6,577,304. The Grand Trunk Pacific, with an increase in operating revenues of \$2,230,130, and a reduction in operating expenses of \$3,906,868, reduced its operating deficit from \$10,134,485 in 1920 to \$3,997,487 in 1921.

Any one who would say that great progress was not made toward a lessening of Canada's railway burden during 1921 would be disregarding the facts. The improvement effected in the Canadian National system as a whole, whereby the operating deficit was reduced from \$37,022,518 to \$16,162,089, vastly exceeded the expectations of those who exhibit more than a casual interest in railway affairs, and who have some realization of the enormous expense of operation of a system of such great mileage and comparatively light traffic. It is probable that if those who have been so critical of the Canadian National Rys. management since the property was placed under it, had any idea of the manner in which low traffic density increases the unit costs of handling the traffic offered, unfounded criticism would be replaced by expressions of appreciation of high service rendered.

But while great strides have been made, much more remains to be done. The first great objective should be to have the Canadian National Rys. pay their operating expenses for a complete year, and after that has been accomplished, the next ambition should be to have them pay both their operating expenses and fixed charges for a complete year. It must be realized that the Canadian National Rys.' success depends primarily on the same things as does that of the Canadian Pacific Ry., and it may be said, the success of Canada. Those things are increased population and increased traffic, which will bring decreased unit expenses to the railways and ultimately lower transportation costs to the public. But it must be recognized that the problem of the National railways is made more difficult by the mere fact that they are national railways, and it must be remembered that public ownership of railways has shown itself lamentably deficient on many previous occasions, mainly for the reason that an attempted injection of politics brought disaster. The National railways problem presents what may be termed a social, or political, problem, in addition to the economic problem. If that problem is to be successfully solved, and if public ownership of these railways is to be successful, which the public interest demands, then the people and their elected representatives must guard against the injection of political influences into the operation of the railways. Politics and railroading will not mix. Aided by increasing population and traffic, the Canadian National Rys. management is competent to solve the economic problem connected with these railways, but it must be borne in mind that the ability and efficiency of the management will avail the country nothing if the people of the country, and particularly the political leaders, prove incapable of solving what we have termed the social or political problem inseparably connected with the public ownership of these railways.

The Interstate Commerce Commission's General Investigation of Railway Rates.

After the comparison of the testimony of the railway representatives, as summarized in Canadian Railway and Marine World for February, pg. 71, the Interstate Commerce Commission, in the general investigation of railway rates which it is conducting, began on Jan. 19 to hear the testimony of shippers of basic commodities, beginning with coal. The Vice President of the National Coal Association told the Commission that a great disproportion exists between the market value of coal, and the cost of transporting it. He pointed out that a freight charge of from \$150 to \$200 a car on coal worth from \$50 to \$100 a car at the mine makes the coal too expensive for the consumer, and because coal is such a necessary and widely used commodity, he said, this is very bad for industry. He claimed that doubling the rate on a carload of automobiles is of relatively little importance, because the addition of a few dollars to the price of an automobile matters but little to the man who can afford to purchase one, but with the price of coal too high, industry is bound to suffer. Other witnesses blamed the railways for the inability of United States coal to compete in foreign markets with British coal, but the majority of them were willing to admit that wages in the coal mining industry may have a great deal to do with this. Representatives of the iron and steel trade stated that all their costs have been brought down to reasonable levels, except the cost of transportation, and the majority of them expressed the opinion that if freight rates were reduced the railways would obtain a sufficiently increased tonnage to more than compensate them for the reduced rates. One witness pointed out that whereas railway wages have been reduced only about 12%, other wages have been reduced 30%, and that it is time for some action to be taken in connection with wages, to place the railways in a position where they could afford to reduce rates. Restoration of the rates in effect prior to the decision in ex parte 74 was sought by the majority of the iron and steel industry representatives. Representatives of the lumber industry, and of industries supplying building materials generally, all stated that rates are too high.

On Jan. 30 the Commission began hearing the evidence of the public bodies. The first witness, W. H. Chandler, President of the Industrial Traffic League, who also represented the New England Traffic League, considered that if the Commission came to the conclusion that a reduction in rates should be made, it should be a general reduction, and not confined to specific commodities, and he also emphasized that the Commission should come to some decision, and quickly, so as to remove the uncertainty in connection with rates now facing business. He made it clear that his membership is fully aware of the necessity of protecting railway finances. Asked as to passenger fares, he said the consensus of opinion is that they are not as important as freight rates. He said it was evident to anybody that U.S. railways are not being operated efficiently, for the plain and simple reason that they are paying higher wages than are being paid for similar work in other industries, and that if the Commission came to the conclusion that railway wages are too high, it would be an eminently proper thing

for it to announce to the people of the country that such is the case. He has not a very good opinion of the Railway Labor Board. Representatives of various traffic associations, manufacturers' associations and chambers of commerce testified, practically all being unanimous in demanding a reduction in rates, and the majority emphasizing the bad effects of the uncertainty prevailing.

On Jan. 31 W. D. Hines, formerly Director General of Railroads, testified, and advised against a general reduction of rates at this time. He pointed out that the railways had cut into their reserves very deeply in the past few years, and when asked as to what he thought would be the result of a 10% reduction in rates, he replied that the benefit would not go to the country at large, but would go to those highly organized classes of society which are in a position to take advantage of it. He pointed out that the railways as a whole are not earning the return prescribed by the Transportation Act as just and fair, and advised great caution in further reducing their earnings.

On Feb. 3, Herbert Hoover, Secretary of Commerce, expressed in no uncertain terms the public necessity of having railway credit maintained. He pointed out how the U.S. suffered, in past times of good business, through shortage of railway transportation, and stated that the country had brought that conditions on itself, through its antagonism to railways generally. His study of the matter informed him that a general rate reduction at this time would be a serious mistake, and added that if any reductions could be made they should be on basic commodities. If such reductions could not be obtained without tending to ruin railway credit, consideration should be given to the possibility of increasing rates on other than basic commodities. In his opinion, a determination of permanent rate bases at this time would be impossible, on account of the generally unsettled condition of business which has prevailed for the past few years and still prevails.

L. S. Taylor, Vice President of the Pullman Co., on the same day, objected to the Commission's order in ex parte 74, by which the railway revenues are increased by a surcharge of 50% on sleeping and parlor car charges, for the reason that the Pullman Co.'s earnings have been adversely affected by the order. He believed the railway earnings had been similarly affected. He gave figures showing that the Pullman Co.'s revenues had fallen off by more than \$1,000,000 a month since the taking effect of the order providing for the surcharge.

Many state commissions were represented at the hearing in the early part of February, and Kansas Public Utilities Commission's representative in particular, was insistent in his demand that rates be reduced. The railways, he said, are about the only industrial undertakings that are making any return on their investment at all, while practically all the farmers in the country are losing money.

On Feb. 10 and 11, F. J. Warne testified on behalf of labor organizations, and stated that it did not matter to him or the organizations he represented whether rates were changed or not. Like the man who stood looking at the giraffe and maintained that there was no such animal,

he said he and his clients believe there is no economic law to establish a relation between railway rates and railway wages. The only reason the employees were represented, he said, was because railway executives had said a wage reduction must precede a rate reduction.

Following Mr. Warne, more shippers gave testimony and asked for rate reductions, practically all stating that their business undertakings are in bad condition and that they want all the reductions in costs which could possibly be obtained. From a perusal of the evidence to date it appears that this condition of individual business undertakings, which has obtained not only in the U.S., but in all other countries, is at the bottom of all the applications for rate reductions which have been made. The desire has been to reduce costs, and as transportation costs are the most convenient to attack, widespread demands for rate reductions, regardless of their justice and regardless of their effect on the revenues of the roads, naturally became the order of the day.

Fast Runs on Michigan Central Railroad.

There is a saying among locomotive men that the Michigan Central Rd.'s Canada Division is no place for a locomotive unless it can run at 100 miles an hour and haul about 8,000 tons. This reputation that the M. C.R. has made for itself in connection with locomotive operation, in so far at least as speed is concerned, would seem to be borne out by a few runs made lately, on the Canada Division. We are officially informed that on Jan. 10, train 15, in charge of conductor D. A. Stinson, and hauled by locomotive 8428, driven by N. Vail, left St. Thomas at 11.33 a.m., 28 minutes late, and arrived at Windsor tunnel station, 110 miles from St. Thomas, at 1.05 p.m., the running time being 92 minutes. This train does not stop between St. Thomas and Windsor.

On Jan. 8, two special trains, being run for the Dodge Bros. Mfg. Co., from Chicago and Detroit to New York, were handled over the Canada Division. The first special, with 11 cars, in charge of conductor D. A. Stinson, and hauled by locomotives 8424 and 8423, driven by G. Folland and Hogan, respectively, left Windsor at 7.17 p.m. and arrived at St. Thomas at 9.03 p.m., where locomotives were changed. The train left St. Thomas at 9.09 p.m., hauled by locomotives 8430 and 8419, driven by L. Arlien and G. Cook, respectively, and, running via the Fort Erie Division and the International Bridge, arrived at Buffalo at 11.10 p.m. The total distance of 234 miles was made in a running time of 233 minutes.

The second special train, in charge of conductor Callicutt, and hauled by locomotive 8428, driven by locomotive man Delaney, left Windsor at 7.27 p.m., arrived at St. Thomas 9.15 p.m., where locomotives were changed, left St. Thomas at 9.21 p.m., hauled by locomotive 8400, driven by W. Folland, and arrived at Buffalo at 11.25 p.m., the running time for the 234 miles being 238 minutes.

D. W. Donahue, Superintendent, Canada Division, who furnished the foregoing particulars of runs at Canadian Railway and Marine World's request, says that the runs are not considered unusual,

Locomotive Tests on Michigan Central Railroad.

The Michigan Central Rd. is making service tests with a class K-3 M Pacific type locomotive in heavy fast passenger service on the Canada Division, and it is expected they will be completed by April 16. This locomotive is equipped with the Young valve gear. The road has 40 of these locomotives, which were built by American Locomotive Co. in 1917. The one being tested on the Canada Division is the only one equipped with Young valve gear. The chief dimensions are as follows:—

Total weight of engine	279,000 lb.
Weight on drivers	180,500 lb.
Weight on leading truck	49,000 lb.
Weight on trailing truck	49,500 lb.
Weight of tender, empty	76,500 lb.
Weight of tender, loaded	166,500 lb.
Tractive power	30,900 lb.
Cylinders, diam. and stroke	23½ x 26 in.
Firebox length, inside	108½ in.
Firebox width, inside	75¼ in.
Grate area	56.5 sq. ft.
Flues, diam.	5½ in.
Flues, no.	32
Tubes, diam.	2 in.
Tubes, no.	229
Tubes, length, over sheets	21 ft. 6 in.
Tubes, heating surface	3,531 sq. ft.
Firebox and arch tubes, heating surface	229 sq. ft.
Total heating surface	3,760 sq. ft.
Superheater heating surface	834 sq. ft.
Diam. driving wheels	79 in.
Diam. leading truck wheels	36 in.
Diam. trailing truck wheels	44 in.
Diam. tender truck wheels	36 in.
Wheelbase, driving	14 ft.
Wheelbase, engine	36 ft. 6 in.
Wheelbase, engine and tender	68 ft.
Length over all	77 ft. 8½ in.
Valves	14 in. piston
Steam pressure	200 lb.
Tender capacity, coal	14 tons
Tender capacity, water	7,500 gals.

Freight Car Locations on February 1.

The Railway Association of Canada has issued a statement showing the location of freight cars on Feb. 1, based on reports received from the following railways:—Algoma Central & Hudson Bay; Canadian National, including Grand Trunk Pacific; Canadian Pacific; Central Vermont, in Canada; Dominion Atlantic; Edmonton, Dunvegan & British Columbia; Grand Trunk; Kettle Valley; Michigan Central, in Canada; Napierville Jet.; Pere Marquette, in Canada; Quebec Central; Quebec, Montreal & Southern; Timiskaming & Northern Ontario; Temiscouata; Toronto, Hamilton & Buffalo, Wabash in Canada. The following are the figures: Cars owned by reporting railways, 223,008; home cars on Canadian lines, 13,715; home cars on U.S. lines, 35,418; home cars on home roads, 173,875. Canadian owned foreign cars on home lines, 12,173; U.S. owned cars on foreign or home lines, 17,623; total cars on lines, 203,671; per cent. of cars on line to total owned, 91.3; deficiency on line to total owned, 19,337; home cars in bad order, 18,602; foreign cars in bad order, 446; total cars in bad order, 19,048; percentage in bad order, 9.3; privately owned U.S. cars on line, 1,682; privately owned Canadian cars on line, 1,013.

The U.S. Interstate Commerce Commission, in accordance with the terms of the Valuation Act, has now served valuation on 184 railways. As the roads valued to date are small, however, the total mileage involved is but slightly more than 26,000.

St. Louis, Mo., Union Station handled 264 passenger trains in one day recently without a minute's delay.

Telegraph, Telephone and Cable Matters.

The C.P.R. Telegraphs Ontario District officials were entertained to dinner by J. McMillan, Manager of Telegraphs, C.P.R., at Toronto, Feb. 9, after which matters of interest in the Ontario District were discussed.

Felton & Guillaume, Berlin, Germany, are reported to have received a contract from United States interests for making and laying a trans-Atlantic cable between Emden, Germany, and the U.S. The former German owned cable between Emden and the U.S. passed into British hands during the war, the ends on both sides of the Atlantic being diverted to England and Canada respectively, and it forms what is known as the Imperial cable.

The Mackay Companies' report for the calendar year 1921 shows income from investments in other companies of \$4,309,251. Dividends paid were \$4,180,340, operating expenses including income tax, transfer fees, etc., were \$82,771, leaving a balance of \$46,141 carried to this year's account; cash on hand at the end of 1921, was \$172,210 and the surplus was \$2,093,767. C. H. Mackay, President, stated that all new construction and additions to plant during the year were made from surplus earnings, and the reserves were invested in U.S. French and Canadian Government securities, and certain U.S. municipalities and railway companies. He announced that it had been decided as soon as possible for the Commercial Cable Co. to lay a new cable from New York to France by way of the Azores, 3,898 miles, to take care of the rapidly increasing traffic between the U. S. and Europe, and applications have been made to the U.S., Portuguese and French Governments for permission to make cable landings. This cable will supplement the company's present French cable, which is landed at Havre.

Among the Express Companies.

F. J. Reid, in the American Railway Ex. Co.'s office, Vancouver, B.C., received honorable mention for an essay on How to Wrap a Package, in a recent competition.

H. J. Cole, whose death through a fall from a window in the Customs building, Calgary, Alta., was mentioned in our last issue, was stated to have been chief clerk, Dominion Ex. Co., there. We are advised that he was not in Dominion Ex. Co.'s service, but was employed chief clerk in the Customs House express department, and was not at any time employed directly by any of the express companies.

Canadian National Express Co.

An office has been opened at Leyland, Alta.

An agency has been opened at Lake Lenore, Sask.

The office at Prairie Siding, Ont., has been closed, and that place classed as a star point.

Dominion Express Co.

J. H. Lapointe, heretofore in the messenger service, has been appointed exclusive agent at Berthier, Que.

H. L. Atto, heretofore in Superintendent's office, Montreal, has been appointed exclusive agent at Ste. Agathe, Que.

A. McMahon, formerly agent at Weyburn, Sask., has been transferred to the Winnipeg staff.

Two packages, containing \$1,000 in \$1 and \$2 bills, were reported to have been

stolen from the company's office at the C.P.R. wharf, Victoria, B.C., Feb. 1, while en route to the Bank of Montreal branches at Nelson and Enderby, B.C.

The company has been requested to establish an agency office at Nanaimo, B.C., chiefly to handle shipments of perishable freight direct from the Qualicum Beach district, shippers complaining that they suffer considerable loss by having to ship by a longer route via Victoria. The company has promised to establish such an office if it can be shown that the business offering for transfer at Nanaimo would warrant doing so.

Appeals Against Express Rates Judgment.

On Feb. 2, 1921, the Board of Railway Commissioners for Canada issued general order 327, authorizing express companies to increase their rates by 35% on all traffic, except second class, on which the increase authorized was 25%, excluding articles of food covered by published commodity tariffs, on which an increase of 20% was allowed. The City of Toronto, through its Counsel, G. R. Geary, K.C., appealed from this judgment on April 4, 1921, to the Dominion Government, but no action was taken on the appeal by the then Government. Mr. Geary lodged a further appeal, and on Feb. 24 appeared before members of the cabinet in Ottawa and gave his reasons why express rates should be reduced. He claimed that the portion of the express companies' proceeds which accrue to the railways are too large, resulting in an unreasonable profit to the railways. He also claimed, according to a press dispatch, that the Board of Railway Commissioners' judgment, as given in general order 327, assumed that the remuneration for handling express traffic should be at the rate of one and a half times the first class freight rate. This he is reported to have stated, was due to Chief Commissioner Carvell misconstruing a judgment of Sir Henry Drayton, former Chief Commissioner, who, Mr. Geary said, had not laid down such a principle.

F. H. Chrysler, K.C., who appeared for the Express Traffic Association, argued that express rates had been fixed by the Board with due consideration for all existing circumstances, and not on any arbitrary assumption, such as on the basis that they should be one and one half times the first class freight rates. He quoted extracts from the judgment to support his contention, and strongly disputed Mr. Geary's statement that \$400,000, derived from money orders, special income and overseas business was lacking from the Dominion Express Co. income statement which was under review when the case was heard.

After nearly two hours argument before the cabinet, Sir Lomer Gouin, Minister of Justice, suggested that counsel be asked to file written statements of their cases. The suggestion was adopted, and a quick decision was promised by the cabinet.

Another appeal to the Government against the same judgment was scheduled for Feb. 25, when D'Arcy Scott, a former member of the Board of Railway Commissioners, was to appear on behalf of the National Dairy Council to protest against express rates on cream.

That the U.S. Railroad Labor Board has no place in an efficient scheme of railway regulation is a growing feeling in the U.S.

Electric Railway Department

Gasoline Motor Omnibuses, Toronto Transportation Commission.

The Toronto Transportation Commission now has six buses in operation. Four of these, built in New York, were described in Canadian Railway and Marine World for October 1921, and one built in Maidstone, Eng., was described in Canadian Railway and Marine World for Feb. 1922. The last bus to be placed in service was built by Leyland Motors, Ltd., of Leyland, Lancashire, Eng., to designs furnished by the Commission. It differs from the buses described previously, as the stairs leading to the upper deck are at the front instead of the back, in that it can be converted into a single-decker with but little work and in a short time. The chief dimensions are as follows:—

Length overall	25 ft. 4 in.
Width overall	7 ft. 4½ in.
Height overall	12 ft. 5 in.
Length inside body	14 ft. 2 in.
Width inside body	6 ft. 10½ in.
Height inside body	5 ft. 10 in.
Height, ground to first step	13 in.
Distance, 1st to 2nd step	8¾ in.
Distance, 2nd to 3rd step	8¾ in.
Minimum road clearance	13 in.
Wheel base	16 ft.
Gauge	5 ft. 6 in.
Weight empty	16,000 lb.

The chassis frame is made of special heat treated steel, the members being 8 in. deep, 2½ in. wide, and ¼ in. thick, and securely braced. The main springs, of semi-elliptic type, of silica-manganese steel, are designed to take a superimposed load of 8 tons, and special coil springs are included in the equipment, designed to absorb up to the first three tons of shock.

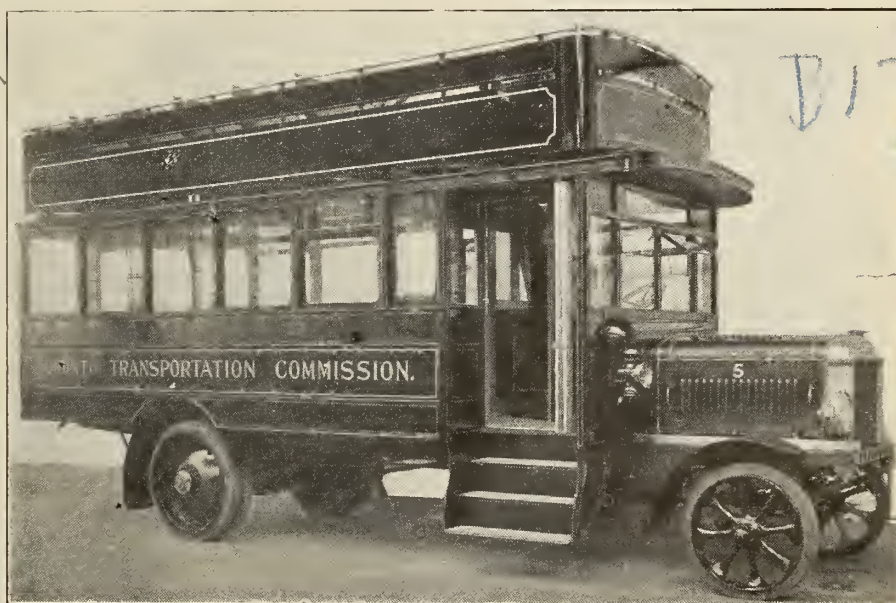
The engine, designed for heavy commercial work, is 4-cylindere, of 5½ in. bore by 6½ in. stroke, and develops 65 b.h.p. at 1,000 r.p.m. The aluminum crank casing is supported in the frame by 2 steel tubes, and the main bearings of the crank shaft are independent of the bottom cover and are of gun metal, lined with anti-friction alloy. Large inspection holes, fitted with oil tight covers in the side of the casing, enable the big ends to be examined without removing the large bottom cover. The hard cast iron cylinders are cast in pairs. The water jacket allows for an abundant supply of water around the combustion chamber, valves and cylinders, and is of such length that the piston rings do not at any part of the stroke pass below it. The rings, being thus properly cooled, retain their elasticity. The aluminum pistons are fitted with 3 rings each. The connecting rods are I section stampings of carbon steel. The little end is fitted with a gun metal bush, and the big end with a gun metal bearing lined with the best anti-friction alloy. The crank shaft is of nickel chrome steel, and the main journals are of more than the usual length. The flywheel is of cast iron, machined and balanced, and attached to the crank shaft by a flange and bolts. The method of driving the cam shaft, water pump and magneto ensures silent running. A wheel, with teeth of fine pitch cut on the skew, drives a wheel of double the size on the cam shaft, through a jockey wheel. A similar wheel, mounted on a shaft at right angles to the cam and crank shafts, meshes with the wheel on the cam shaft, and forms a drive for the magneto on the right hand side of the engine, and for the pump on the left

side. The composite type valves, with nickel steel stems and cast iron heads, are all on the left side of the engine, and operated by one cam shaft, and the valve springs and push rods are cased in with aluminum covers.

The method of lubrication is notable, it being effected by a gear oil pump in the bottom cover of the engine casing on the rear side, and arranged with a vertical spindle driven off the cam shaft by a pair of skew wheels. The pump, which is very accessible, draws the oil from the sump in the bottom cover, through a large strainer, which can easily be cleaned, and delivers it under pressure to the crank shaft bearings, through internal pipes. The internal main oil pipe is supplied with an adjustable relief valve, and a small pressure gauge. The crank shaft journals and short arms of the crank are drilled through their centers, and the

coupling. The distributor for the accumulator ignition is on the offside of the engine, and is driven off the cam shaft by skew gearing.

The radiator is of the gilled tube type. The aluminum top and bottom can be removed, and the whole cleaned out. The water circulating pipes are so large that in the event of the failure of the circulating pump the engine can still be run at reduced power, by natural circulation alone. An aluminum fan is provided, mounted on an adjustable ball bearing spindle, carried off the timing gear casing, the drive being by a belt from a pulley on the crank shaft. The clutch, totally enclosed, is of the ordinary cone pattern, made of aluminum and shod with fabric. A clutch stop is provided to facilitate changing gear, and the whole of the clutch is carefully balanced to prevent undue vibration. There are four



Gasoline Motor Omnibus, Toronto Transportation Commission.

crank is also provided with radial holes at the center of the journals, so as to provide a passage for the oil from the main journal bearings to the crank pin bearings. There is, therefore, a rapid and continuous flow of oil to all the crank shaft bearings, the oil being carried from the main journals and thrown from the crank pins by pump pressure and by centrifugal forces. The oil which works through the outer crank bearings returns to the bottom of the crank case. The end walls of the casing project beyond the end of the bearings and oil retaining washers are fitted to prevent leakage. The spray from the continuous flow of oil flying from the crank pins thoroughly lubricates the cylinders, pistons, cam shaft bearings, cams, valve lifters, etc., so that there is no fear of any part of the engine running short of oil. By this method of lubrication the quantity of oil supplied is constant and does not depend upon keeping a fixed oil level in the crank chamber, as in the splash system.

The engine is equipped with a high tension magneto, the drive being transmitted from the cross shaft by a leather

changes of speed in the forward direction and one reverse, the ratios of the gearing giving forward speeds of 16, 11, 6.7 and 3 m.p.h. at an engine speed of 850 r.p.m. The gears are of nickel chrome steel, specially heat treated, and ball bearings are used throughout.

The rear axle, which is uncommon in Canadian practice, consists of a cast steel casing, containing a double reduction gear, fixed arms to carry the weight, and inner floating shafts to transmit the power. The road wheels, fitted with plain floating gun metal bushes, are mounted, and revolve freely on the arms, which are pressed and riveted into the casing, the combination of which forms the load carrying member of the axle. The nickel chrome steel driving shafts pass through hollow arms of the same material and have secured to their outer ends star or claw couplings, which transmit the drive to the road wheels. There is no load carried on these live shafts, which take the torque only. The power is transmitted from the propeller shaft by bevel gears, to the differential casing. This is carried on a shaft forward of the axle, the

final reduction being through spur gearing. A large inspection cover on the top enables the whole of the gear to be taken out without disturbing the axle. The propeller shaft is encased in a steel tube shrunk and riveted into a sleeve which is bolted to the axle casing. This tube takes the whole of the thrust, or drive, of the rear axle, through the medium of a spherical thrust member. The center of the universal joint at the rear end of the cardan shaft coincides with the center of the spherical thrust member and perfect freedom of action for both springs and axle is obtained. The universal joints are totally enclosed by dust protecting covers, and special provision is made to retain the lubricant. Ball journal and thrust bearings are used throughout the gearing, and the gear wheels are all made of nickel chrome steel, and they are heat treated.

Two double acting brakes are fitted, one on the gear box shaft and one operating on the road wheels. The gear box brake shaft is of liberal dimensions and is actuated by a push pedal. The internal expanding type side brakes are actuated by a hand lever, and are compensated with each other, so that the pressure on each is equalized.

Left hand steering is employed, the usual worm and segment being used in the steering gear.

The steel, lead coated, gasoline tank, is carried in the forward part of the body, and has 30 gall. capacity.

The bus is fitted with disc type road wheels, running on gun metal floating bushes. Special cushion solid tires are employed, and are doubled on the rear wheels.

The body of the bus is entirely of wood. The accompanying illustration gives an accurate idea of body construction and proportions. As shown, the entrance is at the front, on the right, and access to the upper deck is by inside stairs at the front, the bottom of which is adjacent to the entrance door, and just behind the the driver. The large window space ensures adequate natural lighting; artificial lighting is by a 12 volt C.A.V. system, including generator and storage batteries, which lights 6 lamps in the interior of the bus, a platform light and the head lights and tail light. The seats in the interior, arranged transversely, are of rattan, and those on the upper deck, also arranged transversely, are of wood. The total seating capacity is 59, the interior having accommodation for 30 passengers, and the exterior for 29 passengers.

The upper deck railings are secured by angle irons and bolts, and the seats on the upper deck are bolted into place, so that in case it is desired to use the bus as a single decker, all that is necessary is to remove the bolts and take down the seats and belt rails. When this is done, the bus can be operated as a one-man bus, the entrance near the driver being correctly located for this purpose.

As stated above, this is the sixth bus placed in service by the Commission. Two more are to be delivered, one each by the Associated Equipment Co., of England, and the Eastern Canada Motor Co., Hull, Que. In addition to these motor vehicles, the Commission has ordered 4 trackless trolley buses for use in the city, which were described fully in Canadian Railway and Marine World for January.

The Leyland bus is being operated at present on the Mount Pleasant Road run, in the northern part of the city.

Toronto Railway Co.'s Annual Report and Meeting.

Following is the directors' report for the calendar year 1921, presented at the annual meeting in Toronto, Feb. 1, and signed by Sir William Mackenzie, president:

Gross earnings, 8 months to Aug. 31, being end of franchise	\$5,130,431.52
Charges for operating, maintenance, etc.	4,782,490.44
Net balance from operation	\$ 347,941.08
Deficit carried forward	997,299.47
	\$1,345,240.55
Other Charges:	
Bond interest	\$1,113,624.64
War and Ontario Government taxes	38,890.54
	\$ 152,515.08
Payments to city:	
Percentage on earnings	\$1,004,893.86
Pavement charges	65,832.53
General taxes	121,999.08
	1,192,725.47
	\$1,345,240.55

Clean-Up Deal.—The proposed sale to the Hydro Electric Power Commission of Ontario of the company's power and radial, railway interests as outlined in the

Canadian Electric Railway Association.

Honorary President, Thomas Ahearn, President, Ottawa Electric Railway.
Honorary Vice President, George Kidd, General Manager, British Columbia Electric Railway.

President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.
Vice President, Major F. D. Burpee, Manager, Ottawa Electric Railway.
Treasurer, A. Gaboury, Superintendent, Montreal Tramways Company.

Executive Committee, E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electric Co.; W. S. Hart, Managing Director, Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Read, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Auditor, H. E. Weyman, Manager, Levis County Railway.
Secretary, L. E. Moreland, Chief Clerk, Hull Electric Co., Hull, Que.
Official Organ, Canadian Railway and Marine World, Toronto.

circular letter dated Sept. 22, 1921, to each shareholder, was presented at the shareholders' annual meeting on Sept. 30, 1921, when the directors' recommendation to dispose of the company's interests in the several subsidiary companies was unanimously approved. The lawyers representing the Commission, the city and the company, owing to the vast amount of detail work, which includes the searching of several thousand separate parcels of property covering at least 250 miles of right-of-way of transmission lines and radials running through the various municipalities have not completed their work, and it looks now as if an agreement satisfactory to the parties may be completed within a few weeks, when it will require to be submitted to the trustees for the bondholders in London for ratification. Your directors are doing everything in their power to conclude this matter.

Toronto Railway Arbitration.—The company's franchise expired on Sept. 1, 1921. The arbitration between the city and the company in connection with the taking over of the railway system has been proceeding as rapidly as possible

during the past few months, but it is not yet completed. The large amount of evidence which it has been found necessary to furnish as to the value of the company's properties is occupying a great deal of time, but the presentation of its case is about complete.

The city is asking for one month's adjournment before commencing to put in its evidence. How long it will require in this connection is doubtful, but it looks as if several months must elapse before the arbitrators can make their award. As soon as this has been done the shareholders will be notified of the result. The expense of the arbitration and that of the clean-up deal will be very costly to the companies, but this cannot be avoided.

Bonds.—The 4½% first mortgage bonds fell due on Aug. 31, 1921. The original issue was for \$4,550,000, which has been reduced by operation of the sinking fund to \$2,274,360. As the amount to be paid to the company by the city under the arbitration proceedings will not be received for some time, payment of these bonds has been delayed, and your directors decided that having regard to current money rates and as a matter of fairness to the bondholders the company will be pay interest at the rate of 6% a year for the time before payment of the bonds.

It can be seen the only business to be transacted at the annual meeting of the company on Feb. 1, will be the adoption of this report and the election of directors for the ensuing year.

Appended to the report were statements from which the following figures were taken: The balance in credit of profit and loss account at Dec. 31, 1920, \$5,161,100.97 has been reduced to \$4,163,801.50.

Statistics for 8 months:—Passengers carried, 135,947,869; transfers, 53,086,895; percentage of charges, etc., to passenger earnings, 93.2, against 84.2 in 1920.

The only change made in the Board at the annual meeting was that J. C. Grace, Secretary-Treasurer, was elected a director to succeed the late Senator F. Nicholls, who was also Vice President. The Board for this year is composed as follows:—Sir William Mackenzie, President; Sir Henry M. Pellatt, Vice President; J. C. Grace, Hugh Mackay, K.C., W. H. Moore, H. H. Pitts, Frank W. Ross, G. H. Smithers and E. R. Wood. They are also T. & Y.R.R. Co.'s directors.

One-Man Car Operation in the United States.

In connection with proposals before the Massachusetts State Legislature for the prohibition of the operation of one-man cars on electric railways in the state, the Stone & Webster Corporation has completed statistics as to the operation of one and two-man cars on the lines of 13 different companies, as follows:—

	1-man cars	2-man cars
Car miles operated	18,022,899	13,868,097
Passengers carried	95,198,971	98,952,902
No. of accidents	6,852	7,981
Cost of accidents	\$235,140	\$258,346

It is stated that over 5,500 one-man cars are being operated on electric lines in the United States; that they run over 220,000,000 miles a year and carry a billion passengers.

Electric Railway Employees' Wages, Working Conditions, Etc.

The Dominion Power & Transmission Co., in addition to developing and distributing electricity for power and lighting purposes, owns or controls the Hamilton St. Ry., Hamilton Radial Ry., Hamilton & Dundas Ry., Hamilton, Grimsby & Beamsville Ry. and Brantford & Hamilton Ry. The company recently gave notice of a reduction in wages varying from 13 to 15%, which the men decided not to accept and threatened a strike if the reduction was put in force. The employees belong to five different unions and applications for the appointment of boards of conciliation have been made to the Labor Department by four of them, F. Bancroft, Toronto, being named as the men's representative by three of them, and J. G. O'Donoghue, Toronto, by the fourth. E. N. Compton, of the Labor Department, was in Hamilton, Feb. 13, in consultation with union officers, with a view to having all the unions interested agree on one man to represent them on a board, so that one board could deal with the entire body of men. Four of the unions have international affiliations, and the fifth is a Canadian union.

The Dominion Power & Transmission Co. made an agreement with its interurban lines employees in April 1920, the agreement to run for one year, under which the following rates of wages per hour were fixed for conductors and motormen: First six months, 38c.; second six months, 40c.; second year, 45c.; third year and after, 52c. Following a board of conciliation, the above rates of wages were given Hamilton St. Ry. conductors and motormen in June, 1920, the rate to be retroactive to April 1. These rates of wages have apparently been continued in force until the present time.

It was reported in Hamilton Feb. 21, that negotiations to have one board of conciliation deal with the wages questions at issue between the company and its employees had failed, and that two boards would be appointed, one to act between the company and the employees who are members of the international unions, and the other between the company and its employees who are members of the Canadian National Electrical Workers' Union. The company was reported to have advised the Labor Department that it would not appoint any representative to act for it upon the boards of conciliation applied for by the men, and an Ottawa dispatch of Feb. 17 stated that F. H. McGuigan had been appointed by the Minister of Labor to act for the company. F. Bancroft of Toronto will, it is said, represent the international unions members and J. G. O'Donoghue the Canadian union members.

Hull Electric Co.—Following up the majority and minority reports of the members of the recent board of conciliation, the recommendations of which were given in Canadian Railway and Marine World for February, some negotiations have taken place between the company and the men being carried on by correspondence between G. Gordon Gale, Vice President and General Manager of the company, and J. A. Noel, representing the men. The latter wrote Mr. Gale on Feb. 6 that the employees were anxious to make an amicable settlement of the wage question, and Mr. Gale replied as follows:—"You have suggested a rate of 48c. an hour for Dec. 1921, and 46c. an hour for 18 months, to July 1, 1923. This repre-

sents an increase over the rate which became effective on Dec. 1, 1921, and while we also believe very strongly in settling these matters amicably, as indicated by our attitude during the past 10 years, we regret that it is impossible to agree to this suggestion. With the exception of in the City of Montreal you have been paid higher rates than by any other street railway in the Province of Quebec. Practically all of these companies have made reductions or have given notice of cuts in wages. It is quite possible that on July 1, 1922, a further reduction in wages may be found necessary. In order to avoid a reconsideration of this matter within a few months, and with a view of adjusting the whole matter satisfactorily, I am prepared to recommend to our directors the continuation of the rate of 43c. an hour until July 1, 1923. You, of course, know that the company has undertaken to provide a pension fund for its employees, under certain conditions with which you are familiar. To those who have been in the service for a number of years, this provision is of real and considerable value, and I, therefore, strongly urge you to give this matter still further and more serious consideration, in order that our uninterrupted relations may continue."

Mr. Noel replied on Feb. 7 that the rate suggested at the men's mass meeting on Feb. 4 was their final decision and that if the company would not accept it the conciliation board's majority award was the only alternative that would be satisfactory. Mr. Gale then wrote Mr. Noel on Feb. 9 as follows:—"I regret to note that you have not given the employees generally an opportunity to consider the suggestion contained in my letter of Feb. 6. I have had several personal conversations during the past few days with representative employees, and I have been given to understand that the proposal to continue the present rates until July 1923 is not unreasonable. A higher schedule would naturally be more satisfactory, but they appreciate the changed conditions and the necessity for this reduction, and I believe this represents the considered view of quite a number of the men."

Mr. Noel wrote on Feb. 10 that the company's offer of 45c. an hour to July 1, 1922, and 41c. an hour to July 1, 1923, was considered at the mass meeting Feb. 4. The attitude of 96% of the men was in favor of the action taken, and the fact that in face of the majority award the men were favorable to reducing their wages 2c. an hour for 18 months was evidence that they were doing what was fair, and what the company might expect the men to do in return for what the company did for the men in 1919.

London St. Ry.—A London, Ont., press report of Feb. 18 stated that the company's management had been advised that the carmen had refused to accept the reduction of 3c. an hour, of which the company had given notice to go into effect March 1, and that a conference with the management had been asked for. Another report stated that the employees had notified the management that they wished to have the existing agreement cancelled and a new one substituted providing for an increase in wages, with time and a half for Sundays and holidays, and for a week holiday annually on full pay.

Electric Railway Freight and Passenger Rates.

Chatham, Wallaceburg & Lake Erie Ry.'s Standard Freight Mileage Tariff C.R.C. 672, was approved by the Board of Railway Commissioners' order 32,091, Feb. 4, and it became effective on March 1.

Hamilton St. Ry.—Following the defeat on Jan. 2 of the city's bylaw to grant a 5c. fare, there was a conference on Jan. 22 between E. P. Coleman, General Manager, Dominion Power & Transmission Co., and the city council's railway committee. Mr. Coleman advocated the adoption of the service at cost principle and said he would submit a proposition at a later date, but on Feb. 3 it was stated that no proposition would be made by the company. The matter has been discussed at frequent intervals since then, both by the railway committee and the city council. Complaints have been received as to the service from citizens; the committee has had a check made on the service given; a suggestion has been made that the city forego its percentage; another that the 5c. fare be permitted, and another that an arrangement be made to acquire the line. Nothing, however, has come of any of the proposals, and the situation remains practically as it was after the defeat of the bylaw on January 2.

The City Solicitor was reported recently to have drawn up a proposed agreement with the company, which was to be considered by the works committee on Feb. 22. It provides for a straight 5c. fare, during the day, except that fares for children, transfer privileges, and the carrying free of policemen and other civic employees shall remain as at present. The company shall provide a service not less efficient than during 1921, and is to relay tracks on certain streets as soon as the city is ready to proceed with the paving work.

London St. Ry. Co.—The Ontario Legislature is being asked by the company to vary its agreement with the City of London, so as to enable it to obtain sufficient revenue to keep the railway in a reasonably safe condition and state of repair and to meet the working expenditures and such return on the capital actually invested as shall be deemed reasonable, and to authorize the charging of a fare not exceeding 5c., except for children under 5 years of age in charge of an adult, who shall be carried free; children between 5 and 12 years of age, who shall be charged not exceeding 3c.; and for police constables on duty and other civic employees when on duty to be carried free; and to vary bylaw 916 and any other bylaw of the City Council relating to the matter. The reason for requiring the legislation is stated to be that the revenues derived from the present rate of fare are not sufficient to provide for the increased cost of operation, and that the company is in need of immediate relief, if the railway is to be kept in a reasonably safe condition and the citizens supplied with an efficient street railway service.

Montreal Tramways Co. — Under an agreement between the Montreal Tramways Co. and the Montreal City Council a notarial deed was signed by the latter Feb. 20, by which school children's tickets will be valid on the company's cars on week days from 7.30 a.m. to 6 p.m., instead of from 8 a.m. to 6 p.m. as heretofore.

The Toronto Transportation Commission's Programme for 1922

While no appropriation has yet been made by the Toronto City Council for work to be carried out on the city's street railway under the direction of the Transportation Commission during the remainder of this year, it is probable that approximately \$12,750,000 will be spent by the Commission in a continuation of its thorough rehabilitation of the system. The programme, which is as yet but tentative, will probably include \$6,500,000 for track work, i.e., new track, extensions to existing track, the installation of between 30 and 40 new intersections, and the widening of the devil strip on the double track lines, to the Commission's standard. Generally speaking, the devil strip on the Toronto Ry. Co.'s lines was 3 ft. 10 in., and the Commission has been widening it to 5 ft. 4 in., which gives a clearance of not less than 1 ft. between two of the new cars. The devil strip on the Toronto Civic Ry. lines was originally 5 ft. 4 in.

It is probable that the track will be relaid on Church St., to complete the portion which was not relaid in 1921; on Bloor St., from Lansdowne Ave. to Avenue Road, and from Yonge St. to Church St.; on Dupont St.; on Dovercourt Road, north of College St.; on King St., from Spadina Ave. to Sherbourne St., and on Queen St., from Ossington Ave. to Yonge St. In addition, it is likely that the track will be relaid between the Howard Park car barns and the Howard Park loop, on Dufferin St.; from the exhibition loop to Queen St.; and on Wellington St. New track will probably also be laid from Sunnyside to the Humber, and on Carlaw and Pape Aves. from Queen St. to Danforth Ave., while possibly an extension will be made at North Yonge St. As stated above, however, this programme is only tentative as yet, and the details are liable to be greatly varied. It is anticipated that but very little, if any, of the narrow devil strip will remain by the end of this year.

A question concerning which there is a lot of conjecture is the possible linking up of the line on Bloor St. east of Lansdowne Ave. with the former Toronto Civic Ry. line on Bloor St. west of Dundas St. C.P.R. and G.T.R. tracks cross Bloor St. at grade between Lansdowne Ave. and Dundas St. One proposal is that a subway be built under the easterly crossing of the G.T.R., and a hood bridge over the westerly C.P.R. and G.T.R. tracks. No definite decision has been arrived at, and it is evident that the proposition will require a lot of consideration and a hearing before the Board of Railway Commissioners before the cost to be borne by the city and the railways respectively can be determined.

It is expected that out of the moneys provided for work during 1922, about \$3,500,000 will be spent for 250 additional new cars of the same modern type as the Commission began to acquire in 1921. The remainder of the appropriation will probably be used in the provision of car house extensions, shops and shop equipment, loops, car house and yard trackage, and construction equipment.

While labor costs were high during 1921, the Commission kept well within the estimates for the work which it accomplished in the short portion of the construction season which remained after it was placed in charge of the work. The magnitude of the work undertaken

by the Commission in its rehabilitation of the street railway system is not thoroughly appreciated, even by the majority of Toronto citizens. A study of the map given in Canadian Railway and Marine World for Dec. 1921, pg. 657, will show the extent of the street railway lines now operated by the Commission; the relatively compact system operated by the Toronto Ry. Co., and the Toronto Civic Railway lines, which were located principally in the outlying portions of the city, have been linked up to form a system covering a much larger territory. The necessity for the higher fare is at once apparent when there is taken into consideration the fact that the Toronto Ry. Co.'s lines served only a small and compact area of dense traffic, while the new and enlarged system covers areas where the traffic is not nearly so heavy, and cannot logically be expected to be so for some time to come.

The expenditure of the sum mentioned during the remainder of 1922, in addition to the amounts spent for the work completed in 1921, will go a long way toward making Toronto's new street railway system a well rounded and complete one, and one in which the citizens may justly take pride. While the work of rehabilitation has been costly, and will, when completed, have necessitated the expenditure of a large sum, the fact remains that good and efficient transportation within a city is of inestimable advantage, and for that reason the expenditure of the large sums in street railway rehabilitation is more than justified.

Major Burpee's Election as an Ottawa Traction Co.'s Director.

The Ottawa Journal says:—"Major F. D. Burpee, Manager of the Ottawa Electric Ry. Co., has been elected a director of the Ottawa Traction Co. Thus is there recognition of his exceptional ability as a street railway executive. In the position of Manager he has been of very great value to the company he serves. In 1912, when Lt. Col. J. E. Hutcheson left the company, those who knew him wondered where another man would be found to run the street railway as well as he had run it. Mr. Burpee proved to be the man. Two years in war service in France seemed to make him even a better executive. The Ottawa Electric Ry. Co. has him to thank very largely for influencing the vote of the people on the recent plebiscite in favor of a continuance of private ownership. He kept up the service in face of difficulties and cemented the goodwill of the people. He also discussed the problems of the future in a way that was considered fair and reasonable. His career has been one of remarkable development. He started with the O.E.R. as a stenographer. It was as general assistant to the Superintendent and to the Secretary-Treasurer that he gained the experience which was a necessary complement to his native capacity for the responsibilities of the position of Superintendent. So successful has he been that the Journal hoped before the plebiscite was voted on that should the city take over the street railway he would be retained as a commissioner to assist in running it for the corporation. Not the least of Major Burpee's qualifications for his position is his ability to command and retain the loyal service of those under him."

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies.—

	Dec. 1921	Dec. 1920	12 mos. to Dec. 31, 1921	12 mos. to Dec. 31, 1920
Gross	\$940,113	\$917,668	\$5,192,915	\$5,017,371
Expenses	653,566	631,786	3,819,533	3,651,426
Net	286,547	285,882	1,373,382	1,365,945

Calgary Municipal Ry.—The receipts for January, according to a press report, were \$78,505, against \$85,112 for Jan. 1921. The report gives the following other figures: Tickets sold, 1,318,156; transfers, 274,573; cash, \$28,217. There were 24,560 car hours done during the month, the passengers per hour being 66.04 over the whole system. Trips per hour were 3.7, and passengers per trip 17.84.

Cape Breton Electric Co.

	Dec. 1921	Dec. 1920	12 mos. to Dec. 31, 1921	12 mos. to Dec. 31, 1920
Gross	\$63,748	\$68,748	\$694,596	\$652,007
Expenses and taxes	52,442	51,068	583,209	552,902
Net	11,306	17,680	111,387	99,105
Interest	5,596	5,651	68,768	67,679
Balance	5,710	12,029	42,619	31,426

Hamilton St. Ry.—Hamilton, Ont., City Treasurer received \$21,732.10, Feb. 16, for the percentage of the company's receipts due the city for the three months ended Dec. 31, 1921. This made the total percentage for 1921 \$87,396.84, against \$90,901.10 for 1920.

Montreal Tramways Co. is reported to have reduced its indebtedness to the city for rentals from \$1,642,923.85, as at Dec. 31, 1921, by the payment on Jan. 29 of \$182,468.71. It was stated that further payments would be made on account during this year.

The Toronto Ry. Co.'s Secretary issued the following notice early in February: "Six months' interest on the company's bonds will be paid on Feb. 28, at the rate of 6% per annum, in accordance with the directors' decision as expressed in the circular issued in Aug. 1921. As the last coupon on these bonds fell due on Aug. 31, 1921, it will be necessary to pay interest by cheque upon presentation of the bonds at the Canadian Bank of Commerce, Toronto, its agency in New York, or at the Bank of Scotland, London, Eng., as called for under the bonds as issued, at the same time endorsing receipt of payment upon the bonds. The arbitration with the City of Toronto to fix the price to be paid for the company's street railway property taken over by the city is actively proceeding before the board of arbitrators, consisting of Hume Cronyn, chairman, Sir Thomas White and Sir Adam Beck. A large part of the company's case has been put in and it is anticipated that all the evidence, including that of the city, should be before the board within the next three months. Pending the receipt of the proceeds of the award, it is necessary for the company to ask the further indulgence of its bondholders."

Winnipeg Electric Railway.

	Dec. 1921	Dec. 1920	12 mos. to Dec. 31, 1921	12 mos. to Dec. 31, 1920
Gross	\$507,447	\$541,485	\$5,539,116	\$5,310,401
Expenses	340,459	384,556	4,072,158	3,940,643
Net	166,988	156,929	1,466,958	1,369,758
Fixed charges	88,493	80,313	739,043	774,233
Surplus	78,495	76,616	727,915	595,525

They used to say politeness costs you nothing, but nowadays it cost you your seat in the street car every time.—Goblin.

British Columbia Electric Railway and Dominion Jurisdiction.

The Vancouver, Fraser Valley & Southern Ry. Co. is applying to the Dominion Parliament for an act to amend its act of incorporation, Dominion Statutes 1906, chap. 175, and acts amending the same, so as to declare that any works and undertakings which it is authorized to acquire or lease, when so acquired or leased, be works for the general advantage of Canada; to enable it to extend the works now owned or hereafter acquired beyond the limits of British Columbia into the State of Washington, U.S.A.; to pay for any works or undertakings by shares in the company; to issue preference stock; to increase the amount of stock to be issued; to change its name; to alter its powers relating to the purchase of electric energy; to establish branch offices in London, Eng., and to hold annual meetings of shareholders there; to enable it to collect tolls and rates in respect of any works or undertakings authorized to be acquired or leased by it, pending approval of such tolls and rates by the Board of Railway Commissioners, and for other purposes.

The company's act of incorporation authorized it to build a railway from Vancouver to New Westminster and thence to the International Boundary line at Douglas; and from some point on the Fraser River near New Westminster bridge to Chilliwack, and from south of the Fraser River westerly to Ladner's Landing on the Fraser River in Delta Tp. This undertaking was declared to be for the general advantage of Canada, and the company was authorized to develop electric power or energy for the operation of its line and for general distribution in the municipalities served by the line. The company secured extensions of time for the construction of its lines in 1909, and in 1912, and in the latter year it was given authority to enter into agreements with the Vancouver Power Co. and the British Columbia Electric Ry. Co. or either. The latter company had obtained control of the charter, and under it began the construction of an electric railway from New Westminster, on which 12 miles of track were laid to Cloverdale in 1909, and the track was completed to Chilliwack, a further distance of 51.47 miles, in 1910. About the same time the B.C.E. Ry. Co. leased the Vancouver & Lulu Island Ry. from the C.P.R. and electrified it.

In Jan. 1920 the company applied for an act to change its name and to authorize it to take over the British Columbia Electric Ry. lines, as well as its other properties. The object of this proposed amalgamation was to bring the B.C.E. Ry. Co.'s line under the Board of Railway Commissioners' control. The application was not proceeded with, owing to an arrangement having been concluded under which the increase of fares which had been temporarily authorized was to be continued to June, 1922, the various municipalities meanwhile undertaking to negotiate new franchises with the company. After some negotiations, a new contract was tentatively agreed to, May 4, between the City of Vancouver and the company, which was to be used as the basis of contracts with the other municipalities. This agreement was given the six months hoist by the City Council at the end of September, and other municipalities refused to fall in with the suggestion that they should adopt a similar one, hence the B.C.E.R. Co.,

through its Dominion subsidiary, the V. F.V. & S. Ry. Co., is applying for such amendments to its charter as will enable its several lines which are outside of Dominion control to be made subject to the Board of Railway Commissioners' jurisdiction as to rates and tolls. Representatives of 27 municipalities within which the B.C.E. Ry. operates met at Vancouver, Feb. 15, and it was decided to oppose the company's application before Parliament. A committee of 12 was appointed to take whatever steps they might consider necessary.

One-Man Cars in Port Arthur.

In connection with the proposed operation of one-man cars on the Port Arthur, Ont., Civic Ry., we are officially advised that the City Public Utilities Commission is awaiting the hearing of its application to the Board of Railway Commissioners to operate such cars across the Canadian National Rys. tracks at Inter-city. Pending a decision in this matter, which will have considerable bearing on whether or not one-man car operation will be extended to the entire system, instructions have been issued to fully equip one of the existing cars with safety devices which will include pneumatic door and step control, in order to demonstrate the safety and reliability of the car under one-man operation. An order has been given the Canadian Westinghouse Co., Hamilton, Ont., for the safety devices and the car will be equipped as soon as they are delivered. It is hoped that by the time this is done the Board of Railway Commissioners will have made such a decision as will enable the extension of one-man car operation to the entire system.

Nova Scotia Tramways & Power Co. Will Distribute Government Power.

After negotiations extending over a year, during which time the Halifax City Council started negotiating an agreement with the Nova Scotia Power Commission for the distribution of the power developed at the Government's power plant, an arrangement was completed Feb. 1, between the Nova Scotia Tramways & Power Co. and the Commission, for the distribution of the power. The proposed arrangement between the City Council and the Commission necessitated the construction of a distribution plant, at an estimated cost of \$1,186,000, but difficulties arose and the proposal was not carried through. The power being available, and the N.S.T. & P. Co. being in a position to undertake the immediate distribution of the same, the present agreement has been made.

The contract between the Commission and the company was ratified by the Government Feb. 7. It provides for the reservation by the Commission of electrical power and energy up to a total of 18,000,000 k.w. hours a year at a rate not exceeding 6,000 k.w. and 7,500 kilowatt amperes, and such further supplies of power and energy as the Commission may have available after providing for other users, to be delivered on a 24 hour basis at the high tension side of the company's transformers at Halifax power house. The company agrees to pay the cost of the power, at rates to be fixed

annually by the Commission; to install the plant to take care of the new power and to co-operate with the Commission in promoting the increased use of power. The Commission may enter into a contract with the City of Halifax for the supply of power and energy, but not for resale to the public. The price to be charged to the public for the power is to be a fair and reasonable one, and that this will be so, it is arranged that the company shall qualify and elect to its board of directors a Government nominee; that the Nova Scotia Public Utilities Commission shall have power to make a valuation of the plant, shall determine what proportion of surplus earnings shall be devoted to a reduction of rates, and may, on application, fix rates. The contract is to run for 30 years.

The present power development is at St. Margarets Bay, and the receiving station is at Arm Bridge. The Commission proposes to continue the power line from Arm Bridge to the N.S.T. & P. Co.'s Halifax power plant, and has an arrangement with the Canadian National Rys. under which the towers will be erected alongside the railway from Armdale.

Uniforms for Toronto Transportation Commission Carmen.

The Toronto Transportation Commission has ordered 2,442 uniforms for its conductors and motormen, at \$23.35 each. The cloth has been manufactured at Hespeler, Ont., and is being made up by Toronto tailors. For the first uniform suit obtained, the employe pays the whole cost. For the second suit, the employe pays half the cost and the Commission the other half. Succeeding suits are provided by the Commission.

The Commission has ordered 1,400 uniform overcoats for conductors and motormen. The employe bears the whole cost of the first overcoat obtained, and the Commission bears the cost of succeeding coats issued to him.

For caps, the employe bears the cost of the first one furnished him, half the cost of the second, and the Commission pays for all succeeding ones furnished.

The Commission will also supply its conductors and motormen with uniform shirts at cost price, so that their appearance will be uniform in warm weather when it may be necessary for them to remove their coats.

Change of the Rule of the Road in British Columbia.

In connection with the change in the rule of the road in British Columbia, which went into effect Jan. 1, members of the B.C. Government wrote Geo. Kidd, General Manager, B.C. Electric Ry., as follows:—

Hon. John Oliver, Premier:—"The government is highly pleased with the results of the change in the rule of the road so far. That there has been no confusion and no increase in accidents reflects great credit upon the B.C.E. Ry., upon government and municipal officials, and the hearty co-operation of the public."

Hon. J. H. King, Minister of Public Works for B.C., now Dominion Minister of Public Works:—"Permit me to express our great appreciation to you, your staff and the men engaged in operating the cars, on the able assistance and co-operation rendered the department in bringing about the change successfully."

Electric Railway Projects, Construction, Betterments, Etc.

Brantford Municipal Ry.—A press report states that Brantford, Ont., City Council has approved a bylaw providing \$80,000 for street railway extension. (Dec. 1921, pg. 660.)

British Columbia Electric Ry.—The B.C. Minister of Railways has authorized the company to build an industrial spur on Queen's Ave., New Westminster, the New Westminster City Council having previously given its assent.

We are officially advised that the company proposes to build a second track on its Cook St. line, from Rockland Ave. to Pakington St., Vancouver, 0.3 mile. The new track will be laid with 60 lb. rails, A.S.C.V. section. (Feb., pg. 97.)

British Columbia Electric Ry.—We are officially advised that work is proceeding upon the construction of a second track on Cook St., Vancouver, for 1,520 ft. The work is of temporary construction type, and 60 lb. rails will be laid. The construction of this second track will permit an unrestricted service to be given on the Foul Bay-Hillside route by eliminating two turnouts. (Feb., pg. 97.)

Calgary Municipal Ry.—Calgary, Alta., City Commissioners are considering suggestions for the extension of the line serving East Calgary. Two petitions, each suggesting a particular extension, were considered and the street railway department after looking over the situation recommended that the present line on Ninth Ave. be turned southwest for a short distance to Seventeenth St., and then straight south to Twenty-eighth Ave., then west to Sixteenth St., a distance of two blocks, and from there north to Ninth Ave. The cost of the scheme would be \$13,360.66. About 3,400 ft. of track could be salvaged by the changes and there would be an addition of 2,000 ft. necessary. The department recommended that this work be undertaken only out of revenue. The commissioners held the matter over for future consideration.

Superintendent R. A. Brown is reported to be preparing a report for consideration by the city council on the expenditure necessary for the rehabilitation of the street railway. It is reported that about \$24,000 a year for ties, and about \$40,000 a year for sub-base, etc., will be required as a minimum expenditure for the next eight years. (Feb., pg. 97.)

Edmonton Radial Ry.—The Board of Railway Commissioners has authorized the connection of the E.R.R. tracks with the Canadian National Rys. spur track on 104th St., Edmonton, Alta., leading to the power house. The purpose of making the connection is to transport ashes from the power house over the street railway for track repair work.

Kingston, Portsmouth & Cataraqui Electric Ry.—We are officially advised that the company contemplates the reconstruction of 3,800 ft. of track on paved streets in Kingston, Ont., to be relaid with 90 lb. A.S.C.E. rails.

Kitchener & Waterloo Electric Ry.—A press report states that the Kitchener, Ont., Light Commission is inviting tenders for 220 gross tons of steel rails and 1,000 steel ties. The issue of \$63,000 of debentures for the construction of about a mile of double track line on King St. was authorized at the municipal elections Jan. 2. The work is expected to be put in hand at an early date.

London & Port Stanley Ry.—The London Railway Commission is reported to

have authorized the calling of tenders for the construction of an amusement hall in the park at Port Stanley, Ont. The hall will, it is said, be immediately south of the board walk at the west end of the Commission's property, and will be almost directly south of the beach station. It will be octagonal and of similar construction to the cafeteria and other buildings erected by the Commission there. The hall will provide accommodation for dancing, with a gallery for spectators, and underneath the dancing floor provision will be made for other amusements. The preliminary work necessary before building operations are started will be proceeded with at once, as it is hoped to have the building ready for use early in June.

London & Port Stanley Ry.—The London Railway Commission is reported to be negotiating with the G.T.R. management for the old building at the corner of Richmond and Bathurst Sts., London, Ont., to provide station accommodation. The estimated cost of the alterations is \$20,000.

The Commission is also reported to be considering plans for the installation of coal hoisting machinery at Port Stanley, Ont., and to have had plans prepared for building a new amusement hall there. (Oct., 1921, pg. 548.)

The Mount McKay & Kakabeka Falls Ry. Co. is applying to the Ontario Legislature for an act to extend the time for the completion of its authorized lines, and to extend the time during which the lines built may be operated by steam. The company's line extends from Fort William city boundary for about 5 miles westerly, and is used for switching by railways entering Fort William. It was built as an electric railway, the intention being to build from Lot 10, Kakabeka Falls, to the mouth of Mission River, and thence along the shore there to Squaw Bay. In 1916 the Ontario Legislature authorized the company to use steam instead of electricity as motive power, except on the portion on Neebing Ave., for four years. This permission was extended for two years in 1920, and the company now asks for a further extension of the right to use steam. (July, 1920, pg. 386.)

Peterborough Radial Ry.—We are officially advised that the Peterborough City Council recently asked the Hydro Electric Power Commission of Ontario to authorize the construction of an extension of the electric railway in the city, which is operated by the Commission. The request was particularly for an extension across the Otonabee River to the eastward, on Hunter St., with possible extensions from Hunter St. on Rogers St., a total of from 0.50 to 0.75 of a mile. The Commission did not hold out much hope that the extensions could be made at present, but intimated that experiments were about to be made with trackless trolley buses and if they were found successful, such a method might be used on the routes for which extensions were asked.

Saskatoon Municipal Ry.—We are officially advised that a contract has been let to the Wholesale Fuel Co., Saskatoon, Sask., for 5,000 ties for this line.

Winnipeg Electric Ry.—A press report states that the 1922 programme of work includes the laying of tracks across Provencher bridge.

Voting on Niagara, St. Catharines and Toronto Railway Bylaws.

Canadian Railway and Marine World for February gave particulars of the voting in 10 municipalities in the Niagara peninsula on bylaws providing for the buying of the Niagara, St. Catharines & Toronto Ry. from the Dominion Government and its operation for those and some other municipalities by the Hydro Electric Power Commission of Ontario. It was stated that the bylaws had been carried in St. Catharines and Welland Cities, Merriton, Niagara-on-the-Lake and Thorold Towns, Port Dalhousie Village, and Louth and Pelham Townships, but that the bylaw was defeated in Humberstone Village. It was also stated that there was some question as to the voting in Pelham Township, as voters of Fonthill Village, part of which was formerly in the township, had voted in the township. We have since been advised that the votes in Pelham Township outside of the portion now included in Fonthill Village were 342 against the bylaw and 211 for it. The Fonthill voters did not vote on the Pelham Township bylaw, the ballots given them being simply as a feeler to get their views as to the submission of a bylaw at a later date, which they declared in favor of by 83 majority.

Bylaws in connection with the proposed acquisition of the N.St.C. & T. Ry. were voted on in Crowland, Grantham, Humberstone and Thorold Townships on Jan. 30, being carried in one township and defeated in three, as follows:—

	For	Against
Crowland	117	107
Grantham	250	312
Humberstone	80	207
Thorold	139	143

British Columbia Electric Railway One-Man Car Operation.

The B.C. Minister of Railways has authorized the B.C. Electric Ry. to operate one-man cars upon the following lines:—

City of Victoria.—Douglas and Outer Wharf; Oak Bay and Fort; Willows; Up-lands; Beacon Hill and Fernwood; Esquimalt; Gorge; Foul Bay and Hillside; Burnside and Mount Tolmie.

City of New Westminster.—Sixth St.-Highland Park; Sapperton-Edmonds.

Greater Vancouver. — Georgia East; Main St. South; Sasamat St.; Nanaimo St.; Sixteenth Ave.; Dunbar St.; Hastings St.; East extension; Central Oak-Eburne.

The company agrees to comply with the requirements of W. Rae, Government Inspector of Railway Equipment, as to equipment and appliances.

The first of the one-man cars was put in operation in Vancouver prior to Jan. 31, but two men were in charge of it. Beginning Feb. 1, the one-man operated cars were put on the Georgia East and Dunbar St. routes, and additional cars are being put out as they are completed.

English Tramway Fares.—The London, Eng., County Council, towards the end of 1921, reduced the minimum fare on its tramway lines from 1½d. to 1d., and on Jan. 31 it was reported that during the first six weeks of the operation of the new rate, while 166,000 more passengers were carried than before, there was a loss of £83,000 in revenue.

When a street car sways from side to side, it is not necessarily full.—Goblin.

Trackless Trolley Buses for Hydro Electric Power Commission of Ontario.

Following the ordering by the Toronto Transportation Commission for use in the city's outskirts, of four trackless trolley buses, which were described and illustrated in Canadian Railway and Marine World for January, the Hydro Electric Power Commission of Ontario has ordered four, to be used on its Hydro Radial Railway, Essex Division, from the St. Louis Car Co., St. Louis, Mo. Each bus will accommodate 29 passengers. They will be somewhat similar to those ordered elsewhere by the Toronto Transportation Commission, but will differ chiefly in the height of floor above ground line, in the spring gear, and in the arrangement of the entrance door. The floor will be 3 in. lower than that of the Toronto Transportation Commission buses, the height above ground line to be 30 in. instead of 33. They will be equipped with underslung springs of more than the usual length, and the entrance door at the front of the bus will open inward and swing toward the front. The wheel base will be 16½ ft., length over all 26 ft., and extreme height 9 ft. 1 in. The roof will be of ¾ in. haskelite, and the sides of 16 gauge aluminum, with 3/16 in. veneer inside. The Toronto Transportation Commission buses sides are to be of plymetal. Westinghouse electrical equipment, practically identical with that furnished for the Transportation Commission buses, will be installed, and the 2 motors will be of 25 h.p. and of the safety car type. The buses will be similar to those demonstrated in Detroit a short time ago, as described in Canadian Railway and Marine World for December, 1921, and it may safely be said that they are far past the experimental stage. At the time of writing (Feb. 20) all except a few relatively unimportant details of design and construction are settled, and we are informed that the designs will be complete by the end of February, and that delivery of one bus is expected by the end of March.

One or more additional trackless trolley cars may be ordered for the Peterborough Radial Ry., which is operated by the Hydro Electric Power Commission for the Ontario Government, a deputation from Peterborough, which waited on the Commission recently, having been informed that it was hardly likely that any track extensions could be made in that city, but that if trackless trolleys prove satisfactory in Walkerville and Windsor, some might be ordered for Peterborough.

It may be taken for granted that this type of equipment, new in Canadian electric transportation, was ordered by the Transportation Commission and the Hydro Electric Power Commission only after much study had been given to its possible advantages, and it is safe to say that in the near future buses of this type will have established for themselves a definite field of usefulness in urban transportation. They will doubtless be admirably suited as adjuncts to a street railway system, to operate in the outskirts of a city where the population and traffic density are not sufficiently great to make the laying of track and the operation of street cars a paying proposition. The only construction needed in connection with these buses, provided the streets are suitable for their operation, consists of the erection of poles and the stringing

of wires, and with power supplied from the same source as for the street car system, their economy is evident. As a city expands and population grows, with a consequent increase in traffic density, extension of the street railway system to include trolley bus routes will doubtless become economically justified, after which the trolley buses may be placed on new routes further removed from the center of the city, to supply transportation service in the new outskirts until the extension of the street railway system is once more justified.

Stoppage of Electric Railway Service in Levis.

The Quebec Telegraph says:—"The people of the town of Levis and all those having business in that unfortunately situated place at present are much to be pitied. Since the recent snow storm, locomotion of almost every kind has been practically impossible there. Owing to the stoppage of the street railway almost everything is at a standstill. Instead of the main streets being kept clear as formerly by the railway, now that the latter is closed, pedestrians can scarcely manage to wade at all through some of the streets, having often to climb over snow drifts to get out of the narrow roadway so that vehicles can pass them. Like many other communities that have the advantage of electric tramways, the people of Levis never seemed to realize what their road meant to them, and therefore never took the trouble in its struggles or tried to meet its promoters with fairness. Those that might have helped them have failed to do so, though the management of the road had offered to open its books to the city and others. Meanwhile some of those that might have aided the undertaking appear to have done their best to tie it up. Much of the whole trouble was caused by the populations of some of the local municipalities being influenced or prejudiced against the railway for selfish purposes. It is too bad that the people of those villages, who are today the victims of irresponsible individuals, could not lay the blame where it belongs and bring the guilty parties to face the indignation of the people. It was rumored on the street and in the houses all last summer that a rich firm wanted to purchase the railway and amalgamate it with the ferry company, when the people would be given a reduced fare. Another rumor, which further misled the people, was to the effect that a group of financiers was going to municipalize the ferry and street railway and probably everybody would then be carried for next to nothing. All these stories were spread with considerable satisfaction and caused enmity against the street railway mortgage owners, who would be glad to be relieved of the ownership, for only the return of the money they have in it. But these unscrupulous promoters did not inform the overburdened taxpayers of the respective municipalities that they were going to do all this with an issue of bonds, which would have to be paid for in extra taxes. It's an ill wind which blows nobody good. Next spring and summer the south shore residents may be a wiser but saner lot than they were last year."

Editor's Note.—The Levis Tramway Co.'s service was closed down on Nov. 20, 1921, owing to the impossibility of arriving at any satisfactory arrangement with the municipalities, since which no local transportation service has been given, except what is furnished by a couple of auto buses belonging to a local garage and run between Levis ferry and Lauzon intermittently. Until recently no move was made by either the company or the public to break the deadlock, but in the middle of February a delegation waited on the Quebec Prime Minister and asked that something be done to secure car operation. We are advised that until satisfactory arrangements can be arrived at between the company and the municipalities, the company cannot raise capital to refinance its heavy fire loss, and that the only service which it will be possible to give in the spring, after the snow has gone, will be what the few cars left after the fire will be able to give.

Canadian Electric Railway Association's Activities.

The Canadian Electric Railway Association's executive committee met at Montreal Jan. 30, those present being G. Gordon Gale, President, in the chair, Major F. D. Burpee, Vice President, A. Gaboury, W. S. Hart, R. M. Reade, C. L. Wilson, and L. E. Moreland, Secretary.

It was reported that member companies had approved unanimously of the new schedule of annual fees, subject to the adoption of an amending bylaw at the next annual meeting.

The President was requested to keep in touch with other associations in regard to the report on the location of power transmission lines, and to attend the conference proposed to consider the matter.

A. Gaboury, chairman of committee on traffic regulation and accident prevention, reported progress with local authorities.

C. L. Wilson drew attention to a recent municipal regulation in Toronto requiring all vehicles to carry lights at night after July 1, 1922.

The President reported satisfactory progress with the Post Office Department, respecting remuneration for carrying mails, and that companies paid on a lump sum basis are receiving renewal contracts based upon the new mileage rate.

An invitation for the Association's representation at a meeting in Montreal, on Feb. 6, to consider a proposal to form an all-Canadian electrical association, was considered, and it was decided that such an association would not be desirable from the C.E.R.A. standpoint, but that an advisory council might be appointed to encourage co-operation and to avoid overlapping of activities.

Applications for active membership from Brandon Municipal Ry., Brandon, Man.; Cornwall St. Ry., Light & Power Co., Cornwall, Ont.; Lethbridge Municipal Ry., Lethbridge, Alta.; and Port Arthur Civic Ry., Port Arthur, Ont.; and for associate membership from Canadian Brill Co., Preston Ont., were approved, subject to confirmation of an amending bylaw at the next annual meeting.

R. M. Mayne-Reade, Superintendent, Quebec Ry., Light & Power Co., was appointed chairman of the exhibit committee, and given full charge of arrangements for the exhibit to be held at Quebec, Que., in connection with the annual meeting on June 1 and 2. A. Gaboury,

Superintendent, Montreal Tramways Co., and D. Campbell, Preston, Ont., representing manufacturers, were also placed on the committee, and the chairman was authorized to appoint other members should he deem it advisable.

A draft programme for the ensuing annual meeting was approved, subject to alterations which may be recommended by the entertainment committee, of which W. J. Lynch, General Manager, Quebec Ry., Light & Power Co., was appointed chairman.

C. L. Wilson, Assistant Manager, Toronto & York Radial Ry., outlined proposals regarding jitneys, and motor bus operations, and proposed legislation.

Quebec Electric Companies' Legislation.

The Quebec Legislature has under consideration two important bills dealing with power development projects by amending the Montreal Public Service Corporation's and the Canadian Light & Power Co.'s charters.

The Canadian Light & Power Co. was incorporated in 1904, to develop and distribute electric power and energy in Montreal, and in Laval, Jacques Cartier, Hochelaga, Laprairie, Chateauguay, Beauharnois, Two Mountains, Argenteuil, Soulanges, Vaudreuil, Terrebonne, L'Assomption, Chambly and Huntingdon counties, with power to acquire the franchises and charter rights of other companies having similar objects within its territorial limits. In 1909, the company was authorized to acquire the Montreal Light, Heat & Power Co.'s works, but was prohibited from selling any of its rights or franchises to the Montreal Light, Heat & Power Co. or to any of the companies affiliated thereto. In 1910 the company was authorized, among other things, to acquire and to hold stock in electric railway companies within its territorial limits, but was prohibited from operating an electric railway.

The company's present application to the Legislature is for a number of amendments to its charter, one of the important ones being the authorization to sell its undertaking or any part thereof to the Montreal Public Service Corporation.

The Saraguay Electric & Water Co. was incorporated in 1908 to develop and distribute electricity for lighting, heating and power, and for taking over the Saraguay Electric Light & Power Co.'s property, and after undergoing some amendments in 1910 and 1911 the title appears to have been changed in 1913 to the Montreal Public Service Corporation.

The present application to the Legislature is for authority to carry on its business within the limits of the Island of Montreal, Ile Byard and the counties of Two Mountains, Laval, Terrebonne, Montcalm, L'Assomption, Argenteuil, Hull, Pontiac, Labelle, Vaudreuil, Soulanges, Huntingdon, Beauharnois, Chateauguay, Laprairie, Napierville, St. Johns, Chambly, Vercheres, Rouville, Iberville, Missisquoi and Brome; to take over the Saraguay Electric Light & Power Co., and any other similar company, including the Canadian Light & Power Co., and the Montreal Electric Light Co. A section is proposed to be added providing for the acquisition of electric companies' shares, but the company is to be prohibited from operating an electric railway.

According to local press reports, the object of the legislation is to combine in

one large concern the whole of the electric power companies with a capital of approximately \$100,000,000; the development of additional water powers, the acquisition of stock in electric railways, and industrial plants using electrical energy and light. E. A. Robert, President, Montreal Tramways Co., is at the head of the organization promoting the amalgamation. One report states that it is the intention of the amalgamated concern, in addition to providing for the needs of Montreal and its vicinity, to build two trunk lines through its territory to the United States border, where it is stated that contracts are under arrangement for the supply of 100,000 h.p.

Motor Omnibus Notes.

The British Columbia Electric Ry. is reported to have expressed its willingness to operate a motor bus service on Broadway West, from the end of its line at Trafalgar St. to Alma Road, provided the city will put the roadway into proper shape.

The Attorney General has introduced a bill in the Ontario Legislature, to authorize the Hydro Electric Power Commission of Ontario to operate buses in connection with its Hydro Electric Railways, Essex Division, formerly Sandwich, Windsor & Amherstburg Ry.

Hamilton, Ont., Board of Works, is reported to have been advised by the City Solicitor that a franchise cannot be granted for the operation of a motor bus service in the city, but that licenses could be issued for buses by the police commissioners.

The St. Thomas, Ont., City Council is applying to the Ontario Legislature for power, among other things, to operate motor bus lines. It is reported that this is the first step towards the abandonment of the St. Thomas Municipal Ry., which has been a losing concern for years.

The provision of motor bus transportation on streets in Hamilton, Ont., not served by the Hamilton Street Ry. lines is reported to be the object of a company which is being organized. An application for permission to use the streets for such a purpose is expected to be made to the city council at an early date.

The Hamilton, Ont., City Council's works committee gave consideration Feb. 7 to E. S. Merritt's application for a franchise to operate a motor bus service. He proposes to operate buses on two routes, one from Main and James Sts. to Ottawa and Main Sts., and the other from King and James Sts. to Ottawa and Barton Sts., giving a continuous service from 6 a.m. to 1 a.m., the fare to be 5c. from 6 a.m. to 10 p.m., and 10c. from 10 p.m. until 1 a.m. The license fee for such buses would, it was stated, be \$2 a seat, and it was proposed that if a franchise be granted the grantee shall pay a similar percentage of its receipts to the city as the Hamilton Street Ry. Co. does. Mr. Merritt asked for immediate consideration, stating that he was in a position to start the service with two buses in 10 days, but the works committee decided to refer the matter to the street railway committee.

The City of St. Thomas is applying to the Ontario Legislature for an act to authorize it to pass a bylaw for the following purposes:—To purchase or lease, and use and operate over and along the streets and to and through the public

parks, buses or vehicles for the conveyance of passengers, driven by electricity, gasoline or other motive power; and to fix, charge and collect rates of fare therefor; and to use and substitute such buses or vehicles in place of the St. Thomas St. Ry. cars, if and when found expedient; and to alter and vary the routes of such street cars and buses as traffic may require; and to include the cost of providing such buses and any deficit in operating the same, in the annual estimates of expenditure from time to time; and, with the assent of the electors, to pass a bylaw or bylaws to pay the cost of purchasing such buses. The reason given for asking this power is the loss incurred in operating the street railway.

Ottawa Traction Co.'s Annual Report and Meeting.

The following eighth annual report for the calendar year 1921 was presented at the annual meeting in Ottawa recently: The amount received from The Ottawa Electric Ry. Co. during the year was \$279,060, with which was paid the usual quarterly dividends of 1%, and a bonus of 1%. The Ottawa Electric Ry. Co.'s established record was continued during the year, and the company's plant and equipment were maintained in an efficient condition. New rails were laid on Wellington St. and on Somerset St. between Bank and Bay Sts. The new St. Patrick St. bridge was opened for traffic, and the company's service resumed through to New Edinburgh.

The directors were re-elected, and Major F. D. Burpee, the company's Manager, was added to the board, which is now constituted as follows:—T. Ahearn, President; W. Y. Soper, Vice President; T. F. Ahearn, E. N. Soper, T. Workman, Lt.-Col. G. P. Murphy, C.M.G., J. F. Smellie, G. F. Henderson, K.C., and Major F. D. Burpee. The Secretary-Treasurer is G. L. Snelling.

Ontario Electric Railway Legislation.

The Attorney General introduced a bill in the Ontario Legislature Feb. 17, to facilitate the consummation of the "clean up" of the Mackenzie electric power, lighting and railway properties in Toronto. The bill provides for ascertaining the liabilities of the properties to be taken over, which is necessitated by the fact that owing to the existence of certain bond issues it was found impossible to have the transaction take the form of a sale of physical assets. It is therefore necessary to deal with the matter on the basis of a sale of the shares of the company controlling the assets. The bill also makes provision for the protection of the Hydro Electric Power Commission of Ontario, and the City of Toronto in respect of some aspects of the transfer.

Another bill was introduced by the Attorney General on Feb. 18, authorizing the Hydro Electric Power Commission of Ontario, as operating the Sandwich, Windsor & Amherstburg Ry., to put on a line of motor buses to cover a route between Windsor and Walkerville.

A Toronto daily paper stated early in February that the Canadian Car & Foundry Co. intended establishing a plant in Toronto, particularly to build and repair cars for the Toronto Transportation Commission. We are officially advised that the report was without foundation.

Detroit United Railway Annual Report and Meeting.

The report for the calendar year 1921 presented at the recent annual meeting in Detroit, Mich., showed the gross income, less operating expenses, as \$4,616,512.94, against \$4,637,181.04 in 1920, Sandwich, Windsor & Amherstburg Ry. results being included to March 31, 1920, only, when it was transferred to the Ontario Hydro Electric Power Commission.

Operating revenues decreased \$5,657,160, or 19.5%, due mainly to the reduction in the rate of fare in Detroit from 6c. cash with free transfers, to 5c. cash and 1c. for transfer, effective June 19, 1921; the reduction in the rate of 2c. a mile to 1½c. a mile, 25%, on interurban lines, effective Sept. 1, 1921; the business depression and economic conditions obtaining during the entire year and to the competition from jitneys and organized motor bus service. On Jan. 30, 1922, the rate of fare on interurban lines was put back to 2c. a mile, the rate which was in effect prior to Sept. 1, 1921, this action having been approved by the Michigan Public Utilities Commission. The operating expenses decreased \$5,596,384.75, or 22.3%, due in part to the decrease in rates of wages of conductors and motormen for eight months of 1921 and other employees for the entire year; in part to decreased cost of materials and supplies, and in part to rigid economies effected in operation.

The balance sheet includes \$261,933.89 loss on sale of Canadian properties, which is probably the difference between the amount received from the Ontario H.E.P. Commission for the S.W. & A. Ry. and the amount at which the property was carried on the company's books. Payment for these lines was made by the Commission's bonds for \$679,000.

The outstanding events affecting the operation of the properties during 1921 were: The beginning of the operation in February of the lines constructed by the City of Detroit; the defeat of the company's proposed service at cost ordinance by a vote of the people at the April election; the sale by the company to the city of a portion of its day-to-day lines, together with certain cars and equipment, at a price fixed by the arbitrators as approved in the various day-to-day agreements; the offer of the city of \$388,000 for certain portions of the Woodward Ave. and Fort St. lines, on which franchises had expired, and the refusal by the company to accept the offer; the vote of the people at the November election to oust the company from the Woodward Ave. and Fort St. lines where the franchises had expired; agreement with the city for the joint operation of certain lines, part of which are owned by the company and part by the city, with the inauguration of exchange system of universal transfers between the company and the city; negotiations between the company and the city for the lease or sale of the major portion of the company's property in the Detroit one fare zone to the city, no mutually acceptable basis having as yet been arrived at.

The Mayor of Detroit, who attended the annual meeting, is reported to have stated there that the company must agree to sell its lines to the city within a month, or face the consequences. The Board of Street Railway Commissioners advised the company as follows:—"If, at your stockholders' meeting, Feb. 7, you do not authorize the sale of your property to the city, on terms satisfactory to the

city, or empower your directors or a commission to arrange the sale subject to ratification by your stockholders at a special meeting called promptly for that purpose, the Commission are of the opinion that any further negotiations would be of no avail and each side should then proceed according to its legal rights."

Prior to the recent annual meeting, Montreal shareholders had only one representative on the directorate, A. J. Ferguson, but the meeting elected seven Montrealers, H. Blouin, P. A. Blouin, J. O. DeMarais, J. E. Gill, A. A. Gingras, L. A. Gosselin, and C. Larandean, while the minority shareholders elected four directors, A. F. Edwards and J. C. Hutchins, Detroit; A. J. Ferguson, Montreal; and E. W. Moore, Cleveland, Ohio.

A Detroit press dispatch of Feb. 27 stated that the company had agreed to accept the city authorities' offer of \$19,850,000 for its lines of some 300 miles in the city, \$2,770,000 to be paid down and



Major F. D. Burpee,
Manager and Director, Ottawa Traction Company.

the remainder in annual instalments of \$500,000, the question of confirming the city authorities' action to be voted on by the citizens on April 15, and that whatever the result the company will continue to operate its interurban lines.

Mainly About Electric Railway People.

Sir Adam Beck, Chairman, Hydro Electric Power Commission of Ontario, and Miss Beck, left Toronto at the middle of February to spend some three weeks in North Carolina. Shortly after his arrival at Asheville, Sir Adam was attacked with bronchitis, and was seriously threatened with pneumonia, but on Feb. 24 he was reported as considerably improved.

Major F. D. Burpee, Manager, Ottawa Electric Ry., Ottawa, Ont., and Vice President, Canadian Electric Railway Asso-

ciation, who has been elected a director of Ottawa Traction Co., was born at Ottawa, Apr. 25, 1876, and commenced railway work in 1891 on District 4, Eastern Division, C.P.R., Ottawa, and transferred to Ottawa Electric Ry. service in 1893, since when he has been, to 1896, stenographer; 1896 to 1898, cashier and paymaster; 1898 to Aug. 1912, accountant, during which time he also acted as assistant to the Secretary-Treasurer, and to the Superintendent. In Aug. 1912, on the resignation of Lt. Col. J. E. Hutcheson, to become General Manager, Montreal Tramways Co., he was appointed Superintendent. He enlisted in the 207th Battalion, C.E.F., in Feb. 1916, assisted in recruiting the battalion, and sailed for England as second in command in May 1917, with the rank of Captain, where the battalion was eventually broken up. He then transferred to the Canadian Railway Troops, reverted to the rank of lieutenant and went to France July 7, 1917, and was engaged at points all over the British front, becoming Captain and then Major. He returned to Canada early in 1919, and resumed his duties as Superintendent, Ottawa Electric Ry., in March 1919, and in 1920 was appointed Manager.

J. W. Horne, who died at Vancouver, B.C., Feb. 22, aged 82, is stated in a press report to have been one of the organizers of the company which built the first electric railway there and to have been its President and Managing Director for a number of years.

C. H. Ivey, barrister, London, Ont., and Vice President, London St. Ry. Co., died at Naples, Italy, Jan. 27, of paralysis.

George Kidd, General Manager, British Columbia Electric Ry., left Vancouver, Jan. 23, for London, Eng., to attend the annual meeting. He was accompanied by Mrs. Kidd.

A. W. McLimont, Vice President and General Manager, Winnipeg Electric Ry., returned to his office, Feb. 6, after having recovered from an attack of influenza.

W. R. McRae, Superintendent of Rolling Stock, Toronto Transportation Commission, has been elected First Vice President of the Engineer's Club, Toronto.

J. J. Wright, formerly Manager, Toronto Electric Light Co., who is said to have built Canada's first electric railway, which was a stub line between Strachan Ave. and the eastern entrance to the Toronto Exhibition grounds, died at Newcastle, Ont., Jan. 31.

Electric Railway Notes.

The New Brunswick Power Co. has, as stated in Canadian Railway and Marine World for February, been negotiating with car manufacturers in Europe for new cars for its electric railway in St. John, but up to the date of our latest advice, had not come to a conclusion. We are informed that about 10 cars will be ordered if a satisfactory price can be obtained.

A fare box was stolen from a British Columbia Electric Ry. car near Bodwell Road, South Vancouver, recently, but the thief made nothing of a haul, as the run had been a light one, only six tickets having been taken in.

The Vancouver, B.C., Electric Club passed a resolution recently congratulating and commending the B.C. Electric Ry. management for the efficient manner in which the change of the rule of the

road was put into effect.

Edmonton, Alta., City Council is reported to have fixed the salary of the Superintendent of the Edmonton Radial Ry. for 1922 at \$3,000, the same as in 1921.

Ottawa, Ont., City Council, on Feb. 7, authorized Commissioner of Works Macallum to ascertain as to the best street railway expert to assist the city in drafting a new franchise for the Ottawa Electric Ry. Co. Ten thousand dollars was appropriated in this connection.

The Hamilton, Grimsby & Beamsville Electric Ry. filed with the Ontario Railway and Municipal Board recently a new time-table, in accordance with the Board's judgment as given in Canadian Railway and Marine World for February. The new table cuts off five minutes in the time of all westbound cars. It was approved by the Board, Feb. 1.

The Montreal Tramway Employees Union and the Montreal Trades and Labor Council have not been in full agreement for some time past, and the differences culminated at the election of the council's officers Feb. 2, to which meeting the council refused to admit more than 25 representatives from the union. The

union delegates then withdrew, and it is reported the union has decided to conduct its affairs independently of the Trades and Labor Council.

The Toronto Transportation Commission has ordered 8 motor dump cars from Differential Steel Car Co., Findlay, Ohio.

The Toronto Transportation Commission has received an additional 4 cars from Canadian Brill Co., Preston, Ont., making 12 in all, out of an order of 50. These were not ready for service when received, it being necessary to make certain alterations and adjustments before placing them on their routes.

The Montreal Tramways Co. was sued in the Quebec Superior Court recently by J. E. Lefebvre, clerk, 25 years of age, to recover damages of \$31,891.75 for the loss of his right arm in a street car accident, Dec. 5, 1920. One of the company's cars jumped the track at night at the corner of Maplewood and Decelles Aves., and the plaintiff received injuries to his right arm, which necessitated its amputation. Mr. Justice Bruneau said the only question before the court was the amount of damages, and on proof put in regarding plaintiff's capacity and ability, decided that \$12,000 would be reasonable compensation.

able to make application to the Dominion Government for your company's undertakings to be placed under the control of the Board of Railway Commissioners permanently, and gave notice accordingly. The notice was withdrawn in deference to the wishes of the mayor and council of Vancouver, who stated that it would be preferable from their point of view if the company could make some direct agreement with reference to fares and rates with the various local municipal authorities concerned. Negotiations were then opened, with this object in view, and to cover the interval, an agreement was entered into with the local municipal authorities which conferred upon the company the right to continue charging the 6c. fare until July 1, 1922, in consideration of the company withdrawing its application to the Dominion Parliament to have its undertaking placed under the control of the Board of Railway Commissioners. The negotiations proceeded satisfactorily and an equitable agreement for a revision of the company's franchises was arrived at with the Vancouver City Council, but certain local opposition developed, with the result that the agreement drawn up was not adopted. Your directors are giving consideration as to the best steps to be taken to preserve the company's interests when the present agreement for the regulation of fares expires on July 1, 1922.

Notwithstanding the depression which has existed for some time past, the indications from traffic returns and from light and power department results are that the earnings of the company will be maintained during the year to July, 1922. The demand for light, power and gas continues to be brisk in consequence of the large amount of building going on in various districts. While there has been a falling off in the consumption of some power customers, particularly in the lumber industry, this appears to be only temporary, and with renewal of the demand for lumber by the prairie markets, the mills may soon be expected to resume operation. There have been many valuable power customers added during the year.

The directors desire to record their very great appreciation of the valuable services rendered by the management and staff during the past year. During the year one of the directors, T. Blundell Brown, visited B.C. and spent some months in going thoroughly into the company's affairs. R. M. Horne-Payne and Sir Ernest Harvey, who are due to retire at the annual general meeting, and Sir Frank Barnard, who retires in accordance with the articles of association, offer themselves for re-election.

The Quebec Ry., Light & Power Co. has bought 10 electric car bodies in New York, and is fitting them to trucks in its own shops, after which they will be placed in operation as cars of the p.a.y.e. type. Following are the chief details:—

Seating capacity	40
Weight, car complete	36,000 lb.
Length over body	28 ft.
Length over vestibules	40 ft.
Width over all	70 ft. 10 in.
Material	Wood
Roof	Monitor
Underframe	Wood
Cables	Quebec Ry.
Air brakes	Westinghouse SME
Control	Single end K35 G2
Fenders	H.B. lifeguards
Motors	Four 101 B2
Gear ratio	15-69-5 in. face
Seating material	Rattan
Heaters	Consolidated Car Heating Co.
Hand brakes	Peacock
Sand boxes	Brill dumpit
Headlights	Crouse-Hinds

British Columbia Electric Ry. Co.'s Annual Report and Meeting.

The following 24th annual report for the year ended June 30, 1921, was presented at the annual meeting in London, Eng., recently:—

The following charges have been made against revenue account:—

Provision for depreciation, sinking fund and renewals	\$149,712	4	9
Provision for corporation profits tax	29,000	0	0
	\$178,712	4	9

The net revenue from all sources, after making the above deductions, amounts to ..	\$421,277	1	11
To which is added balance brought forward from 1919-1920 ..	12,645	18	3
	\$433,923	0	2

Deduct, interest on debentures and debenture stock to June 30, 1921, \$132,231 4s.; dividend paid on 5% cumulative perpetual preference stock for year ended June 30, \$72,000; interim dividend on preferred ordinary stock for the year to June, 1921, at 3½%, free of income tax (and income tax thereon), \$66,098 7s. 2d.; interim dividend on deferred ordinary stock for the year to June 30, 1921, at 3½%, free of income tax (and income tax thereon), \$66,098 7s. 2d.....	336,427	19	1
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Leaving available for further distribution ..	\$97,495	1	1
From this the directors have decided to recommend the payment of a final dividend on preferred ordinary stock at \$1 3s. 8d. per annum, free of income tax, making, with the dividend of \$3 10s. paid Aug. 18, 1921, \$4 13s. 8d., free of income tax, for the year (and income tax thereon), \$22,347 10s. 10d.; to recommend the payment of a final dividend on deferred ordinary stock at the rate of \$2 14s. 2d. per annum, free of income tax, making, with the dividend of \$3 10s. paid Aug. 18, 1921, \$6 4s. 2d., free of income tax, for the year (and income tax thereon), \$51,147 10s. 10d.....	73,495	1	8

Leaving, to carry forward to next account ..	\$23,999	19	5
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Having regard to the general depression in trade and industry which has been prevalent throughout the world and

from which Canada has not been immune, the results of the year are satisfactory.

Owing to the high cost of living, the company had to concede demands for increased wages in Oct. 1920, but since that time there has been a substantial fall in the cost of living and an adjustment of wages in a downward direction is being made. On the other hand, taxation continues to increase. The following statement shows the amount paid for the year 1921, as compared with 1919:—

	1919	1921
Dominion Government income tax ..	\$67,031	\$138,000
B.C. Government revenue and property and land tax	69,550	97,085
Municipal taxation	153,555	212,850
	\$290,136	\$448,935

The above figures include taxes paid by or assessed against the Western Power Co. of Canada during these years. In addition there is a sales tax, the cost of which runs up to 3% of the value of goods purchased and it is estimated that the cost of his tax to the company is not less than \$35,000.

In the balance sheet, amongst the investments in subsidiary companies, there is an item of \$611,608 15s. 1d. representing investment in the Western Power Co. of Canada. This includes \$5,758,100 or 98.43% of the entire preferred and ordinary share capital of that company. The acquisition of that company has enabled your company to effect substantial economies in administration, and to increase the efficiency of the service to the public.

In last year's report it was stated that a provision had been incorporated in the Dominion Act of July 1, 1920, for the retention of your company's railways under the Dominion Board of Railway Commissioners for one year from the passing of the act, viz., until July 1, 1921, and that the question as to what authority would regulate rates and fares then, was undecided and was engaging the directors' attention. In the absence of any other body charged with the duty of regulating rates and fares, your directors came to the conclusion that it was desir-

Marine Department

General Shipbuilding Matters Throughout Canada.

Dredge and Tug Repairs.—The Public Works Department, Ottawa, received tenders to Feb. 14 for repairs, renewals, etc., required to dredge 110, dredge 116, or tug Witherbee, which are now in the Champlain drydock, Levis, Que.

G. F. Askew, Vancouver, B.C., is, as mentioned in our last issue, building a stern wheel steamboat for the Hudson's Bay Co. She will be assembled at Vancouver and shipped in knock down shape to McMurray, Alta., where she will be reassembled for service on the Athabasca River, Athabasca Lake, and Slave River, between McMurray on the south, and Fort Fitzgerald on the north. Her dimensions will be,—length 146 ft.; beam 36 ft.; depth of hull 6 ft.; cargo capacity 200 tons; draft, light, about 18 in.; draft, loaded, about 36 in.; speed, loaded, in smooth water, about 13 knots. The machinery will consist of non-condensing stern wheel type of engine, supplied with steam by a locomotive type boiler, all built by Polson Iron Works, Toronto, and which is now lying at McMurray, ready for installation. She will be fitted with electric light, steam steering gear and steam capstan, and will have accommodation for about 58 persons on the saloon and texas decks. The hull is expected to be at McMurray about March 1, and it is intended to have the boat, which will be named Athabasca River, ready for operation on the opening of navigation in May.

Canadian National Rys., Grand Trunk Pacific Drydock, Prince Rupert, B.C.—Since the commencement of operation of this property by the C.N.R., in Nov. 1921, the yard has been fairly busy, chiefly with repairs to fishing ships, a large number of which make their headquarters at Prince Rupert. A large number of these are quite small, but among the larger ones, was included the U.S. fishing ship Pioneer, which was driven on the rocks during a heavy gale recently. The West Coast Towing & Salvage Co.'s steam tug Masset was docked and her propeller changed. Other work covered the docking and repair of the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Albert, after grounding at Lockport, Queen Charlotte Islands.

The Manager has secured an order from the British Columbia Public Works Department for a steel ferry, for operation on Francois Lake, about 250 miles inland along the Grand Trunk Pacific Ry. It will be fabricated and assembled at the plant, knocked down, and shipped by rail to Francois Lake, where it will be completed by the plant's staff. The contract includes the construction of a wooden cradle, which will be built on marine ways, and installed by the Public Works Department.

J. H. Pillsbury is Manager; A. E. Litter, Superintendent Engineer, and H. White, accountant.

Canadian Vickers Ltd., Montreal, is repairing six steamships for the George Hall Coal Co. of Canada.

Collingwood Shipbuilding Co., Collingwood, Ont., has received an order from National Sand & Materials Co., Welland, Ont., of which David Dick, Jr., is President, for a special type steamship for securing and carrying sand and gravel.

The ship will be 258 ft. overall, 43 ft. beam, 20 ft. deep, and will have a dead-weight carrying capacity of approximately 3,000 tons. It will have a single screw and will be complete with all necessary auxiliary machinery, including refrigerating plant, electric light plant, special windlass, winches, etc. The main propelling engine will be triple expansion surface condensing, cylinders 19, 32 and 56 x 36 in. stroke, taking steam from 2 boilers 14 ft. 7 in. in diameter by 10 ft. 8 in. long, 180 lb. working pressure, natural draft, indicated h.p. 1,400. The machinery and boilers will be placed aft. The hold will be divided into two large hoppers, each 60 ft. long, and which will carry approximately 2,000 cu. yd. of sand and gravel. Between the hoppers will

large clamshell buckets. These will remove the material from the hold and discharge into a special hopper amidships, the material falling on to an elevator arrangement which will pass it up to a conveyer which will discharge it on the dock. The space between the main hoppers at the ship's side will be divided into several compartments and there will be a trimming tank and fore peak tank forward. There will be a dry tank under the boilers and water ballast tank under the engine room. The ship will be built under the British Corporation for the Survey and Registry of Shipping rules, will be classed B.S. and will embody all the latest improvements for a ship to suck and carry sand and gravel. The ship will work in rivers and lakes, and will be specially built to supply material for very large contracts. It will be the first of the kind to be built in Canada. Delivery is expected to be made about the middle of the summer.

Collingwood Shipbuilding Co., Kingston, Ont., is repairing the Keystone Transports' s.s. Keybell, which was damaged during a storm at Kingston, Ont., Dec. 17, 1921. The work consists of removing, repairing and replacing 40 plates. It is expected that this will be completed during March.

Fletcher Ship Repairing Co., Levis, Que., is operating the shipbuilding and repairing plant at Hadlow, near Levis, Que., run formerly by the National Shipbuilding Co., which has a marine boiler plant at Goderich, Ont. The plant was originally organized by Hutchison & Dussault, who carried out a number of repair contracts on different types of ships. One of the most interesting operations done there was the conversion of the Dominion Government dredge Galveston into a freight steamship, for sale to the French Government, which was fully described and illustrated in Canadian Railway and Marine World for Jan. 1919. The Fletcher Ship Repairing Co. obtained a lease of the plant for seven years, in 1921, and has executed several small contracts on Dominion Government steamships. The company was incorporated with an authorized capital of \$500,000, and head office at Montreal, the directors being W. F. Fletcher, of the Hall Engineering Co., Montreal, President; W. I. Bishop, President, William I. Bishop Ltd., contractors, Montreal, Vice President; A. W. Thwing, Secretary-Treasurer, William I. Bishop Ltd., Secretary-Treasurer; W. H. Baker, formerly with Davie Shipbuilding & Repair Co., Levis, Que., and C. A. Chauveau, K.C., Quebec, Que.

Fraser Brace Shipyards Ltd., Montreal, has received an order from George Hall Coal Co. of Canada, for 4 Welland Canal size bulk freight steamships, of approximately 3,500 gross tons displacement. They will be built at the shipbuilding yards at Three Rivers, Que., operated formerly by the National Shipbuilding Corporation, Three Rivers Shipyards Ltd. Division, now in bankruptcy. It is expected that they will be ready for operation about September.

Halifax Shipyards Ltd., Halifax, N.S., did the following repair work recently: U.S. Shipping Board's s.s. Brant County,

Dominion Marine Association.

Honorary President, A. A. Wright, President, Tidewater Shipbuilders, and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

President, T. R. Enderby, Operating Manager, Canada Steamship Lines, Montreal.

First Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Second Vice President, G. J. Madden, George Hall Coal Co. of Canada, Ogdensburg, N.Y.

Executive Committee, The President, First and Second Vice Presidents, and W. E. Burke, Canada Steamship Lines, Montreal; Yvon Dupre, Sincennes-McNaughton Line, Montreal; M. J. Haney, Canada Steamship Lines, Toronto; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transports, Montreal; Honorary members, L. L. Henderson and A. A. Wright, Montreal.

Counsel, Francis King, K.C., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

be a space 10 ft. long which will contain the hoisting and trawling machinery. The pump room will be built forward of the forward hopper to accommodate two 8 in. centrifugal pumps, direct connected to compound condensing engines having cylinders 13 and 26 x 14 in. stroke. The 18 in. suction from each of these pumps will be direct connected to the shell 5 ft. above the keel and a special feature of the ship will be the recessing of the shell plating, accommodating guides, down which the outboard suction pipe flange will slide. These suction pipes will be portable and will be removed when the cargo has been loaded. The pumps will discharge the material on to troughs running over the top of the hoppers. The excess water will be discharged through specially designed spillways at the end of each hopper. The captain and crew will be accommodated forward, and the deckhouse aft will contain the dining saloon, messroom, galley, engineers, etc., etc. A special unloading device will be erected on A frames and run the full length of the hopper to accommodate

bottom damage through stranding in the St. Lawrence near Quebec; Canadian Government Merchant Marine steamships Canadian Spinner, scraping and painting, and Canadian Hunter, scraping and painting, and drawing old propeller and placing a new one; Canada Steamship Lines' s.s. Mapledawn, slight damage to hull, sustained while at pier at St. John, N.B.

W. R. Menchions & Co., Vancouver, B. C., is building a steel motorship for the Powell River Pulp & Paper Co. Her dimensions are,—length 132 ft., beam 19½ ft., draft, about 8 ft. She will be equipped with two masts, and power will be supplied by a powerful semi-Diesel engine. The hull is practically completed, and work is proceeding on the superstructure. This is the first large ship to be built at this yard.

Midland Shipbuilding Co., Midland, Ont., has the following repair work:—Great Lakes Transportation Co. steamships, Glenbrae, removing and replacing 4 plates on port bow; Glenisla, retubing 2 boilers; Glenlivet, hull repairs to bow and stern, removing and replacing 7 plates, and repairing port hawse pipe; Glenlyon, stern damage, port side aft, removing and replacing 3 plates, new steel forecastle deck and crew's quarters, and repairs to heating and plumbing; Glenmavis, general overhauling after overseas service, renewing steam and water lines, general repairs to crew's quarters and cabins, retubing boilers where found necessary, hull damage in no. 1 hold through grounding in Welland Canal, removing 5 broken plates and replacing by new ones, removing and replacing 6 plates on port bow and 7 plates on starboard bow; Glenstriven, removing and replacing 2 plates, one on port bow and one on starboard bow, and retubing two boilers; Glen Transportation Co.'s s.s. Glenafton, canal damage, removing and replacing 3 plates on port bow; Glen Steamships Ltd. steamships Glenarm, Glenfarn and Glendowan, new electric installations throughout, rearrangement of cabins, new ice machines, new double smoke stacks, 2 mooring winches, and general overhauling of each ship after ocean service; Canada Steamship Lines' s.s. E. B. Osler, removing and replacing 3 plates on port bow.

Three Rivers Shipyards Ltd., Three Rivers, Que.—The City of Three Rivers is appealing against a Superior Court judgment, by which it was ordered to pay \$88,000 balance of debentures unsold, and \$2,640 for interest coupons unpaid on Sept. 1, 1920, under its guarantee of \$100,000 of debentures issued by Three Rivers Shipyards Ltd., and underwritten by the Sun Trust Co. The case came before the Appeal Court at Quebec, Que., Feb. 4, and judgment was reserved. (See also Fraser Brace Shipyards Ltd.)

Vancouver Shipyards Ltd., Vancouver, B.C., has done the following repairs recently: Coast Steamship Co.'s s.s. Celtic, repairs to guard; s.s. Westham, repairs to rudder, etc.; s.s. Clinton, deck repairs; s.s. Forager, general repairs; Beaver Towboat Co.'s s.s. B.C. Boy, general repairs.

Victoria (B.C.) Shipowners Ltd., Victoria, B.C.—Capt. M. D. Harbord, President, is reported to have waited on members of the Dominion Government at Ottawa, during February, to learn what the Government's attitude will be towards the shareholders of the company, which is bankrupt. The previous Government, to alleviate unemployment in Victoria,

following on the close of the war, and to assist in the civil re-establishment of returned soldiers, granted special aid towards the construction of four wooden barkentines by the company, which were to be built at the Cholberg shipyard, Victoria. Before the first of these was completed, the company was in financial difficulties, and under the terms of the loan, the Government was compelled to take over the ships, as they were. The first one, named Simon F. Tolmie, was subsequently finished, and handed over to Canadian Government Merchant Marine for operation. Tenders were invited for the completion of the second one, towards the end of 1921, but we were officially advised Feb. 14, that the Marine Department had arrived at no decision on the matter. Ever since the Government has acted on its lien against the ships, finished or unfinished, the company has claimed that it has been placed in an anomalous position, as it has lost the whole of its assets, and the shareholders claim that the Government should come to their assistance, and not only release them of creditors' claims, but also from any liability they may be under in respect of shares held, or subscribed for.

Victoria Machinery Depot Co., Victoria, B.C.—The repairing of the C.P.R. barge no. 8, which grounded in the Porlier Pass in Dec. 1921, was expected to be completed at the end of February, or early in March. She was found to be pretty badly damaged, necessitating the entire renewal of 30 shell plates, several to be taken out and faired, and others were faired in place. A few bulkheads were renewed, and indentations on the deck straightened out. The Canadian Government Merchant Marine s.s. Canadian Winner received a general overhaul, and afterwards loaded a general cargo at Vancouver, sailing for Yokohama and Shanghai at the end of January. A general overhaul was also given the C.P.R. tug Nitinat, during February.

Vulcan Iron Works, Vancouver, B.C., did the following repair work recently: C.P.R. s.s. Empress of Asia, repairs to boiler, and electric welding; C.P.R. s.s. Empress of Japan, repairs to boiler and electric welding; B.C. Canning Co.'s steam tug Edith, new funnel.

F. M. Yorke & Son, Vancouver, have built a car barge for the transfer of loaded cars from the north shore of Burrard Inlet to Vancouver. The barge has accommodation for 6 loaded railway cars, and has a deadweight capacity of 380 tons. She is 160 ft. long, 34 ft. broad, and has a depth of hold of 8¾ ft.

Steamship The Iroquois.—A. B. Mackay, formerly of Hamilton, Ont., and now of the Isle of Wight, Eng., who spent several months in Canada recently, is reported to have bought the s.s. The Iroquois, formerly owned by Canada Steamship Lines, and sold by that company during the war and transferred to the British register under the name Colorado. She was built at Toronto in 1902 for the St. Lawrence & Chicago Steam Navigation Co., and was originally named Tadenac. She is screw driven by engine of 79 h.p., and has the following dimensions,—length 260 ft., breadth 43.2 ft., depth 25.2 ft.; tonnage, 2,359 gross, 1,452 net.

The name of the s.s. Celestial Empire, owned formerly by Canadian Fishing Co., Vancouver, and bought by the Hecate Straits Towing Co., Vancouver, has been changed to Cape Scott.

Glen Steamships Limited.

Glen Steamships Ltd. has been incorporated under the Dominion Companies Act, with \$1,000,000 authorized capital and office at Midland, Ont., to carry on the business of transportation of merchandise, grain, coal and passengers by land and water; towing, wrecking and salvaging in all its branches, in waters within, and bordering on, the Dominion, and to and from Canadian and foreign ports; to own and operate ships of all kinds, wharves, piers, docks, shipbuilding yards, and general transportation facilities. The incorporators are:—Jas. Playfair, President and General Manager, Great Lakes Transportation Co.; D. L. White, D. S. Pratt, J. W. Benson, and F. W. Grant, Midland, Ont.

The chief object of the incorporation of the company is doubtless to take over and operate the six steamships bought from the French Government by Mr. Playfair and his associates, which were owned originally by the Great Lakes & St. Lawrence Transportation Co., Chicago, Ill., and were sold, with another four owned by the same company, to the French Government during the war. The six steamships bought by the Playfair interests were originally named George C. Howe, John Crerar, built at Chicago, Ill.; H. G. Dalton, built at West Superior, Wis.; J. S. Keefe, Robert Wallace, built at Buffalo, N.Y.; and S. N. Parent, built at Detroit, Mich., all in 1903, and on being acquired by the French Government were renamed Cabourg, Fouras, Courcelles, Parame, Tregestal and Veulettes, respectively. They all have steel hulls, built on the channel system, with steel tank tops where no ceilings are fitted, 3 watertight and 2 non watertight bulkheads each, steel boiler houses, electric light plants and steam pump wells. They are equipped with triple expansion engines and Scotch boilers, with the exception of the Courcelles which has water tube boilers.

The names now given the steamships are Glenarm, Glendowan, Glenfarn, Gleneley, Glengarnoch and Glendochart. The first three named are at Midland undergoing overhaul and repair by Midland Shipbuilding Co., the next two are at St. John's Nfld., and the last one is at Londonderry, Ireland, and will be brought out in the spring. Of the remaining four of the Great Lakes and St. Lawrence Transportation Co.'s fleet, one named John Sharples, built at West Superior, Wis., in 1903, was wrecked in the Great Lakes in 1912, sold to Reid and Baker, Sarnia, Ont., renamed Cicoo and later sold to the Glen Transportation Co., of which James Playfair is president; another named Albert M. Marshall was sold to the French Government during the war, renamed Brignogan, and has since been sold to George Hall Coal Co. of Canada, Montreal, and transferred to the Canadian register under the same name; the remaining two steamships which were sold to the French Government, named A. D. Davidson and John Lambert, were sunk by the enemy during the war.

Monmouth Steamship Co. Ltd. has been incorporated under the Dominion Companies Act, with \$100,000 authorized capital, and office at Toronto, to own and operate ships, drydocks, shipping terminals and other transportation facilities, and to carry on a general navigation business.

Shipping Federation of Canada's Annual Report and Meeting.

At the Shipping Federation of Canada's annual meeting in Montreal, Feb. 8, the President, R. W. Reford, presented a report for the calendar year 1921, as follows:—

Navigation opened with the arrival of the Canadian Government icebreaker Lady Grey on March 29, and officially closed on Dec. 14, with the departure of the s.s. George W. Clyde for Chicago with a cargo of sugar. The first ocean arrival was the Cunard freighter Venu-sia, from London on April 21, and the last ocean departure was the s.s. George R. Crowe on Dec. 8.

The total number of arrivals was 964 ships, representing 2,891,956 registered tons. Of this total 807, with a registered tonnage of 2,598,494, were trans-Atlantic, and 157, of 293,462 registered tons, were from the Maritime Provinces and Newfoundland. These figures show an increase of 301 ships of 860,227 registered tons over 1920.

The outstanding feature of the season's trade was the exceptionally large quantities of grain exported from the port, the total amount of which was 126,289,338 bush., as per manifests, of which 60,920,043 were carried in regular service steamships, and 65,369,295 bush. in tramp ships.

Exports of produce compared favorably with the previous season, butter, flour and meal showing an increase, while cheese and eggs decreased slightly. Comparative figures are as follows:—

	1921	1920
Cheese, boxes	1,441,779	1,407,548
Eggs, cases	214,203	271,773
Butter, boxes	70,369	10,357
Flour, sacks	3,326,806	2,439,536
Meal, sacks	392,207	42,975

Package trade, however, slumped seriously, and had it not been for the large export of grain, ships would have fared very badly for export cargoes.

Passenger traffic both eastbound and westbound through the ports of Montreal and Quebec showed a falling off compared with the previous year, as follows:—

Westbound—		
First class	4,426	
Second class	40,174	
Third class	72,381	116,981
Eastbound—		
First class	3,514	
Second class	25,256	
Third class	38,536	67,306
Total		184,287

World Shipping Conditions.—During the year the shipping industry experienced a period of depression which has rarely, if ever, been equalled, resultant upon the serious slump in trade and commerce which has affected the entire civilized world. The more immediate cause for the lull in overseas commerce is that countries impoverished by the war have been unable to purchase commodities at the high prices demanded by producers, and the unfavorable state of exchange has resulted in further demoralizing conditions. Yet while the trade of the world has shrunk to smaller dimensions than before the war, the world's aggregate shipping, which in 1914 stood at 49,000,000 tons, today stands at 62,000,000, so that owners necessarily have considerable difficulty in securing remunerative employment for this tonnage. They are face to face with the dilemma that owing to this scarcity of cargoes it is impossible to operate steamships except at a loss; while on the other hand, if ships

are tied up they deteriorate quicker than if kept in service. Forced sales by auction, not only of single ships, but of whole fleets, have been seen of late, and it is feared that this drastic weeding out process is likely to continue for some months to come. Almost without exception, every round voyage of a large ship today shows a loss of between £3,000 and £4,000, and with many of them heavily mortgaged the outlook is not reassuring. Present freights would be profitable if working costs were on a pre-war basis; but these costs are still in the neighborhood of 100% higher than before the war. Shipowners are in the unfortunate position that they cannot create cargoes, but must simply wait for a trade revival before the position can alter materially. In the meantime, all that can be done is to husband our resources and operate ships still more economically. Gloomy as the prospect seems to be, there is hope that ere long the tide will turn in the direction of prosperity, and this may best be expedited by co-operation of employers and employees.

The Hague Rules, 1921, were adopted by the International Law Association in Sept. 1921, and represent a serious effort on the part of all concerned to come to some common agreement on the much debated question of exceptions in bills of lading. The International Shipping Conference held in London in Nov. 1921, adopted the following resolution: "That this conference, representative of the shipping industry in every part of the world, which has had before it the Hague Rules, 1921, recently adopted by the International Law Association for submission to the various interests concerned in bills of lading, is of the opinion that the interests of trade and commerce are best served by full freedom of contract, unfettered by state control. But that in view of the almost unanimous desire manifested by merchants, bankers and underwriters for adoption of the Hague Rules this conference is prepared to recommend them for voluntary international application, and if and so far as may be necessary for adoption by international convention between the maritime countries, Italy and Japan reserving the right to raise questions on the rule which prohibits the shipowner fixing a limit of liability below £100 per package."

Canada has the Canadian Water Carriage of Goods Act, and it would be in the interest of all concerned to amend this in favor of the International Rules.

Labor conditions at Canadian ports throughout the year were very satisfactory. At Montreal, longshoremen, ship-liners and checkers accepted reductions in wages of about 17%, while for winter season 1921-22 at St. John and Halifax, reductions amounting to 21% and 16% respectively were effected. It is pleasing to report that throughout these negotiations the most friendly spirit prevailed, and doubtless it was through this good feeling that the reductions were accepted without that bitterness which too often is the outcome of such negotiations. There was a plentiful supply of dock labor, notwithstanding the increased number of steamships coming to the port, chiefly owing to the fact that steamships loaded full cargoes of grain.

Sick Mariners' Dues.—The act passed by the Dominion Government increasing

the dues under the Sick Mariners Act from 1½ to 2c. a ton, came into operation on Jan. 1, 1921. This tax is an unjust imposition, discriminating against the Provinces of Quebec, New Brunswick, Nova Scotia, Prince Edward Island and British Columbia, inasmuch as the tax is not collected on ships trading to ports in Ontario. There is apparently no necessity for the Government increasing the tax, as the official Government returns show that there is now a surplus of \$294,996.08 in this fund, and the only two countries in the world levying such a tax are Turkey and Peru. I trust that our new Government will take this matter into consideration and reduce the tax to its previous figure of 1½c. a ton, or better still, abolish it in its entirety and leave shipowners to care for their own sick sailors, as they are now required to do under the Shipping Acts.

International Shipping Conference.—The Chamber of Shipping of the United Kingdom convened the International Shipping Conference which was held in London on Nov. 23, 24 and 25, 1921, for the discussion of matters pertaining to the shipping industry throughout the world. Among the subjects then discussed were the Hague Rules, life saving appliances, carriage of deck loads, load line, and subdivision of passenger ships. The conference was attended by representatives of the shipping industry all over the globe, and Canadian interests were represented by Lt. Col. W. I. Gear. Such conferences should tend to bring about more uniformity and co-operation between the respective maritime countries.

The International Joint Commission was occupied during the past year in the collection of further evidence for and against proposed waterways and power scheme on the St. Lawrence River west of Montreal. A report was presented by the engineering board, consisting of representatives of Canada and the United States, favoring this scheme, at a cost of \$252,000,000, to be borne by the United States and Canada. Arthur Surveyer, a noted hydraulic engineer, who has had wide experience with the St. Lawrence waterway, and also with the Chicago Drainage Canal, was engaged to make a study of the scheme as put forward by the engineering board. His report was unfavorable, and a strongly-worded petition was filed with the International Joint Commission against the adoption of this scheme, as being likely to seriously jeopardize the water levels of the St. Lawrence below Montreal. With the proposed power development which is now planned in conjunction with the navigation scheme, no one can foretell what will be the reaction on the levels of the St. Lawrence below this port. The St. Lawrence waterway is Canada's priceless heritage, and everything possible should be done to protect and maintain our water levels at any cost. H. L. Cooper, hydraulic engineer, New York, stated in evidence before the International Joint Commission, that in his opinion the scheme for deepening the St. Lawrence was fraught with such serious engineering problems that he would be in favor of spending \$500,000 for further investigation. Furthermore, Canada, with its war debt still but slightly diminished, is in no position today to even contemplate the expenditure of hundreds of millions

on a scheme of this nature, the commercial value of which has not been demonstrated, and the cost alone must bar the Dominion from becoming involved in this gigantic undertaking. When the time comes for Canada to undertake work of such magnitude, consideration should be given to the Georgian Bay Canal scheme, which has the advantage of being entirely within Canadian territory; while, in addition, the power development derived therefrom would be entirely controlled by Canada and would be quite immune from international control. The Great Lakes-St. Lawrence deep waterway proposal, in my opinion, is one not primarily of navigation but of power development.

Chicago Drainage Canal.—Judge Landis, in the U.S. Supreme Court, issued a permanent injunction recently limiting Chicago from taking more water from Lake Michigan than that fixed by permit from the Secretary of War, which now brings to a close a chapter in a most celebrated case, involving, on the one hand, the City of Chicago, and the navigation interests of the St. Lawrence and Great Lakes, on the other. This suit was brought about to decide whether the State of Illinois, through its power to safeguard the health of its people, could use such methods as would injure the navigable international waters of the Great Lakes and the St. Lawrence, of which the federal authorities are guardians. The result of this diversion of water has been seriously felt by the shipping interests trading to the St. Lawrence, and it has been proved that the levels of our river have subsided 9.5 in. at low water stage as a result of the illegal action of the Sanitary District of Chicago. Since this canal was constructed in 1889, the art of sewage disposal has advanced rapidly, and there is undoubtedly further improvements ahead of us, and Chicago should not have much difficulty in the future of protecting the health and property of her citizens without diverting such a large quantity of water from Lake Michigan.

Aids to Navigation.—The Naval Service Department, without consulting shipping interests, and without issuing the customary notice to mariners, closed down the radio stations at Point Amour, Pointe Riche, Cape Ray, Heath Point, Pictou and Three Rivers. That action produced consternation in shipping circles, which was followed up by strong protests. As a result of these representations, the Lighthouse Board recommended the re-opening of the stations at Pointe Riche, Point Amour, Heath Point and Three Rivers, but refused to re-open the important station at Cape Ray. Further representations were made without success. Cape Ray is regarded as an important station, being extremely valuable to ships fitted with d.f. apparatus. It is to be hoped that the Government will see its way to re-open this station next season.

Additional direction finder stations are being urged all along the St. Lawrence coast line. Funds have been voted for the erection of one at Belle Isle, but owing to the curtailment of public expenditure, it is very difficult to induce the Government to supply money for the erection of additional stations. The two stations erected by the Government at Chebucto Head and at Canso (Halifax harbor) are giving excellent results, and masters are very enthusiastic over the service received from these stations, claiming it is better than any they get

from stations on the United States and United Kingdom seaboards. The station at Halifax has been particularly commented on by shipmasters, as this aid to navigation makes it one of the safest and easiest ports to approach in the world, it being possible to come right up the mouth of the harbor under the foggiest conditions with absolute certainty of position.

Pilotage conditions on the St. Lawrence, especially in the Montreal district, are, unhappily, still unsatisfactory, due to the pooling arrangement which prevails. Furthermore, two cases of refusal on the part of pilots to take out their ships when called for occurred during the past season, and as a result of representations an investigation was held, and one of the pilots was reprimanded for his conduct. The feeling of those concerned is that the Government should relinquish its control of pilotage on the St. Lawrence, and permit shipowners to engage men in whom they have the utmost confidence. This system was adopted by the Government in British Columbia with very good results, and there is no reason why it should not work equally well on the St. Lawrence. It is felt that a system under which every man depended upon his efficiency for employment would work much more satisfactorily, not alone for owners, but also for pilots.

Canada's Immigration Policy.—Canada will, in the course of the next few years be requiring thousands of immigrants to settle on her land; but by her present policy she is closing the door in their faces. There are many emigrants of good type who are going to Australia simply because of the stringent regulations which make them feel they are not wanted here. What this country wants at the present time is a broad and constructive policy for looking after immigrants, and I hope that the Government will adopt such a policy as will tend to attract the desirable class of immigrants that is being repelled today along with the unfit.

Federation tonnage (liner and tramp) amounted to 1,043,313 gross tons, compared with 929,307 for 1920 season. Regular line tonnage showed a slight decrease, 662,072 compared with 684,408 for year previous. Tramp tonnage, however, showed a considerable increase, the total for 1921 being 381,241, compared with 244,899 for 1920. Canadian registered tonnage entered was 135,740 tons, compared with 128,642 tons for 1920. The tonnage entered for 1920 and 1921 was as follows:—

	1921	1920
Regular lines	662,072	684,408
Tramp tonnage	381,241	244,899
	1,043,313	929,307

Officers, Etc.—The following officers and members of committees were elected for this year:—Executive Council, R. W. Reford, President; J. R. Binning, Treasurer; E. W. Foulds, Asst. Treasurer; D. W. Campbell or A. E. Cook, A. M. Irvine, T. R. Eakin, A. Mackenzie, F. A. Curry, R. B. Teakle. Sub-committees:—Bill of Lading, W. I. Gear, F. A. Curry, J. R. Binning. Harbor Equipment, W. I. Gear, F. A. Curry. Manager and Secretary, Thos. Robb.

B.C. Tide Tables.—The Naval Service Department's Tidal and Current Survey, Ottawa, has issued an abridge edition of tide tables for Vancouver and Sand Heads, B.C., and slack water for First Narrows and Active Pass, with tidal differences for the Strait of Georgia.

The End of the s.s. Pelican.

The Hudson's Bay Co.'s composite screw sloop Pelican has been retired! Her career ended, the veteran supply ship that was once a British man o' war and companion ship to the famous Condor, has been broken up at St. John's, Nfld. She was built in H. M. Dockyard, Devonport, Eng., and launched in April 1877. Whilst in the Royal Navy she had a displacement of 1,130 tons and engines of 800 h.p. She carried 6 guns and had a complement of about 140 officers and men. From 1878 to 1881 and from 1884 to 1888 she served on the Pacific station and from 1890 to 1898 on the North American and West Indies station. She also served in the White and Black Seas expeditions.

The Pelican was bought by the H.B. Co. in 1900 and sailed far northern seas for years. She carried food and trap-pings in. She bore out precious cargoes of Arctic fur. Countless times the ice-floes tried to crush her. The sturdy teakwood hull beat off lashing waves of many Atlantic storms. For twenty "out-fits" she challenged the hazards of navigation to Hudson Bay, but skippered by H.B.C. captains, she met no greater disaster than the occasional loss of a propeller and minor breakages from heavy ice. Her bones were not fated to lie shattered on the coast of Labrador and she came steaming home after a last voyage in 1920 to be stripped and dismantled and sold for salvage. An inglorious ending for such a ship even if it were an "honorable discharge"!

Until 1909 she was commanded by Capt. Alexander Gray, of the H.B.C. transport service, with the exception of one year which he spent on the Discovery. From 1909 to 1914 the Pelican was under Capt. A. C. Smith. During the great war the Pelican, with Capt. Borrás and other skippers, was engaged in munitions transport from Canadian and French ports to Archangel, Russia. She ran the gauntlet of enemy submarines on many occasions and an entry in her log dated Aug. 26, 1918, speaks of a warm engagement with one of the subsea craft.

After arriving at St. John's, Nfld., on Sept. 28, 1920, it was found that she was so seriously damaged that the cost of repairing and reconditioning her would exceed her value, so it was decided to break her up and replace her by the s.s. Baychimo.—From The Beaver, published by the Hudson's Bay Co.

War Memorials and Medals for Merchant Marine.—The King has sanctioned a memorial, consisting of a plaque and scroll, for the next of kin of those of the merchant marine who lost their lives through enemy action while serving on British ships, and of the crews of neutral or allied ships under the control of the Admiralty, or the Ministry of Shipping, who served on such ships between Aug. 4, 1914, and Nov. 11, 1918. War medals for the mercantile marine are ready for distribution, and those who have already received the ribbons and the authority to wear them, should apply to the officer from whom they received the ribbons, or direct to the Marine Department, Ottawa, enclosing the authority.

A London, Eng., press cablegram of Feb. 15, stated that the first steamship which will load grain at Montreal for Great Britain this year had been chartered on the Baltic Exchange at four shillings a quarter.

Canadian Pacific Railway's Ocean Steamship Services.

The company is being asked by a representative from Haiti to inaugurate a direct steamship service between Canada and Port au Prince, Haiti. The island imports are said to average about \$20,000,000, and the exports about \$15,000,000 a year.

Capt. Pearson, master of the s.s. West Ivan, which arrived at Vancouver, B.C., recently, was master of the sailing ship W. B. Flint, which carried the first trans-Pacific cargo from Yokohama, Japan, for the C.P.R., July 26, 1886. At that time, the C.P.R. Pacific terminus and port was Port Moody, B.C.

The service inaugurated in Dec. 1921, between St. John, N.B., Boston, Mass., Havana, Cuba, and Kingston, Jamaica, with the s.s. Sicilian, has increased to such an extent that it has become necessary to place an additional steamship on the route. The s.s. Montezuma, therefore, sailed from St. John, Feb. 25, with a general cargo, consisting chiefly of potatoes, fish, flour and newsprint.

A fortnightly trans-Pacific service will be operated during this year, with the steamships Empress of Russia, Empress of Asia, Empress of Canada and Empress of Australia. This will replace the former monthly service. The schedule is so arranged that connection can be made with the trans-Atlantic steamships Empress of Scotland and Empress of France, to Southampton, Cherbourg and Hamburg.

Capt. G. S. Webster, R.D., R.N.R., who commands the s.s. Montcalm, was born Sept. 3, 1867, entered Elder Dempster & Co.'s service, March 21, 1892, and changed to C.P.R. service in April 1903, when the Beaver Line steamships were taken over from Elder Dempster & Co., at that time being master of the s.s. Lake Michigan. Since then, he has commanded the C.P.R. steamships Montrose, Lake Champlain, Lake Manitoba, Empress of Britain, and, during the war, Metagama and Melita.

The record for the run across the Pacific Ocean, between Yokohama, Japan, and the quarantine station at William Head, is held by the C.P.R. s.s. Empress of Russia, which has crossed in 8 days 16 h. 31 min., and this is followed by the s.s. Empress of Asia, her time being 8 days 21 hr. 4 min. The recent claim of the U.S. Shipping Board's Pine Tree State to the record therefore goes by the board, her time being given as 9 days 11 hr., between the points named.

The s.s. Empress of France has been chartered by F. C. Clarke, New York, for a round-the-world cruise in 1923, starting from New York, Jan. 23, and taking 113 days on the trip. A stop will be made at Colon, thence through the Panama Canal, to "Treasure Island," San Francisco, Honolulu, Yokohama and Kobe, thence through the Japanese inland sea to Nagasaki, Shanghai, Hong Kong, and down to Manila, Batavia, Tanjok Priok, Singapore, Rangoon, Calcutta, Colombo, Bombay, Suez, Port Said, Naples, Gibraltar, Havre, Southampton and thence to New York.

The itinerary of the Mediterranean cruise of s.s. Empress of France, which sailed from New York, Feb. 4, includes Las Palmas, Canary Islands; Funchal, Madeira; Lisbon, Madrid, Toledo, Cordova, Cadiz, Seville, Granada and Gibraltar, Spain; Tangier, Morocco; Algiers; Genoa,

Venice, Florence, Rome, Spezia, Pisa, Naples and Pompeii, Italy; Athens, Greece; Constantinople, Turkey; Cafia; with a trip to Jerusalem and back; Alexandria, with 10 days in Egypt, Monaco and Monte Carlo; Havre, France, with an optional trip of 12 days in Paris and London, and returning to New York from Liverpool.

The company will open its St. Lawrence service this year with the sailing of the s.s. Empress of Scotland, on the new route from Quebec to Hamburg, via Cherbourg and Southampton. The s.s. Empress of France, which will also be on this route, will sail from Quebec, May 16, and these ships will form the trans-Atlantic link between Oriental and European ports, via Canada. The s.s. Empress of Britain, which will also make Quebec her Canadian port during the St. Lawrence season, will be on the Liverpool route, sailing from Quebec, May 26. On her return to New York from her present Mediterranean cruise, she will sail direct to Liverpool, March 23.

The C.P.R., in conjunction with La Cie. Francaise du Tourisme, is organizing a personally conducted pilgrimage in connection with the International Eucharistic Congress at Rome, May 25, with optional trips to Oberammergau and the battlefields of the Great War. The s.s. Montreal will sail from Montreal, May 2, arriving at Naples May 17. The tour will include visits to Rome, Assisi, Perugia, Florence, Venice, Milan, Genoa, Nice, Marseilles, Arles, Nimes, Toulouse, Lourdes, Bordeaux, Nantes, Tours, Blois, and Paris, where 6 days will be spent. Optional trips from European ports to Canada will be arranged by way of the different services of the company from Havre, Antwerp, Southampton, Liverpool and Glasgow.

The company's Montreal season will open this year with the sailing of the s.s. Scandinavian, May 4, for Southampton and Antwerp, followed by the s.s. Montcalm, on the Liverpool route, May 5. With the exception of the sailing of the s.s. Minnedosa, from Montreal, May 12, the service between Montreal and Liverpool will be given throughout the season by the steamships Montcalm, Montrose and Montclare, the three new ships of the one-cabin type. The service between Montreal and Glasgow will open with the sailing of the Metagama, May 6, and the Tunisian and Corsican will also be engaged on the route. The service between Montreal, Southampton and Antwerp will be given by the steamships Melita, Minnedosa and Scandinavian. The steamships Batsford, Bothwell, Dunbridge, Mottisfont, Montezuma and Sicilian, which are on the freight service from St. John to London and Hamburg, to Liverpool and Avonmouth, to London, and to Boston, Havana and Kingston, will operate out of Montreal during the St. Lawrence season, with the exception of the s.s. Sicilian, which will continue to sail from St. John, N.B., to Boston, Havana and Kingston.

The s.s. Empress of Scotland, formerly the German s.s. Kaiserin Auguste Victoria, arrived at Halifax, N.S., Jan. 29, on her maiden trip, after having been thoroughly overhauled, altered and refitted. She experienced some little difficulty in getting alongside pier 2, owing to being light, and to the strong wind blowing, and cut into the reinforced concrete

crete of the pier for a depth of about 15 ft. No other damage was sustained. She took on a large quantity of stores and sailed the following day for New York, to take up a charter to F. C. Clarke, for a cruise in the Mediterranean. On Feb. 2, while at her dock at New York, an auxiliary oil burner, on board, backfired, scorching Engineer-Admiral G. W. Roome, the company's Chief Superintending Engineer; R. C. Hughes, chief engineer; E. Redmond, third engineer of the ship, and 5 engineers employed by the Todd Engineering Co., New York. No damage was done to the power plant. She sailed from New York, for the Mediterranean, Feb. 4, and was followed, Feb. 11, on a similar cruise, by the s.s. Empress of France. Both ships will return to Quebec in the spring, and will be placed in regular service between Quebec and Hamburg, calling at Cherbourg, and Southampton, the first sailing on this route taking place from Quebec May 16.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

1. Jan. 13.—1, British Columbia, Vancouver Island, Quatsino Sound, Bergh Cove, Leeson Rock, character of buoy to be changed. 2, British Columbia, Vancouver Island, Quatsino Sound, south arm, Buckholz Rock, buoy to be established. 3, United States, Juan de Fuca Strait, Cape Flattery, pilot ship withdrawn.

2. Jan. 19.—4, Nova Scotia, southwest coast, off Blonde Rock, buoy established. 5, Nova Scotia, south and east coasts, Brazil Rock, Louisburg, and Sydney, submarine bell buoys to be discontinued.

3. Jan. 26.—6, British Columbia, Strait of Georgia, Fraser River entrance, Fraser mouth outer range, change in character of lights. 7, United States, west coast, Strait of Juan de Fuca, current survey.

4. Jan. 1.—8, Ontario, Lake Ontario, west end, Oakville, light to be re-established. 9, Ontario, Lake Huron, north channel, Campbell Rock and Bernard Rock, color of buoys to be changed. 10, Ontario, Lake Huron, north channel, Cape Robert, fog horn to be established.

5. Feb. 2.—11, New Brunswick, Gulf of St. Lawrence, Miramichi Bay, position of Portage Island front range light to be changed. 12, Quebec, Saguenay River, Riviere du Moulin, upper range lights to be established. 13, Quebec, St. Lawrence River, between Quebec and Montreal, Gentilly new front range light-house.

Kirkwood Line, Limited, has been incorporated under the Dominion Companies Act, with authorized capital of \$250,000 and office in Montreal, to carry on the business of the transportation of passengers, mail, freight of all kinds upon land and water; towing, wrecking and salvage; storage and warehousing; to own and operate ships, shipbuilding yards, docks, wharves, telegraph and telephone lines, tramways on lands owned by the company, and all manner of allied businesses. The provisional directors are T. J. Coonan, A. R. W. Plimsoll, M. T. Burke, E. H. Reilly, J. Mulcair, Miss F. Walsh, F. A. Bussiere, H. K. Kavanagh, Montreal.

Dominion Marine Association's Annual Meeting.

The Dominion Marine Association's annual meeting was held in Montreal Feb. 1, the President, A. A. Wright, in the chair.

The executive committee's report for 1921, prepared by the Counsel, Francis King, K.C., and approved by the committee, was presented in printed book form, consisting with appendices of 128 pages, illustrated with portraits of the officers and with a number of marine views. It dealt exhaustively with the following subjects:—Steamboat inspection fees; hospital dues; sick and distressed mariners; bill to place ships under Board of Railway Commissioners' jurisdiction; Trades and Labor Congress recommendations for amendment of Canada Shipping Act; public harbor regulations; Wheat Board; immigration; the Harter Act and the Canadian Water Carriage of Goods Act; Ontario Corporation Tax Act; reciprocal arrangements with United States for inspection of steamships; radio-telegraphy; grain bill of lading; grain through Canadian terminals; St. Lawrence River development, deep waterway and power; canals in New York State and rights of Canadian ships; canal tolls; Chicago drainage canal; wing dam at Isle aux Vaches in Cedar Rapids; Detroit River bridge; water for drinking and culinary purposes; aids to navigation; dock, harbor, channel and canal improvements; Dominion Wreck Commissioner; shipping casualties; icebreaking; inland waters; loadlines; steamboat inspection; payment of United States Customs officer for overtime; shipping register at Toronto; Queen's University, school for marine engineers; general business; membership; tonnage. Under the heading last mentioned it was stated that the steam tonnage enrolled in 1921 was 155,530 net registered tons, against 155,340 in 1920, and the barge or sailing tonnage was 32,173, against 33,920 in 1920, a total of 187,703 tons against 189,260 tons in 1920. The report was adopted unanimously, and the meeting expressed its satisfaction at the way in which it had been prepared.

It was resolved to make a determined effort to secure revision of grain elevating and shovelling charges, which are now disproportionately heavy upon the carrier, and T. R. Enderby was appointed chairman of a committee to be named by him to take such action as may be considered necessary.

It was decided to leave the appointment of a committee on aids to navigation to the executive committee, with the recommendation that it consist of a small number of members from the Association, with whom would be associated a number of men of practical experience in navigation.

Executive Committee.—The following were elected members of the executive committee for one year:—W. E. Burke, Canada Steamship Lines, Montreal; Yvon Dupre, Sincennes-McNaughton Line, Montreal; T. R. Enderby, Canada Steamship Lines, Montreal; M. J. Haney, Canada Steamship Lines, Toronto; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston; J. F. M. Stewart, Point Anne

Quarries Ltd., Toronto; John Waller, Keystone Transports, Montreal; Hon. L. C. Webster, Webster Steamship Co., Montreal; honorary members, L. L. Henderson and A. A. Wright, Montreal.

Officers.—The executive committee elected the following officers:—Honorary President, A. A. Wright, Montreal; President, T. R. Enderby, Montreal; First Vice President, Hon. L. C. Webster, Montreal; Second Vice President, G. J. Madden, Ogdensburg, N.Y.

Aids to Navigation.—The executive committee appointed the following as a committee on aids to navigation:—T. R. Enderby, G. J. Madden and John Waller.

Shipping of Swedish Goods to Canada.

London, Eng., cablegram, Feb. 2.—The favored nation provision in the Canadian tariff has been invoked by Swedish shippers against an attempt by Germany to capture the ocean trade in Swedish exports to the Dominion. An inquiry was recently addressed to the Canadian authorities in London by Swedish shipping firms, which have been trading to the Canadian Pacific coast, via the Panama Canal. They stated that German shippers were cutting rates to secure Swedish exports destined for Canada, and were carrying these to British Columbia ports via Hamburg. They asked whether they might not, under the clause in the trade treaty made by Canada with France, which allowed the benefits of the intermediate tariffs to favored nations, put a stop to this practice by requiring all Swedish goods to be carried direct to order to enter under the intermediate schedule. The answer from Canada was in the affirmative, and it is said that steps have been taken to recover the ground lost by the Swedish shipping men to the Hamburg shippers. The first shipment of Canadian apples to Norway arrived recently in good condition.—Copyright to Montreal Gazette.

Northern Navigation Co.'s Services.

A recent Sarnia, Ont., press dispatch stated that Northern Navigation Co. officials have announced plans being under way for an expenditure of \$90,000 at the Point Edward freight sheds and docks, to take care of additional freight, approximately 150,000 tons, which the company has contracted for this year. We are officially advised that the U.S. coasting laws permit foreign ships to carry freight between U.S. ports, providing part of the haul is over a Canadian railway in Canada. Prior to 1916, the G.T. R. had a U.S. steamship line, operating between Port Huron, Mich., and Duluth, Minn., carrying freight, originating in the western states, for eastern U.S. destinations, and also carrying freight originating in eastern U.S. for western U.S. destinations. This line was discontinued in 1916, and the new law in effect will permit the Northern Navigation Co. steamships to participate in this traffic, which they could not do formerly, and it is expected that its ships will carry 150,000 tons more during the ensuing navigation season than during the last one, which will be made up entirely of this U.S. traffic.

Another recent Sarnia press report stated that the Northern Navigation Co. would start a ferry service between Sarnia and Port Huron shortly with the steamboat Louis Phillippe, which was brought from the St. Lawrence for the purpose. The facts are that the Louis Phillippe, which is owned by Canada Steamship Lines, of which the Northern Navigation Co. is a subsidiary, was sent to Sarnia last autumn, when it was expected that she would be purchased by the International Ferry Co., which had been incorporated to operate a ferry between Sarnia and Port Huron. The sale, however, did not take place, as it is stated that the company failed to organize, only two subscribers for stock having been secured. So far as we can ascertain, the Northern Navigation Co. has not considered the operation of a ferry service between the points named, and apparently the suggestion was inspired locally.

Panama Canal Traffic.

The traffic through the Panama Canal during 1921 showed a rapid expansion of trade between North American Pacific ports and North American Atlantic ports and Europe. Several new steamship lines commenced in this business during the year, and the traffic showed monthly increases, lumber furnishing the bulk of the trade. The lumber shipments through the canal during 1920 were 205,172 tons, while in 1921, they were 448,087 tons. Of this latter amount, 57,429 tons originated in Canadian ports. The destinations of these shipments were: U.S. Atlantic ports, 346,249 tons; Great Britain, 60,048 tons; European ports, 11,895 tons, with lesser amounts to Canadian, West Indian and Mexican ports. The heaviest lumber shipments took place in the first half of the year, a noticeable decline occurring in the latter half. It is stated that the lumber shipments were handicapped, to some extent, by inadequate facilities for handling lumber at Atlantic ports, but that this has been remedied.

Seamen's Wages.

A new wage scale, effective from Feb. 6 to June 30, has been put into force on the U.S. Shipping Board's ships, involving reductions of approximately 15% for officers and engineers, and from 15 to 25% for seamen and unlicensed mariners.

The dispute between ship owners and seamen in Great Britain, regarding a proposed reduction in wages, has been settled by the National Maritime Board. It was proposed that wages be reduced £3 a month, with proportionate reductions for officers. The new agreement provides for a monthly reduction of £2 for seamen, firemen and stewards on ocean going ships, with reductions ranging from 10% for senior officers to 25% for junior officers. These reductions will be made in two instalments, on March 1 and May 1. A settlement on similar terms was made in regard to coasting lines, effective March 1.

Quebec Harbor Commission.—The Commissioners, Major General Sir David Watson, President, since deceased; General A. Tremblay and A. Gravel, having resign, owing to the change in the Dominion Government, W. G. Power, lumber merchant, has been appointed President, Brig. General Tremblay has been re-appointed, and Jules Gauvin has been appointed as the other commissioner.

Agreement with Royal Mail Steam Packet Co. for Service to the West Indies.

The Governor General, on Feb. 10, approved of a report of the Privy Council Committee, submitting a report from the Minister of Trade and Commerce, dated Feb. 1, and recommending its adoption, as follows:—

Pursuant to article 10, and subsequent articles of the Canada-West Indies Agreement, 1920, the Trade and Commerce Department called for tenders on Sept. 20, 1921, for a mail, passenger and freight steam service between Canada, the British West Indies, and British Guiana, to be received up to Jan. 31, 1922, at noon, when only one tender had been received, viz., from the present contractors for the Canada-West Indies service, the Royal Mail Steam Packet Co. of London, Eng.

The Canada-West Indies Agreement contemplates the establishment of a weekly service. The R.M.S.P. Co., however, points out that there is not sufficient trade on this route to keep a weekly service up, and that such a service would have to be run at a heavy loss. It therefore proposes to put on a fortnightly service, the itinerary to be left to the Canadian Government. As it would be necessary to build four new ships, the contract would be required to coincide with the life of the ships, viz., 20 years, in view of the ships being built for this special service, and consequently being unsuitable for transferring to other trades if the contract terminated at the end of five or 10 years.

The present contract contains the provision that the freight and passenger rates are to be subject to the Minister of Trade and Commerce's approval, which prevents the contractors in good times from obtaining the advantage of current high market rates which in ordinary circumstances, without any contract, would offset low market rates in bad times. The contractor protests against the competition of Canadian Government ships, which are now running on the West Indies service, although it is admitted that there is sufficient southbound traffic for both lines, yet the northbound cargo, which consists principally of sugar and molasses, is limited in quantity, and there is not sufficient for both lines, in consequence of which the subsidized line alleges that it suffers a serious loss on northbound traffic. The Royal Mail Steam Packet Co. states that it could not afford to run the proposed new service for a fixed subsidy while the Canadian Government Merchant Marine steamships were at the same time running in competition with the subsidized ships. The R.M.S.P. Co. offer, therefore, to provide a fortnightly service with new steamships of the size and type contemplated by the Canada-West Indies Agreement, on condition that the Canadian Government guarantee a minimum return of 7½% per annum on the capital value of the ships provided to maintain the service. If the revenue from the freight and passenger money were sufficient to provide a return of 7½% after paying all operating costs, including depreciation, insurance, etc., then the Canadian Government would not be required to pay anything, but if the revenue fell short of an amount sufficient to provide the aforesaid 7½% return on capital, then the Canadian Government would be called upon, under a guarantee, to make up the difference. This guarantee would be required to run for 20 years, being the actual life of the ships constructed un-

der it. The R.M.S.P. Co. would be prepared to register a Canadian company to own the ships, the shares of the company to be held by the R.M.S.P. Co., thus enabling ships to sail under the Canadian flag, and be managed from Canada. The R.M.S.P. Co. would be willing to allow the Canadian Government to take a substantial interest in such company if it so desired, together with representation on the board of management. The above offer is for a fortnightly service, but if it were found that the volume of trade between Canada and the British West Indies in future years would require a weekly service, additional ships could be constructed under a similar guarantee.

The R.M.S.P. Co. states that if the above proposal is not agreeable to the Canadian Government, it is willing to continue running the present service for the subsidy at present paid, amounting to \$340,666.66, subject to the condition that it be at liberty to withdraw one or more ships if and when they are, in the company's opinion, no longer suitable to conduct the service satisfactorily. This stipulation is necessary in view of the age of the ships employed, although they are at present in good condition, and running a satisfactory service. In view of their age, the cost of maintaining them in suitable condition is heavy, and the point may be arrived at when this heavy expenditure for repairs would not be justified by their probable life. The company think that they might be expected to run for another couple of years, but would not like to bind itself for a specific period. It therefore makes this alternative proposal in case the Government requires time to consider the matter, as the present contract expires on March 31, 1922. In view of the probable heavy cost of the proposed new service, the Minister does not consider that it is practicable at present to accept the R.M.S.P. Co.'s offer to build four new ships and operate them under a guarantee of 7½% net return on the capital investment. No other offers have been received to perform this service. The Canadian Government Merchant Marine management stated that it is not its intention to tender for this service, as it has no steamships which would comply with the requirements as to passenger accommodation, nor cold storage, should the latter be necessary. The Minister, therefore, recommends that authority be granted for the conclusion of a contract with the R.M.S.P. Co. for the purpose of carrying on the service as performed at present, and on the same terms and conditions as contained in the last contract, which expired on Oct. 31, 1920, and which has been continued by order in council until March 31, 1922, subject to the addition of a clause to the effect that if one or more of the steamships now performing the service should have to be withdrawn by the contractor by reason of inefficiency, or other cause, then the contractor should be called upon to use its best endeavors as far as may be reasonably possible to replace such ship or ships by other suitable ships; together with such other modification as the Minister may deem necessary.

In view of the fact that such an extension of the present service would not comply with the Canada-West Indies Agreement, it would not, of course, be possible to call upon the West Indian Colonies to carry out the provisions of

article 13, providing for the contribution by the West Indian Islands to the subsidy of various sums, amounting in all to £27,000. The committee, concurring in the above, advise that the Governor General may be pleased to forward a copy of this minute to the Secretary of State for the Colonies, with the request that the West Indian Islands, which are parties to the agreement, may be notified of the sense thereof.

Editor's Note.—The contract between the Government and the R.M.S.P. Co., which was dated Sept. 16, 1919, to date from Nov. 1, 1919 to Oct. 31, 1921, and which was continued by order in council, as stated above, provided for a service commencing from St. John, N.B., sailing thence to Halifax, N.S., and thence to Georgetown, British Guiana, every 14 days, calling at the following islands: Bermuda, St. Kitts, Antigua, Montserrat, Dominica, St. Lucia, St. Vincent, Grenada, Barbadoes and Trinidad, and returning from Georgetown to St. John, calling at all the islands mentioned in reversed order, the itinerary being subject to any change agreed on between the Minister and the contractor. The speed required was 11 knots. The subsidy was based on payments of \$13,102.56 for each complete round voyage, payable on the last day of each month, Canadian trade commissioners and mails were to be carried free. The ships employed were the Chignecto, Chaleur, Caraquet and Chaudiere, their gross tonnages ranging from 4,019 to 4,889.

The new contract provides for a renewal of the previous contract for two years from March 31, 1922, to March 31, 1924.

C.P.R. Upper Lakes Steamships.

A Port Arthur, Ont., paper stated on Jan. 30 that ex Mayor H. Murphy, of Port William, who had been in Montreal, had informed it that M. McDuff, Manager, C.P.R. Great Lakes Service, had told him that the company intended to build another large passenger and freight steamship for the upper lakes, and that the giving of an order to the Port Arthur Shipbuilding Co. was being considered. Canadian Railway and Marine World has made enquiries in regard to this, and is informed that Mr. Murphy denies making the statement attributed to him, and states that he did not give such information to the Port Arthur paper. The probability is that the C.P.R. management has been approached by the Port Arthur Shipbuilding Co., and other shipbuilders, with a view of securing an order, but no official information is available at the time of writing. Mr. Duff was in Port Arthur recently, while on a western trip, but we understand he did not see any of the Port Arthur Shipbuilding Co.'s officials, and that he denies the conversation which the Port Arthur paper credited him with having had with Mr. Murphy.

The C.P.R. Great Lakes fleet now consists of five steamships, viz., the Alberta, built at Whiteinch, Scotland, in 1883, and rebuilt at Collingwood, Ont., in 1911; the Athabasca, built at Kelvinhaugh, Scotland, in 1883, and rebuilt at Collingwood in 1910; the Manitoba, built at Owen Sound, Ont., in 1889; the Assiniboia, built at Govan, Scotland, in 1907, and the Keewatin, built at Govan in 1907.

Uncertainty as to British Columbia Drydocks and Pier Construction.

As mentioned in Canadian Railway and Marine World for February, a Victoria, B.C., press dispatch of Jan. 23 stated that the Dominion Government contemplated the suspension, or cancellation, of the Burrard Drydock Co.'s contract for the construction of a floating drydock at North Vancouver, and also the suspension of further work on the additional Government drydock at Esquimalt, and the Ballantyne Pier at Vancouver.

On Jan. 24, Clarence Wallace, Secretary, Burrard Drydock Co., was reported by a Vancouver paper to have said: "We have received advice from the Government at Ottawa to discontinue work for the present on the drydock. We simply take it to mean that the Government is about to check up the contracts which have been let, with a view to sorting out, so to speak, the essential from the non-essential undertakings. Of course, our contract with the Government is affected only in so far as the subsidy is affected. I don't think there is the least chance of work on the drydock being discontinued. If there is one undertaking that is essential, it is this dock. It goes without saying that if the port is to go ahead hundreds of thousands of dollars and also port prestige must not be lost to Vancouver. We had planned to have the first section completed in about 14 weeks. The holding up of work does not apply only to drydock contracts, but to the various other public works throughout the Dominion, as I understand it. How long it will take to make the check we cannot tell. We are anxious to proceed with the work and get the dock ready to handle ships."

Representations on the matter have been made to the Government by the Vancouver Merchant's Exchange, which points out that the shipping community regards the drydock as a necessity for the port, and that its absence would cause the loss of several thousand dollars in repair jobs. Hon. J. H. King, who was Minister of Public Works in the British Columbia Government before leaving Vancouver recently for Ottawa to be sworn in as Dominion Minister of Public Works, received a deputation from the Vancouver Board of Trade, and discussed the drydocks and other contracts. In connection with the North Vancouver drydock he is reported to have said: "If the work is to be proceeded with, the kind of dock best suited to the needs of the city for some years to come should be constructed. I have found some division of opinion as to this, but the whole matter will be carefully considered before a decision is reached."

The B.C. Manufacturers Association has sent to Ottawa a protest against suspension of work on the drydock emphasizing its absolute importance to the Pacific Coast shipping interests, and pointing out that not only are ships now compelled to go to another port for repairs, but also that many ships remain away from Vancouver on account of the absence of a dry dock. It also stated that the Dominion Government has between 15 and 18 of its own ships sailing out of the port, and that on that account it should proceed with the work.

The Vancouver World, in commenting on the matter, said: "Should the construction of the North Vancouver drydock and the Ballantyne pier be held up

by Ottawa, one of the unfortunate reactions would be the adverse influence this step would have on the western flow of grain. Alberta has not only started to ship wheat to Vancouver, but is showing almost as much interest in local port development as is the city itself. The westward stream of grain has become an actuality, not a possibility, and if the opportunity is to be realized of making this a second Winnipeg as a wheat spout, not only additional dockage and wharfage and a drydock are urgently required, but elevators and other facilities must be provided for this trade. It is a time for expansion, not repression, as far as the port of Vancouver is concerned."

In regard to the additional Government drydock at Esquimalt, on the construction of which the general contractors, P. Lyall & Sons Construction Co., have been at work since March 1921, Senator Bostock, who acted as Minister of Public Works pending the appointment of J. H. King, was reported on Feb. 23 as saying that there would be no suspension or cancellation of the contract pending the taking over of the Department's duties by Mr. King. Considerable work has already been done by the sub-contractors, viz., Pacific Construction Co., dredging and excavation and Yarrows Ltd., cofferdams for landing stage. A Victoria paper says that about \$1,000,000 has already been expended.

With regard to the Ballantyne pier, which is being built by the Vancouver Harbor Commissioners, W. G. Harvie, Secretary of the Commission, is reported to have stated that no word had been received from Ottawa as to halting the work, and no instructions along this line were expected. He said that in another year, the pier will be practically completed, cylinders have been sunk nearly half way to the end of the pier and the superstructure is being built on the cylinders. Contract 1 for the dredging and filling of the site, amounting to approximately \$513,121.50, was awarded to Grant & Macdonald, Vancouver, early in the summer of 1920, and an order in council of Sept. 29, 1920, authorized the commissioners to let the contract for building the superstructure, and this was awarded to the Northern Construction Co. and J. W. Stewart for approximately \$4,500,000. We were advised Feb. 10 that the excavation had been completed, about 30% of the cylinders placed, and approximately 10% of the floor trusses were in place. At the present rate of progress, it is not expected that the work will be completed until Aug. 1923, and there is no doubt that the pier will be required before it is completed, as within the last month there was a greater number of ships in port than there were available berths for, as many as three ships having to lie at anchor in the stream.

Vancouver Pilots Ltd. has been incorporated under the British Columbia Companies Act, with \$10,000 authorized capital, and office at Vancouver, to carry on a pilotage service in B.C. coastal waters, and to engage in other business incidental thereto.

The Detroit & Windsor Ferry Co. announce that a new ferry steamship will be placed in operation between Detroit and Windsor, in June, with accommodation for about 4,000 passengers.

Montreal Harbor Commission Appointments, Etc.

Following on the resignations of the commissioners, W. G. Ross, President, who resigned to become a candidate in the general election in Dec. 1921, Brig.-Gen. A. E. Labelle, and Farquhar Robertson, as mentioned in a previous issue, a new Commission has been appointed by the Dominion Government, consisting of Dr. W. L. McDougald, President; Milton L. Hersey, M.Sc., LL.D., and Emilien Daoust. The President was sworn in, Jan. 16, and the others, Feb. 7, by the Secretary, M. P. Fennell Jr.

Dr. W. L. McDougald was born at Glengarry, Ont., in 1882, is a graduate in medicine from Queen's University, and practised at Cobalt, Ont., for some time before taking post graduate courses in British and European universities and hospitals. On his return to Canada he became interested in mining, and eventually settled in Montreal, as President, Ogdensburg Coal & Towing Co., operating a number of ships on the St. Lawrence River and Great Lakes. He also became President, Century Coal Co., Sterling Bond Co., and a director of Canada Steamship Lines, Dominion Steel Corporation, British Empire Steel Corporation, Hollinger Mines Ltd., etc.

Milton Lewis Hersey, M.Sc., LL.D., was born at Montreal, Aug. 22, 1869, and educated in the public and high schools and McGill University there, and Queen's University, Kingston, Ont. He is head of Milton Hersey Co., analytical and metallurgical chemists, and was, for some years, a lecturer in science at McGill University, to which he gave \$10,000 in 1909, for the maintenance of a metallurgical department. He also gave \$10,000 to endow a fellowship in the Kingston School of Mining, Chemistry Department. He was appointed City Analyst and head of the Government Assay Laboratory, Montreal, in 1901, and reported on the city's water supply in 1904. In 1908 he founded a research fellowship in metallurgical engineering at McGill University, and in the following year was elected Chairman of the Canadian section of the Society of Chemical Industries. He is a member of the International Society for Testing Materials, and at different periods has made metallurgical tests for the C. P.R. and G.T.R.

Emilien Daoust was born at Montreal in 1865, and has been in the printing and publishing business there for about 40 years.

The Commissioners have made the following appointments:—

F. W. Cowie, B.A.Sc., heretofore Chief Engineer, has been appointed Consulting Engineer, vice Sir John Kennedy, deceased.

M. P. Fennell, Jr., heretofore Secretary-Treasurer and Comptroller, has been appointed General Manager.

T. W. Harvie, heretofore Assistant Chief Engineer, has been appointed Chief Engineer, vice F. W. Cowie, appointed Consulting Engineer.

Paul Leclaire, B.Sc., heretofore Engineer in charge of buildings, bridges, etc., has been appointed Assistant Chief Engineer, vice T. W. Harvie, appointed Chief Engineer.

Capt. J. F. Symons, R.N.R., heretofore Deputy Harbor Master, has been appointed Harbor Master, to succeed Capt. T. Bourassa, who will retire on April 1.

Wreck Commissioners' Enquiries and Judgments.

Enquiries have been held and judgments given in connection with the following casualties:—

Stranding of Schooner Frederick H.

Held at St. John, N.B., Jan. 18, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. A. J. Mulcahy and A. L. McLean, as nautical assessors, into the stranding of the schooner Frederick H., on the Negropoint breakwater, St. John harbor, while in charge of a pilot. The master, F. G. Hawx, stated that he was busy talking with the master of the tug boat James Gregory astern, and the pilot, A. Cline, was at the wheel. He noticed that the ship was being steered dangerously near to land, and gave the order to heave up the wheel and let go the spanker sheets, causing the ship to sheer off, but not sufficiently, and she grounded while under full sail, except topsails, making about 5 knots on an ebb tide. After the stranding, the pilot admitted that it was his fault alone. The ship floated off at the next flood tide, somewhat damaged. The master held that though he was master and part owner, when a pilot was on board, the latter was the only one responsible, hence he left the navigation of the ship entirely to the pilot. The pilot admitted that the casualty was caused by his inattention, and indifference bordering on carelessness. There was a discrepancy in the evidence of the master and the pilot as to the light on the breakwater, but the master's view that the light was not burning was corroborated by the Marine Department agent, who stated that the light was out, and was relighted later in the day.

The court stated that the whole evidence indicated a misconception on the master's part, as to his responsibilities, when he claimed that the pilot, on boarding, became absolute. There was no indication of wilfulness or culpable neglect, but merely a wrong reasoning of his duties and responsibilities. Regarding the pilot, the situation differed. He took the wheel, and by so doing, placed himself at a disadvantage in viewing the situation ahead in full, the sails on his lee preventing him from seeing the end of the breakwater, and lack of attention caused by familiarity with the territory caused him to neglect ordinary care and watchfulness. It could not be thought that after a long and practically successful career, he could be guilty of wilfulness with intent. Neither the master nor the pilot showed proof of ability for quick thinking and judgment. The court therefore found the master, and the pilot, equally at fault for the casualty. As the master has to face the expense of repair, there being no insurance, he was severely reprimanded and cautioned to be more careful in future, and to weigh the court's remarks as to his duties and responsibilities when a pilot is with him. The court did not deal with the pilot's license, but taking into consideration his long career, ordered him to pay the costs of the investigation, \$215, and warned him that if anything further should be brought against him, and proved, his license would be dealt with. The court also submitted for the Marine Department's consideration, that since the passage has been used, and is used, as a dumping ground, and according to a notice issued to mariners, Aug. 10, 1921, is becoming dangerous to navigate, and

practically indicates that it is officially closed, the maintenance of the light on the breakwater does not serve any other purpose than to misguide those whose habit it has been to use the passage.

Accident to s.s. Canadian Importer.

Held during Nov. and Dec. 1921, before Capt. J. D. Macpherson, Wreck Commissioner for British Columbia, assisted by J. T. Edmond and Capt. A. P. W. Williamson, as nautical assessors, into the cause of the damage sustained by Canadian Government Merchant Marine s.s. Canadian Importer, between Aug. 1 and Sept. 13, 1921, while in the North Pacific Ocean, through taking water in the engine room and other parts of the ship, while on a voyage from Vancouver, B.C., to Auckland, New Zealand. The judgment was as follows:—The court having heard the evidence, can come to no other conclusion, inasmuch as the evidence of those connected with the ship is concerned, than that it was of such an unsatisfactory and evasive nature as to be utterly unreliable. It was perfectly obvious that the evidence was given reluctantly, with an unconcerned indifference that almost amounted to defiance, but clearly with the studied object of suppressing and concealing the real cause which led to the ultimate disaster. The court, therefore, under these conditions, has no other alternative but to form its own conclusions, which are to the effect that when the ship left Vancouver, via Nanaimo, for her voyage to New Zealand, she was absolutely staunch and seaworthy in every respect, well loaded and in good trim, and that no water found its way into the ship from any source whatever, until the colossal blunder was made of pumping out no. 2 ballast tank, of 430 tons capacity, in a lumber loaded ship already tender, and with a comparatively high deck load. It arrives at this conclusion because there can be no possible question that if the ship, as asserted, was taking water to such an extent that her pumps were unable to keep it under control, it was the imperative duty of her master to at once shape a course for the nearest port and immediately send out wireless messages to that effect. From the entries in the deck log book, it appears that over 40 hours were allowed to elapse before the above first named evolution was performed, and over 46 hours before a wireless message was sent, by which time the main engines had been stopped for nearly 6 hrs, the ship then having a list of 32 deg., and with a considerable quantity of water in her, and practically helpless.

The foregoing, and the established fact that on the Canadian Importer's return to Victoria a most exhaustive survey of her hull, tanks, etc., by inspectors and experts of great repute failed to disclose any structural defects whatever by which water could enter the interior of the ship, convinces the court that the ship was as staunch on her return (as far as her hull was concerned) as on her departure, and that the initial cause of the whole disaster must be attributed to the emptying of no. 2 tank. During the period of 9 hrs. the inevitable, under the then conditions and circumstances, naturally happened: loose water was in the bottom of the ship, with the result that she gradually increased her list and, by so doing, submerged the main deck scuppers under her bridge deck, through which the water

would freely flow and collect, eventually lap over the trimming hatches into the bunkers. When the tank eventually was emptied, the ship was practically on her beam ends, and her starboard rail fore and after submerged, with the result that an enormous volume of water found its way through the after doors of her bridge deck, and thence through her coal pockets into the stokehold and engine room, with such rapidity that not only were the fires put out, but the men on duty in these places were forced to leave with considerable haste, or undoubtedly their lives would have been endangered. Providentially, however, at the same time, owing to the excessive list which the ship had attained, no. 2 tank was gradually refilling itself through the starboard air pipe, then obviously well submerged, with the result that the ship ultimately almost righted herself, without any seeming effort on the part of her crew. The ship remained in this waterlogged and helpless condition for several days, hourly taking more water, due to the fact that water was finding its way into the ship through apertures that were necessarily in the ship's side, but manifestly never intended, under normal conditions, to be submerged. After considerable search the ship was eventually located by the C.G.M.M. ships Canadian Observer and Canadian Winner, and the Pacific Salvage Co.'s s.s. Algerine, and from the first and last named ships she received a 6 in. and 10 in. gasoline pump respectively, which, after being fitted, connected and started, either one of them soon proved itself capable of reducing the water in the ship to any extent required, thus proving beyond doubt that there could be no serious defect in the hull.

In view of the foregoing the court severely reprimands the master, Carl R. Bissett, and the chief engineer, F.C. Brown, who, in the opinion of the court, are both equally responsible for the most witless act of pumping out no. 2 ballast tank, in a lumber-loaded ship with already a decided list, and this with a full knowledge of the fact that no. 1 tank of 128 tons capacity, was already empty, for even were it possible to accept the slightest excuse for pumping out no. 2, most assuredly no. 1 tank should have been filled before so doing. By neglecting the most elementary precautions, the ship was deprived of all her water ballast for more than half her length, which fact leaves little room for doubt or speculation as to what really happened. The court further has no hesitation in saying that had there been sufficient evidence to justify it so doing, the certificates of both master and chief engineer would have been severely dealt with, and strongly recommends that, at any time, if further trustworthy evidence be procurable, that the whole case should be re-heard. This recommendation is made, not only because of the unsatisfactory nature of the evidence already heard, but also in view of several facts which, individually, might be of little moment, but collectively appear to be significant. In conclusion, in the court's opinion, too much credit cannot be given to that excellent organization, the Pacific Salvage Co., for there can be little doubt that, but for the timely arrival of its s.s. Algerine on the scene, with her efficient equipment and gear and her capable and expert crew to handle same, the Canadian Importer, hourly taking more water, without any means of reducing same, and

thus rapidly losing her reserve buoyancy, would have foundered in a very short time, in which event little probably would have ever been known as to the real cause of her loss.

The court also submitted to the Marine Department, an annex to its report, consisting of 16 typewritten pages, with criticisms of the evidence. It stated that the only written documents relating to the case produced in court, were the mate's deck log book, in ink; the scrap deck log book, in pencil, and the engineer's log book, in ink. Requests were made for the sounding and tank books, but the court was informed that these had been destroyed, the first, intentionally, by the first mate, as being of no value, and the second by water which flooded the engine room. As the tank book is kept for the sole purpose of a record between the master and chief engineer, of the various movements in connection with the tanks, and is attested to, or ought to be, by these officials, and forwarded at the conclusion of each voyage, to the head office, the court felt it difficult to understand why it should have been in the engine room at all, its proper place being, either in the master's cabin, or the chief engineer's cabin. The chief engineer's log book, though leaving much to be desired, was infinitely superior to the deck log book, which was characterized as a positive disgrace to all concerned. The court stated that nothing could be more clearly demonstrated than that the whole trouble arose from the pumping out of no. 2 tank. In criticizing the verbal evidence, the court stated that "one of the most singular features in the investigation was the generous support that the master was given by the company's officials for his action in pumping out no. 2 ballast tank." Such loyalty, it continued, is unusual, and in most cases highly commendable, but in this particular instance, is incomprehensible with "a full knowledge of the crude and childish method by which the conclusion was arrived at that prompted the stupid and irrational order being given." The evidence given was to the effect that the pumps were unable to keep the water under control, as the strums in no. 2 starboard bilge were choked. If this was the case, the court felt that it reflected little credit on the engineering staff, ashore or afloat, that a ship should be allowed to go to sea in such a state, and even under the existing conditions, it speaks little of the energy and resource shown by the chief engineer, that, when he found the water rapidly gaining, he did not at once take other measures which were at his disposal, to deal with the situation. There was, however, little doubt that the strums were not choked, as no cargo had been carried in no. 2 hold, of such a nature as would tend to choke the bilges, and the evidence of Pacific Salvage Co.'s officials, was, that on the return to Victoria, no difficulty was experienced in draining this same bilge with the ship's own pumps. When the ship listed, it was concluded that no. 2 tank was leaking, but this was absurd, and the method adopted in arriving at such a conclusion can only be described as childish. On the presumption that the sounding pipe in the tank was choked, though it had been used twice before on that day, a 1 in. nut was attached to a piece of string and dropped through the port air pipe, the ship having at that time a 17 deg. list to starboard. As the nut came up dry, at naturally it would with such a list and about

9 ft. of horizontal pipe, it was claimed that this was proof that the tank was leaking, and it was decided to pump it out. This nearly led to the loss of the ship, the only thing that saved her being that the tank refilled itself through the starboard pipe, and the lumber on the starboard side of the deck acted as a freeboard where it was most needed at the moment. The theory that a cracked drain pipe caused the entry of water, was dismissed as ridiculous.

Grounding of s.s. Brant County.

Held at St. John, N.B., Feb. 16, into grounding of the Norwegian s.s. Brant County, near buoy 111 at the entrance to the West Traverse, east of the Island or Orleans, in the River St. Lawrence, Dec. 1, 1921, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. A. J. Malcahy, port warden, St. John, N.B., and Capt. John Hall, of the s.s. Scandinavian, as nautical assessors. The master testified that being a stranger in these waters, as well as his officers, he was approached by pilot H. Lachance at Quebec, and asked if he objected to two pilots being retained, and being under the impression that two were necessary he agreed, but while Lachance was ostensibly the pilot engaged, C. Pouliot was the pilot giving orders from the time the ship left Quebec until she grounded. This was denied by both pilots, Lachance stating that he was alone responsible, but that Pouliot stood on the fore part of the bridge, especially when the ship entered the Traverse, from which position he transmitted to the master and officers, orders given by Lachance. The master again stated that he did not hear Lachance giving any orders. The ship was navigated safely into the eastern passage leading to the north channel, with the Francois lights in line astern. The uppermost light of Cap Brule was seen, and some alteration of the course made to the south, the ship put standby, then half speed, slow, and full speed astern, with the order to let go the anchor, the ship grounding, and in doing so, ran over her anchor, causing damage to plates on the port side. There was a conflict of evidence as to the position where the ship grounded, the master stating that she touched after the western passage had been entered on the southern bank, and the pilots stating that the casualty occurred at buoy 111, the court accepting the pilots' theory as to the position. The pilots stated that some delay occurred on the fore-castle head in carrying out the order to let go the anchor, but the court differed with them, for the reason that the windlass had been in readiness shortly after leaving Quebec, when the anchor was lowered from the hawse pipe and the gear adjusted so as to let go, but the pilot ordered the anchor to be lowered with 10 fathoms of chain, an alteration of the gear from compressor to steam was performed and an order to let go immediately followed, necessitating again the alteration in the windlass gear to the first arrangement, hence the apparent delay. The order to let go was given when it was perceived that the lower light at Cap Brule was not visible. Had this been known when the upper light appeared there was no doubt that the ship would have been brought safely to an anchor, to await daylight.

The court found that the master and second officer of the Brant County were free from any blame for the grounding and also exonerated pilot H. Lachance, the cause of the casualty being solely the

non operation of the range light at Cap Brule. The court felt it to be its duty to point out that the meaning and intent of a notice to pilots that a second pilot may be taken by the master or owner to steer the ship was not observed. The last paragraph of the notice reads as follows: "A pilot who has accepted such arrangement with a master or owner of a ship, to act as wheelsman, must act in that capacity only." In this instance pilot Pouliot did not at any time the wheel, but acted in a very different capacity, maintaining a position of vantage on the bridge, and giving orders which were stated to have been transmitted by Lachance to him.

Cap-sizing of Dredge 15.

Held at Halifax, N.S., Feb. 1, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. Neil Hall and T. R. Coffin, as nautical assessors, into the cap-sizing of the Public Works Department's dredge 15 on Sept. 1, 1921, near Portuguese Cove, at the entrance to Halifax harbor, while in tow of the tug F. W. Roebling. The court in its summary of the evidence, stated that the report submitted by Spurgeon Naugler to his principals, and read in court by the Public Works Department's District Engineer, C. E. W. Dodwell, was exaggerated and without foundation, the evidence being completely demolished by Capt. T. Ormiston, who was in charge of the tug, and H. Beck, a laborer, who was in a motor boat. The court exonerated the master of the tug F. W. Roebling from all blame for the damage incurred, the allegation of negligence not being substantiated. The court also advised that in all cases of floating property being transferred from any point to another for any distance, a competent man should be in charge, with specific instructions, or else the operation should be left entirely in the hands of the towing company.

New Market for Alberta Coal.—It was stated in Canadian Railway and Marine World recently that a new market for Alberta coal would be opened up, if negotiations under way between the Alberta Government and the Vancouver Harbor Commissioners resulted successfully, that the Commissioners were considering the construction of an extensive dock for storing coal from Alberta mines, for bunkering steamships, and other purposes, and that a similar scheme was proposed for Prince Rupert, B.C., to serve the northern coast. We were advised recently that negotiations with the Vancouver Harbor Commissioners had not been completed, but that plans for the desired facilities had been prepared for approval. We were also advised that the Alberta Government had arranged with the Canadian National Rys. for a lease of a site for bunkering and wharfage at Prince Rupert.

The Naming of Ships.—A U.S. marine paper comments on the names selected for the United States Shipping Board's ships, and pleads for names that will be easy of remembrance and enable their ready identification in certain services. Names of the Cunard and White Star Lines' ships are cited as examples, when it states: "When Mr. Successful Citizen of Butte, Montana, returns home after a trip to Europe he can expand his chest a few inches more when he says he travelled on the Aquitania or the Olympic, whereas if he said he came home on the Blue Hen State, his listeners would not know whether he travelled on a cattle ship or a freighter."

Icebreaking Steamship for St. Lawrence River.

We are officially advised that the contract given to Canadian Vickers Ltd., Montreal, by the last Dominion Government, and signed by the Minister of Marine, on Dec. 14, 1921, for an icebreaking steamship for St. Lawrence River service, at a cost of \$1,580,000, for delivery next autumn, has been cancelled by the present Government.

The Government has authorized the purchase of the icebreaking steamship which was under construction for the St. Lawrence River service, by Canadian Vickers Ltd., at the outbreak of the Great War. The contract for this ship, which was named J. D. Hazen, after the then Minister of Marine, was given Canadian Vickers Ltd. early in 1914, the contract price being \$998,593, and delivery was required by the autumn of 1915. A considerable amount of work was done on the hull during 1914, but when war broke out in Aug. 1914, it was found necessary to suspend all outside work, in order to deal with more pressing work due to the war. After the extra pressure had been somewhat relieved, construction on the icebreaker was resumed, and she was launched May 15, 1916, the christening being performed by Lady Borden, wife of the then Prime Minister. Shortly afterwards, on the British Government's representations, it was decided to sell the ship to the Russian Imperial Government at the contract price, as a friendly act between allies, though prices had risen considerably, and a large profit might have been made on the transaction. She left Montreal early in 1917, in charge of Capt. J. L. Read, who is now in command of the Canadian National Rys. car ferry steamship Prince Edward Island, running between Prince Edward Island and New Brunswick, and arrived safely in the White Sea, where she was renamed Mikula Selianinovich, and placed in service there in conjunction with the icebreaking steamship Minto, which had previously been sold to Russia, by the Dominion Government, and which was also taken to the White Sea by Capt. Read, who was, at that time, appointed in charge of all Russian icebreakers operating there. The Russian revolution followed shortly after, and the movements of these ships were lost sight of for some time. Towards the close of the war, it was announced that the J. D. Hazen was at Cherbourg, France, where she has remained since.

When the question of the provision of an icebreaking steamship for the St. Lawrence arose, recently, it was announced that an offer had been made to the Dominion Government, of the J. D. Hazen, for £95,000, or approximately \$427,500, and certain reports made to the Government, stated that she had experienced some hard service, and had been sunk twice, during the war, and that there would have to be a considerable expenditure for repairs and overhaul. It was therefore decided, in view of this, and of the unemployment situation, upon which special representations had been made by the Mayor of Montreal, to order a new ship. The Marine Department estimates for 1919-20 contained an appropriation of \$2,000,000 for the provision of an icebreaker, and during 1920, tenders were invited for its construction. At that time shipbuilding prices were practically at their peak, and it was reported that the lowest tender received, viz., from Wallace Shipyards Ltd., North Vancou-

ver, B.C., was approximately \$2,200,000. As this was in excess of the amount in the estimates, it was decided not to proceed at that time. Tenders were again invited during 1921, and that of Canadian Vickers Ltd. was accepted, and the order placed as mentioned above. On the change of Government, as the result of the general election in Dec. 1921, several contracts awarded by the last Government during its last few weeks of office, were suspended pending investigation by the new Government, and the one for a new icebreaker, awarded to Canadian Vickers Ltd., has been cancelled, and the purchase of the J. D. Hazen authorized.

It is stated that an examination of the ship has been made by Lloyd's, on behalf of the Government, and that she has been reported as only needing an expenditure of about \$14,000 to put her in first class condition, and that she is worth £305,000.

Canal Statistics for 1921.

The Dominion Bureau of Statistics, Transportation Branch, has issued a preliminary report on canal statistics for the calendar year 1921:—The freight traffic on Canadian canals increased 672,182 tons during 1921, compared with 1920, due to increases on the Welland of 800,894 tons, on the St. Lawrence of 666,103, and on the St. Andrews of 456. These increases were due almost entirely to large increases in shipments of grain, and lesser increases in shipments of pig iron, iron and steel, petroleum and oil and sugar. The traffic on the Welland and St. Lawrence was the heaviest in their histories, except for 1913 and 1914. There was a decrease on the Canadian Sault Ste. Marie Canal of 480,226 tons due to decrease of 730,568 tons of iron ore, 100,388 of soft coal, and 42,410 of pulpwood and other minor decreases, although grain shipments were considerably heavier. There was also a decrease of 30,555,288 tons of freight through the U.S. locks, due almost entirely to the slump in iron ore shipments, which decreased from 55,784,496 tons to 22,457,888 tons. The Chambly Canal showed a decrease of 145,042 tons, the largest decreases being pulpwood 83,760 and sawn lumber 44,511. The Ottawa Canal showed a decrease of 61,560 tons, with a decrease of 56,560 in lumber. The Murray Canal showed a decrease of 82,052 tons in crushed stone and a total decrease of 90,955. The other canals showed small decreases. The first and last passages through the canals were as follows:—

	First passage	Last passage
Sault Ste. Marie—		
Canadian	April 9	Dec. 16
United States	April 7	Dec. 26
Welland	April 15	Dec. 18
St. Lawrence	April 18	Dec. 14
Chambly	April 15	Dec. 24
Ottawa	April 19	Nov. 24
Rideau	May 1	Nov. 29
Trent	April 5	Nov. 25
Murray	April 14	Dec. 5
St. Peters	April 18	Open Dec. 31
St. Andrews	May 29	Oct. 31

Coal Harbor Wharf & Trading Co. Ltd. has been incorporated under the British Columbia Companies Act, with \$10,000 authorized capital, and office at Vancouver, B.C., to own and operate ships, wharves and other transportation facilities, and to carry on a general navigation and trading business.

Wheat Shipments Through Vancouver Elevator.

The Board of Grain Commissioners has given Canadian Railway and Marine World the following information as to wheat shipments through the Dominion Government grain elevator at Vancouver, B.C.

Receipts of net bushels of wheat in crop years:—	
1916-17	73,419.00
1917-18	482,304.30
1918-19	503,053.10
1919-20	45,020.20
1920-21	681,343.30
1921-22 (Sept. 1 to Jan. 20)	2,485,611.00
Shipments of net bushels of wheat, in crop years:—	
1916-17	71,424.00
1917-18	375,619.10
1918-19	548,976.30
1919-20	31,660.40
1920-21	694,705.10
1921-22 (Sept. 1 to Jan. 20)	1,886,535.20
Destinations of wheat shipments from Vancouver, crop year 1920-21, in bushels:—	
To United Kingdom	261,333.20
To France	204,995.50
To U.S.A. seaboard points	98,468.30
To Vancouver, Victoria and other B.C. seaboard points	123,894.30
To other points in western division	6,013.00
Total	694,705.10

Shipments of wheat by ocean steamships, 1921-22, in bushels:—

Oct. 22, E. D. Kingsley, 6,666.40, Japan.
 Oct. 25, Barrymore, 6,629.30, Japan.
 Nov. 16-19, Architect, 76,276.50, Liverpool.
 Nov. 16, Eldridge (sacked), 33,133.00, Japan.
 Nov. 19, Siberian Prince, 33,133.20, Japan.
 Nov. 23, to freight sheds in sacks, 33,083.20, Japan.
 Nov. 30, to freight sheds in sacks, 16,558.20, Japan.
 Dec. 3, Robert Dollar, 16,560.00, Japan.
 Dec. 7, Santa Rosalia, 80,000.00, United Kingdom.
 Dec. 9-16, sacks for Canadian Freighters, 99,433.20, Japan.
 Dec. 10-13, City of Naples, 110,533.20, Holland.
 Dec. 19, Mimisotan, 20,000.00, London.
 Dec. 22, West Jessop, 33,177.00, Japan.
 Jan. 3, Canadian Winner, 49,700.00, Japan.
 Particulars of shipments Jan. 3 to 20 not yet available.

Additional Elevator Capacity at Montreal.—The Montreal Warehousing Co. is going to add a 1,000,000 bush. storage annex to its elevator B, at Windmill Point, which will increase the elevator's storage capacity to 3,000,000 bush. It will also install a car dumping machine for unloading cars, to replace the present method of unloading by air shovels. A second carrier is to be built for delivering grain into ocean steamships. It is expected that the car dumping machine and additional loading facilities will be in operation at the reopening of navigation, thus increasing the means of unloading cars and loading grain into steamships. The additional storage capacity is expected to be ready a month or two after, and in plenty of time for handling next season's grain crop.

Belgium Congo Corporation Ltd. has been incorporated under the Ontario Companies Act with \$1,000,000 authorized capital and office at Toronto, to carry on a general land and emigration business, and in connection therewith to own and operate ships for the transportation of mails, passengers, general merchandise, etc. The incorporators are, J. Cowan, O. D. Kester, R. E. Clipsham, R. McGrath and R. A. James.

Canadian Government Merchant Marine, Operation, Etc.

Operating Results for 1921.—A statement was given to press representatives in Ottawa on Feb. 20 showing the results of the C.G.M.M. operations for 1921 to have been as follows: General expenditure, \$11,816,292; overhead and wharf expenses, \$861,300; total expenditure, \$12,677,592; gross revenue, \$10,916,248; loss on operations \$1,761,344. A press correspondent, in transmitting these figures, put the total investment in the 63 ships at over \$70,000,000, but took \$65,000,000 as representing those complete and in full operation during 1921, and figured interest at 5½% \$3,575,000, and depreciation at 5% \$3,250,000, a total of \$6,825,000, which added to the loss on operations, \$1,761,344, makes a total of \$8,586,344.

Particulars of the different services show the following results: Australia etc. 9 voyages, profit \$201,130; India etc. 3 voyages, profit \$31,648; United Kingdom, 44 voyages, loss \$202,112; South America, 6 voyages, loss \$169,203; Europe, 15 voyages, loss \$185,000; British Columbia, California, loss \$81,778; passenger service to West Indies, loss \$256,300; entire service to West Indies, including freight ships and combined freight and passenger service, loss \$241,945.

Officers of Steamships.—The following appointments of masters and chief engineers have been made, in addition to those mentioned in previous issues:—Canadian Rover, chief engineer, F. C. Brown; Canadian Seigneur, Capt. B. S. Potts, vice Capt. J. E. Faulkner; Sheba, Capt. J. Lintlop, vice Capt. W. G. Tudor.

Siberian Service.—The s.s. Canadian Winner was reported to have left Kobe, Japan, for Vladivostok, Siberia, during December. She will thus be the first Canadian steamship to enter that port since the breaking off of trade relations about two years ago. After leaving Vladivostok, she will call at San Francisco, en route to Vancouver. It is stated that she took on a considerable amount of freight at Vladivostok for San Francisco.

Mediterranean Service.—London, Eng., cablegram, Feb. 17.—Although the Canadian Government Merchant Marine has laid several ships up rather than run them at a loss, strenuous efforts are being made to secure trade for those still operating. It has been decided to put on a monthly service to the Mediterranean, despite severe competition from the United States Shipping Board, whose recent rate cuts have been met by a lowering of the rate to Montreal to the same level as the tariffs from Mediterranean ports to New York. E. G. Laing has been sent as special representative with headquarters at Naples. Offices have been opened in Paris, Antwerp, Rotterdam, and Hamburg.—Copyright Montreal Gazette.

Canadian Railway and Marine World is officially advised that a Mediterranean service is still only under consideration.

Damage Suit for Employee's Death.—Relatives of Richard Hayes, a member of the crew of the s.s. Canadian Settler, are suing Capt. J. A. Ridley, the ship's master, and Canadian Settler Ltd., for \$3,000 for his death, alleging negligence on the master's part. It appears that the man was second steward on the ship's voyage to England, Nov. 8, 1921, and was in apparent good health up to

Dec. 24, when he became ill and was given some medicine by the chief steward, which it is claimed contained a high percentage of drugs, after which he became unconscious and died.

Halifax, N.S., Sailings.

For Australia and New Zealand. — Canadian Pioneer, March 22; Canadian Planter, April 22.

For Barbados, Trinidad and Demerara. Canadian Coaster, March 10; Canadian Beaver, March 24; Canadian Logger, April 7; Canadian Harvester, April 21.

For Nassau, Kingston and Belize. — Canadian Forester, March 8; Canadian Fisher, March 29; Canadian Forester, April 19.

For Newfoundland.—Canadian Sapper, March 8, and each 12 days thereafter.

St. John, N.B., Sailings.

For Liverpool.—Canadian Commander, March 14; Canadian Volunteer, March 28; Canadian Leader, April 11.

For London.—Canadian Raider, March 14; Canadian Rancher, March 28; Canadian Trapper, April 11.

For Glasgow.—Canadian Commander, March 14; Canadian Otter, March 28; Canadian Aviator, April 12.

For Cardiff and Swansea.—Canadian Squatter, March 21; Canadian Runner, April 19.

Vancouver Sailings.

For Australia and New Zealand. — Canadian Transporter, March 20, Auckland, Sydney, Melbourne, Adelaide; Canadian Britisher, April 25, Auckland, Sydney, Melbourne.

Indian Service. — Canadian Importer, May 22, Calcutta, Bombay.

Marine Operations, etc.

Atlantic and Pacific Oceans.

The officers and crew of the Ulster Steamship Co.'s (Head Line) s.s. Melmore Head, were entertained to dinner by the Union Club, St. John, N.B., Feb. 3, in recognition of their heroic conduct in rescuing the crew of the Norwegian s.s. Mod, which sank in midocean, Jan. 23.

The Swedish s.s. Thyra arrived at Halifax, N.S., Feb. 9, in tow of the C.G.S. Lady Laurier, having lost her rudder about 200 miles southwest of Cape Race, Jan. 29, since when she had been helpless, three other steamships having abandoned attempts to get a tow line aboard her.

The Anchor-Donaldson Line's s.s. Athenia, for the Glasgow and Montreal service, was launched at Glasgow, Scotland, Jan. 28. She is 540 ft. long, with 66 ft. beam, and has cabin capacity for 520 passengers, and third class accommodation for 1,200. It is expected that she will be ready to make her maiden sailing from Glasgow, June 9, arriving at Montreal, June 23.

The White Star-Dominion Line announces the inauguration of a steamship service from Portland, Me., and Halifax, N.S., to Southampton and Bremen, and on the reopening of St. Lawrence navigation from Montreal and Quebec. The first sailing, with the s.s. Vedic, 10,000 gross tons, is scheduled from Portland, Apr. 22 and Halifax Apr. 23. The s.s. Rimouski will also be used in the service.

The White Star-Dominion Line's St. Lawrence service between Montreal and Liverpool, will be performed this year with four steamships, Canopic, Megantic, Canada and Regina, and a weekly schedule will be maintained. The Canopic has, hitherto, been operated in the company's

service between New York and Mediterranean ports, and the Regina is a new ship, the other two having been on the route previously. The season will open with the sailing of the Canopic from Liverpool, May 13, and from Montreal, May 27.

Martime Provinces and Newfoundland.

The steam tug Clayton, owned in St. John, N.B., was damaged there, Feb. 6, by fire which started in the boiler room. The deck house was completely destroyed and is to be rebuilt.

The St. John, N.B., ferry service revenue for January was \$2,547.78 from passengers and \$849.30 from teams, compared with \$3,610.95 for passengers and \$969.02 for teams in Jan. 1921.

St. John Drydock & Shipbuilding Co. stopped work on the construction of the drydock at Courtenay Bay, St. John, N.B., in the latter part of January, and it was stated that it might be resumed on or about March 1.

During 1921, according to a press report, 11,644,635 ft. of lumber, valued at \$383,603, was shipped from Parrsboro, N.S., to United Kingdom and U.S. ports, and in addition about \$60,000 worth was shipped to St. John, N.B.

Canada Steamship Lines' s.s. Manoa, which was operated between Montreal and St. John's, Nfld., in 1921, is having her passenger accommodation increased in Europe, and it is expected that she will be ready to resume her service between those points about the middle of May.

The Bras d'Or Steamboat Co., North Sydney, N.S., is reported to have bought a steamboat to replace the s.s. Marion on the Bras d'Or Lake service. The new boat is stated to be a side wheeler, larger and with greater freight accommodation than the Marion, and will probably be ready for service on the lakes at the reopening of navigation.

The Marine Department has given notice that the submarine bell buoy about 600 ft. northwest of Brazil Rock gas and whistle buoy, the submarine bell buoy about 500 ft. northwest of Louisburg gas and whistle buoy, and the submarine bell buoy about 600 ft. southwest of Flat Point gas and whistle buoy, at the entrance to Sydney harbor, will be discontinued without further notice.

St. John, N.B., City Council received provisional estimates recently for repairs, extensions, fixed charges and general expenses for the harbor. They show a proposed expenditure of \$255,226.41, less wharf bond issues and revisions in wages \$38,800, or \$216,426.41 net expenditure. The estimated revenue, based on that for 1921, is \$164,000, leaving an estimated deficit of \$52,426.41, to which is added \$1,432.99 for collection charges, making a total estimated deficit of \$53,859.40.

The Halifax Dredging Co.'s steam tug Shannon grounded on Pennant Point, Sambro Ledges, at the entrance to Halifax harbor, at the end of January, and became a total loss, the crew of eight escaping in a small boat. She was returning to port after having assisted in floating the schooner J. Duffy, which went ashore at La Have. She was built at Pictou, N.S., in 1886, and was screw driven by engine of 29 h.p. Her dimensions were,—length 76.9 ft., breadth 17.5 ft., depth 8 ft.; tonnage, 75 gross, 51 net.

The Dominion Government s.s. W. H.

Lee, engaged in lighthouse and buoy service, was destroyed by fire at the south end terminals, Halifax, N.S., Jan. 30. As she had a large quantity of oil on board, which it was impossible to save, she was towed to Point Pleasant breakwater, where she burned out and sank. She was built in the U.S. in 1889 and rebuilt there in 1894. Her dimensions were,—length 128.9 ft., breadth 30 ft., depth 11 ft.; tonnage 317 gross, 190 net. She was screw driven by engine of 61 h.p. She was used as a patrol boat during the war.

Province of Quebec.

The Dominion Public Works Department will receive tenders to March 7 for the operation of a ferry across the Ottawa River between La Passe, Westmeath Township, Ont., and Fort Coulonge, Mansfield Tp., Que.

Canada Steamship Lines is reported to have decided to build a freight shed extending from the wharf to Dalhousie St., Quebec, and to remove the old wooden building. By doing this, its freight shed area will be increased by approximately 6,000 sq. ft. and exit and entrances for freight will be provided on Dalhousie St.

The Prescott & Ogdensburg Ferry Co.'s s.s. Ferdinand ran aground in the St. Lawrence River, near Ogdensburg, N.Y., towards the end of January, during a dense fog. The passengers were transferred to another ship safely, and the Ferdinand released herself the following day, and returned to Prescott for examination.

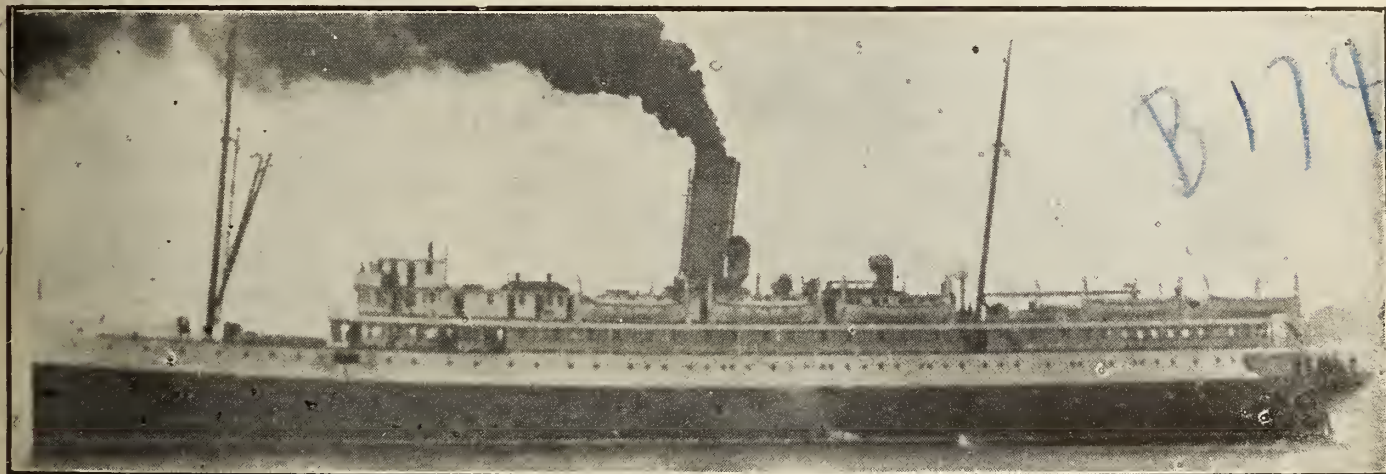
The two lake steamships ordered by Ontario Paper Co., Thorold, one of which is being built by Swan, Hunter & Wigham Richardson, Wallsend-on-Tyne, Eng., and one by the North of Ireland Shipbuilding Co., Londonderry, Ireland, as mentioned in our last issue, are expected to be ready for delivery in May and June respectively.

The Fort Erie Ferry Co., which operates under an agreement with the Dominion Government, has been refused permission by the Government to increase its fares over the amounts authorized by the agreement. It is stated that the company desires to increase the foot passenger fare by 100%, and the rates on automobiles by from 10% to 20%.

The U.S. Lake Survey reports the levels of the Great Lakes for January, in feet above mean sea level, as follows:—Superior 601.62, Michigan and Huron 579.32,

for the work in the nature of unemployment relief, had been exceeded by the contractors by about \$700,000. The appropriations for certain work on the existing Welland Canal had also been exceeded, but he is reported to have promised to bring forward the matter of building certain bridges there, in order to help the unemployment situation, before the reopening of navigation.

Capt. D. W. Whiteley, master of Keystone Transports' s.s. Keywest, was charged at Picton, Ont., Feb. 17, with criminal negligence in connection with the sinking of the schooner Oliver Mowatt, and the loss of three lives, near Main Duck Islands, Lake Ontario, Sept. 1, 1921. He pleaded guilty and was sentenced to 21 days imprisonment. A similar charge was made against C. F. Gildnan, second officer, who was to be tried at a later date in February. The result of the Wreck Commissioner's enquiry into the disaster, which was held at Montreal, in Oct. 1921, found that the master of the s.s. Keywest was in default and suspended his certificate for a year from Sept. 16. The second officer, C. F. Gildnan, was also found in default, but as he does not hold a certificate, the Wreck Commissioner reprimanded him severely.



Canadian Pacific Railway, British Columbia Coast Service, s.s. Princess Louise.

Montreal City Council invited tenders recently for the ferry service to St. Helens Island, for a five year term, the contractor to have all game and refreshment privileges on the island. An hourly service from 8 a.m. to 8 p.m. on week days and a half-hourly service on Sundays and holidays is to be given, and the contractor is to hold an insurance policy for \$20,000 to cover possible accidents to passengers, and to deposit \$5,000 as a bond against damage to buildings, etc.

Ontario and the Great Lakes.

The Mayor of Port Arthur announced Feb. 14, that the Minister of Public Works had telegraphed that work would commence in the near future, on the construction, of an additional 150 ft. to the Bare Point breakwater, to relieve local unemployment.

The Kingston Navigation Co.'s s.s. St. Lawrence will undergo a certain amount of overhauling and repairing before the opening of navigation, but the work will not be extensive, as it is possible the company may not operate her this year, unless there is considerable improvement in the outlook.

St. Clair 573.93, Erie 571.51, Ontario 244.73. Compared with the average January levels for the past 10 years, Superior was 0.52 ft. below, Michigan and Huron 0.70 ft. below, Erie 0.21 ft. below, and Ontario 0.76 ft. below.

The s.s. Island Belle, owned by W. W. Holmes, Redwood, N.Y., and operated by Alexandria Bay Steamboat Co., Alexandria Bay, N.Y., has been sold to the Grand Island Excursion Co., Buffalo, N.Y., for service on the Niagara River. She was built at Alexandria Bay, N.Y., in 1879, and rebuilt in 1895. Her dimensions are,—length 100 ft. 5 in., breadth 20½ ft., depth 6 ft., tonnage, 141 gross, 116 net. Her hull is of oak and she is equipped with a fore and aft compound engine, with cylinders 12 and 25 in. diam. by 18 in. stroke, supplied with steam by a marine type boiler 11½ ft. long by 6 ft. diam., at 150 lb.

Major Graham A. Bell, C.M.G., Deputy Minister of Railways and Canals, while visiting St. Catharines, Feb. 7, was reported to have stated that additional work on the sections of the Welland Ship Canal, under contract, could not be proceeded with until after Parliament had met, as the appropriations already made

The Toronto harbor master's report for 1921 shows that 3,030 steamships, 602 tugs and 316 barges used the harbor during the year, compared with 3,096 steamships, 886 tugs and 482 barges for 1920. The total tonnage of ships entering the harbor in 1921 was 4,973,682, compared with 5,453,919 in 1920. The coal brought to Toronto by ships during 1921 was 78,761 tons, against 155,839 for 1920, and the total merchandise imported was 203,779 tons, and exported 44,584, against 342,826 imported and 51,630 exported in 1920. Ships of various types wintering at the port number 60, with a total tonnage of 22,980 gross. During the year, 466 ft. of the concrete superstructure of the east pier was rebuilt, and the life chains at the western channel were removed, repaired and replaced. Work on the construction of the island breakwater was continued and 1,250 ft. of mattress work, 60 ft. wide, was completed.

Manitoba, Saskatchewan, Alberta and Northwest Territories.

The Alberta & Great Waterways Ry. will, it is stated, build a boat landing, independent of the other landings al-

ready cleared for river steamboats at Waterways, Alta. The new landing will be for boats used locally between McMurray and Waterways.

British Columbia and Pacific Coast.

The Pacific Steamship Co.'s (Admiral Line) s.s. Silver State, which docked at Victoria, B.C., Feb. 4, was the first large passenger steamship to use the Ogden Point pier.

The Crescent Shipping Co.'s s.s. Lee-bro, which has been under charter to the Marine Department, for some time, for lighthouse and buoy service on the coast, has returned to the freight trade, and sailed from Nanaimo recently with a cargo, for Seattle, Wash.

The wireless telegraph operator on the C.P.R. s.s. Princess Adelaide, running between Vancouver and Victoria, recently picked up a remarkably clear wireless tele-

phone conversation taking place with a station in New York where tests were being carried out.

The Robert Dollar Steamship Co.'s s.s. Bessie Dollar was reported Feb. 12 to be returning to Vancouver, having suffered considerable damage in a heavy storm on the Pacific Ocean. The master was reported to have been badly injured, and the steward killed, owing to the falling of the main mast.

Vancouver's shipping record for 1921 has the following entries: ships engaged in coastwise trade 11,485, gross tons 7,257,382; net tons 4,217,169; against 11,489 ships, 7,397,472 gross tons, 4,441,316 net tons, for 1920; ships engaged in deep sea trade 389, gross tons 2,659,366, net tons 1,678,874; against 336 ships, 1,884,042 gross tons, 1,163,699 net tons, for 1920.

The Pacific Great Eastern Ry. has arranged for the use of the Vancouver Dredging & Salvage Co.'s steam tug

Digges, to replace the s.s. Clinton, which was sunk by collision with the C.P.R. s.s. Princess Royal in January. The Clinton carried insurance for \$25,000, and the barge P.G.E. no. 1, which she was towing, was also insured for \$25,000. The Clinton is considered a total loss, but the barge only received comparatively slight damage, and was taken to Wallace Shipbuilding & Drydock Co.'s plant for overhaul and repairs.

The C.P.R. s.s. Princess Louise, completed recently at North Vancouver for the company's British Columbia Coast Service, an illustration of which appears on this page, was placed in service between Victoria and Vancouver, Jan. 25. It is expected that she will be put in the Alaska service, for which she was specially designed, about June 9, in conjunction with the s.s. Princess Alice, making calls at Alert Bay, Prince Rupert, Ketchikan, Wrangel, Juneau and Skagway. Full details of this ship have appeared in previous issues.

Mainly about Marine People.

Capt. J. N. Bales, port warden, Montreal, died there, Jan. 28, from pneumonia, aged 67. He was born at Liverpool, Eng., and served at sea for about 30 years, finally with Elder, Dempster & Co. He was appointed deputy port warden at Montreal in 1900, and was appointed port warden during the war, on the death of Capt. A. Reid.

Mrs. Cockburn, widow of A. P. Cockburn, founder, and for some time President, Muskoka & Georgian Bay Navigation Co., which afterwards became the Muskoka Lakes Navigation & Hotel Co., died in Toronto Jan. 20, aged 78.

George L. Courtney, who has been appointed Contracting Freight Agent, Pacific Steamship Co. (Admiral Line), Vancouver, B.C., reporting to A. B. Graham, General Agent there, was born at Chatham, Ont., Oct. 7, 1868, and entered transportation service in 1884, since when he has been, to 1886, clerk, G.T.R., Chatham, Ont.; 1887 to 1889, clerk, G.T.R., Hamilton, Ont.; 1889 to 1890, clerk, C.P.R., Vancouver, B.C.; 1890 to 1895, Traffic and Passenger Agent and Contracting Freight Agent, C.P.R., Victoria, B.C.; 1896 to 1900, Agent, C.P.R., Victoria, B.C.; 1900 to 1906, Traffic Manager, Esquimalt & Nanaimo Ry., Victoria, B.C.; 1906 to 1908, District Freight and Passenger Agent, C.P.R., and Esquimalt & Nanaimo Ry., Victoria, B.C.; 1908 to 1915, in private business; 1916 to June, 1918, Agent, Canadian Pacific Ocean Services, Ltd., Hong Kong, China; Oct. 1918 to 1920, General Manager, Pacific Great Eastern Ry., Vancouver, B.C.

M. McD. Duff, Manager, Great Lakes Steamship Service, C.P.R., visited various Great Lakes ports and Winnipeg, on a business trip during February.

Tom Ranger Enderby, who has been elected President, Dominion Marine Association, was born at Leicester, Eng., Oct. 16, 1885. He entered transportation service in Aug. 1909, since when he has been, to Aug. 1916, Assistant Purchasing Agent, British Columbia Electric Ry., and Vancouver Power Co., Vancouver, B.C.; Sept. 1916 to Sept. 1918, Secretary-Treasurer, Canada West Coast Navigation Co., Vancouver, B.C., and General Manager, Cameron-Genoa Mills Shipbuilders Ltd., Victoria, B.C.; Sept. 1918 to Sept. 1919, Secretary-Treasurer, Montreal Transportation Co., Montreal;

Sept. 1919 to May 1920, Managing Director, Montreal Transportation Co. In May 1920 he was appointed Operating Manager, Canada Steamship Lines, which position he still holds.

Michael P. Fennell Jr., who has been appointed General Manager, Montreal Harbor Commissioners, was born at Montreal, March 13, 1885, and entered transportation service in 1902, after completing a course at McGill University. He was, from Jan. to Sept., 1902, secretary to Master Mechanic, G.T.R., Montreal; Sept. 1902 to Apr. 1903, secretary to Freight Traffic Manager, G.T.R., Montreal; Apr. 1903 to Jan. 1907, secretary and accountant, Engineering Department, Montreal Harbor Commission; Jan. 1907 to June 1909, Assistant to President; June 1909 to Sept. 24, 1917, Assistant Secretary-Treasurer. On Sept. 24, 1917, he was appointed Secretary-Treasurer and Comptroller. He was elected Secretary of the American Association of Port Authorities, at its inception, and has recently resigned, but is acting until his successor is appointed.

T. W. Harvie, who has been appointed Chief Engineer, Montreal Harbor Commissioners, was born at Old Monkland, Scotland, Aug. 5, 1877, and educated at private schools and the Royal Technical College, Glasgow. He served an engineering and land surveying apprenticeship with Kyle, Dennison & Frew, Glasgow, and was later Assistant Resident Engineer, Caledonian Ry. He subsequently served as an engineer with the Clyde Navigation Trust, and was Resident Engineer on harbor works at Marklands, Shieldhall, etc., on the Clyde, and at Yorkhill docks. He was appointed Assistant Engineer, Montreal Harbor Commissioners in May 1910, and for three years acted as Resident Engineer on the construction of the Victoria pier and market basin, the shore wharves and the upper section of the high level railway, later becoming Assistant Chief Engineer. He is a member of the Corporation of Professional Engineers of Quebec, and of the American Association of Port Authorities, and associate member of the Institute of Civil Engineers, of England, and the Engineering Institute of Canada.

Paul Leclaire, who has been appointed Assistant Chief Engineer, Montreal Harbor Commissioners, was born at Montreal in 1881. He graduated as a civil

engineer, with the degree of B.Sc., from the Laval Polytechnic in 1901, and in 1911 was appointed engineer in charge of buildings, bridges and water supply, Montreal Harbor Commissioners, prior to which he had been engaged in engineering work in Pittsburg, Pa., and with the Dominion Bridge Co., Montreal.

Hugh C. MacLean, President, Muskoka Lakes Navigation & Hotel Co., left Toronto Feb. 2, to spend several weeks in Bermuda.

J. A. Speers, heretofore Manager, Lake Shippers Clearance Association, Fort William, Ont., has been appointed General Manager at Winnipeg, succeeding F. W. Young, deceased.

Capt. J. F. Symons, R.N.R., who has been appointed Harbor Master, Montreal, was appointed Deputy Harbor Master there, in 1912, and on the outbreak of war in Aug. 1914, he volunteered for active service in the Royal Navy, and served on several of the larger ships before being transferred to the destroyers with the rank of Lieutenant Commander. On the conclusion of the war, he resumed his position as Deputy Harbor Master.

Major Gen. Sir David Watson, K.C.M.G., the recently retired President of the Quebec Harbor Commissioners, died at Quebec, Feb. 18, after a paralytic seizure at the Garrison Club, there, Feb. 16. He was born in Quebec, Que., in 1871, took up newspaper work in 1891, and subsequently became Managing Director of the Quebec Chronicle. Immediately on the outbreak of war in Aug. 1914, he took command of the Second Battalion at Valcartier Camp, and sailed for England a few weeks later. He had a very brilliant war record and was made a K.C.M.G., and also a Commander of the French Legion of Honor, and received a Croix de Guerre of France, and also of Belgium, together with the Belgian Order of Leopold. He was appointed President, Quebec Harbor Commissioners in 1919.

A. A. Wright, Honorary President, Dominion Marine Association, Mrs. Wright, and their son and daughter, left Toronto, Feb. 8, and sailed from New York Feb. 11, on the C.P.R. Empress of France, for the Mediterranean. They will spend some time on the European continent, and expect to return to Toronto in June.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Canadian Ingersoll-Rand Co., Sherbrooke, Que., has issued two bulletins, one describing and illustrating the Price-Rathbun type of marine oil engine, vertical multi-cylinder 4-stroke cycle, direct injection and direct reversible; the other dealing with Price-Rathbun stationary oil engines, vertical multi-cylinder and 4-stroke cycle.

Transportation Conventions in 1922.

March 14 to 16.—American Railway Engineering Association, Chicago, Ill.; E. H. Fritch, 431 South Dearborn St., Chicago, Ill.

March 21 to 23.—American Railway Association, Telegraph and Telephone Division. Colorado Springs, Col.; W. A. Fairbanks, 75 Church St., New York, N.Y.

May 2 to 5.—Air Brake Association; F. M.

Nellis, 165 Broadway, New York, N.Y.

May 17 to 19.—Association of Railway Claim Agents, Montreal; H. D. Morris, Northern Pacific Ry., St. Paul, Minn.

May 23 to 26.—Master Boiler Makers Association, Chicago, Ill.; H. D. Vought, 26 Cortland St., New York.

June 1, 2.—Canadian Electric Railway Association, Quebec, Que.; L. E. Moreland, Hull, Que.

June 14 to 21.—American Railway Association, Mechanical Division, Atlantic City, N.J.; V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

June.—American Society for Testing Materials, Atlantic City, N.J.; C. L. Warwick, University of Pennsylvania, Philadelphia, Pa.

Aug. 23 to 25.—American Association of Railroad Superintendents, Kansas City, Mo.; J. Rothschild, 400 Union Station, St. Louis, Mo.

MARINE

FIRE

G. U. PRICE Limited

INSURANCE

Bank of Toronto Building

MONTREAL

Inquiries invited

CASUALTY

LIFE

Ottawa Traction Company, Limited

Eighth Annual Report for the Year Ending December 31st, 1921

Your directors have much pleasure in submitting their eighth annual report for the year ending December 31, 1921.

The amount received from The Ottawa Electric Railway Company during the year was \$279,060.00, with which was paid the usual quarterly dividends of one per cent, and a bonus of one per cent.

The established record of The Ottawa Electric Railway Company has been continued during the year, and the Company's plant and equipment have been maintained in an efficient condition.

New rails were laid on Wellington Street and on Somerset Street between Bank and Bay Streets. The new St. Patrick Street bridge was opened for traffic, and the Company's service resumed through to New Edinburgh.

All of which is respectfully submitted.

T. AHEARN,
President.

Ottawa, February 6th, 1922.

OTTAWA TRACTION COMPANY
LIMITED

STATEMENT OF INCOME AND EXPENDITURE FOR THE YEAR ENDED DECEMBER 31, 1921.

Expenditure.	
To net income transferred to profit and loss appropriation account	\$279,060.00
	<u>\$279,060.00</u>

Income.	
By dividends received from The Ottawa Electric Railway Co.	\$279,060.00
	<u>\$279,060.00</u>

Profit and Loss Appropriation.	
To Dividend No. 28, paid April 1st, 1921—1%	\$ 55,812.00
To Dividend No. 29, paid July 2nd, 1921—1%	55,812.00
To Dividend No. 30, paid Oct. 1st, 1921—1%	55,812.00
To Dividend No. 31, payable Jan. 3, 1922—1% and bonus 1%	111,624.00
	<u>\$279,060.00</u>

By Balance Transferred from Profit and Loss Account	\$279,060.00
	<u>\$279,060.00</u>

BALANCE SHEET AS AT DEC. 31, 1921.

Assets.	
Accounts receivable, The Ottawa Electric Railway Co.	\$ 900.00
Dividend receivable, The Ottawa Electric Railway Co.	111,624.00
18,601 shares of The Ottawa Electric Railway Co., par value \$100 each	5,580,300.00
	<u>\$5,692,824.00</u>

Liabilities.	
Dividend No. 31, payable Jan. 3, 1922, 1% and bonus 1%	111,624.00
Capital stock issued	\$5,581,200.00
	<u>\$5,692,824.00</u>

Auditor's Report to the Shareholders.

We have audited the accounts of your Company for the year ended December 31st, 1921, and certify that the foregoing Balance Sheet and Income and Expenditure Accounts are properly drawn up so as to exhibit a true and correct view of the statement of the Company's affairs according to the best of our information and as shown by the books of the Company.

We have received all the information and explanations required by us.

CRAWLEY, MILNE & CO.,
Chartered Accountants.

Ottawa, February 6th, 1922.

OTTAWA TRACTION COMPANY, LIMITED

Directors

T. AHEARN, - - - President
WARREN Y. SOPER, Vice-President
T. F. AHEARN, G. P. MURPHY, C. M. G.
E. N. SOPER J. F. SMELLIE
T. WORKMAN
GEO. F. HENDERSON, K.C.

G. L. SNELLING, Secretary-Treasurer

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under
 Positions Wanted and Positions Vacant, 3c. per word.
 Equipment for Sale advertisements, 4c. per word.
 Allow five words where replies are to be sent to a box number. Minimum order—\$1.
 Rates under other headings and for display advertisements on application.

Modern Marine Machinery

Automatic Steam Towing Machines, Ship Windlasses, Cargo and Deck Winches, Steam Capstans, Dock Gypsies, Steering Engines, Hydraulic Hoists, etc.

Manufactured by the

CORBET FOUNDRY & MACHINE CO., LIMITED Owen Sound, Canada

Positions Vacant

AUDITOR—For Interurban Railway in Ontario, permanent position, must be experienced and capable of taking full charge. Apply, stating experience and acceptable salary, Box 706, Canadian Railway and Marine World.

Positions Wanted

Graduate of Columbia School of Drafting desires position as mechanical draftsman, 97.3% on model drawings matriculation. Box A1198 Canadian Railway and Marine World.

THE VICTORIA ROLLING STOCK & REALTY CO. OF ONTARIO LIMITED.

NOTICE is hereby given that the Annual Meeting of the Shareholders of the Victoria Rolling Stock & Realty Company of Ontario, Limited, will be held at the offices of Messrs. Osler & Hammond, 21 Jordan Street, Toronto, on Wednesday, March 1, 1922, at twelve o'clock noon, for the reception of the Annual Report and election of Directors for the ensuing year.

By order,

G. T. CHISHOLM,
Secretary.

Toronto, February 21st, 1922.

CANADIAN PACIFIC RAILWAY CO.

DIVIDEND NOTICE.

At a meeting of the Board of Directors held today the following dividends were declared:—
 On the Preference Stock, two per cent. for the half year ended 31st December last;

On the Common Stock, two and one-half per cent. for the quarter ended 31st December last, being at the rate of seven per cent. per annum from revenue and three per cent. per annum from Special Income Account.

Both dividends are payable 1st April next to Stockholders of record at three p.m. on 1st March next.

By order of the Board,
ERNEST ALEXANDER,
Secretary.

Montreal, 13th February, 1922.



THE LUNDIE TIE PLATE

One of the most distinguished, successful and honored Engineers of Canada writes as follows of the

LUNDIE TIE PLATE

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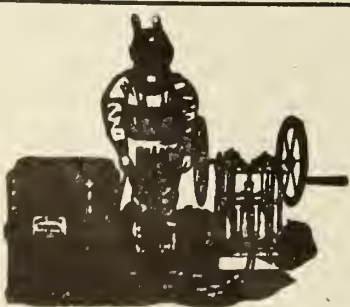
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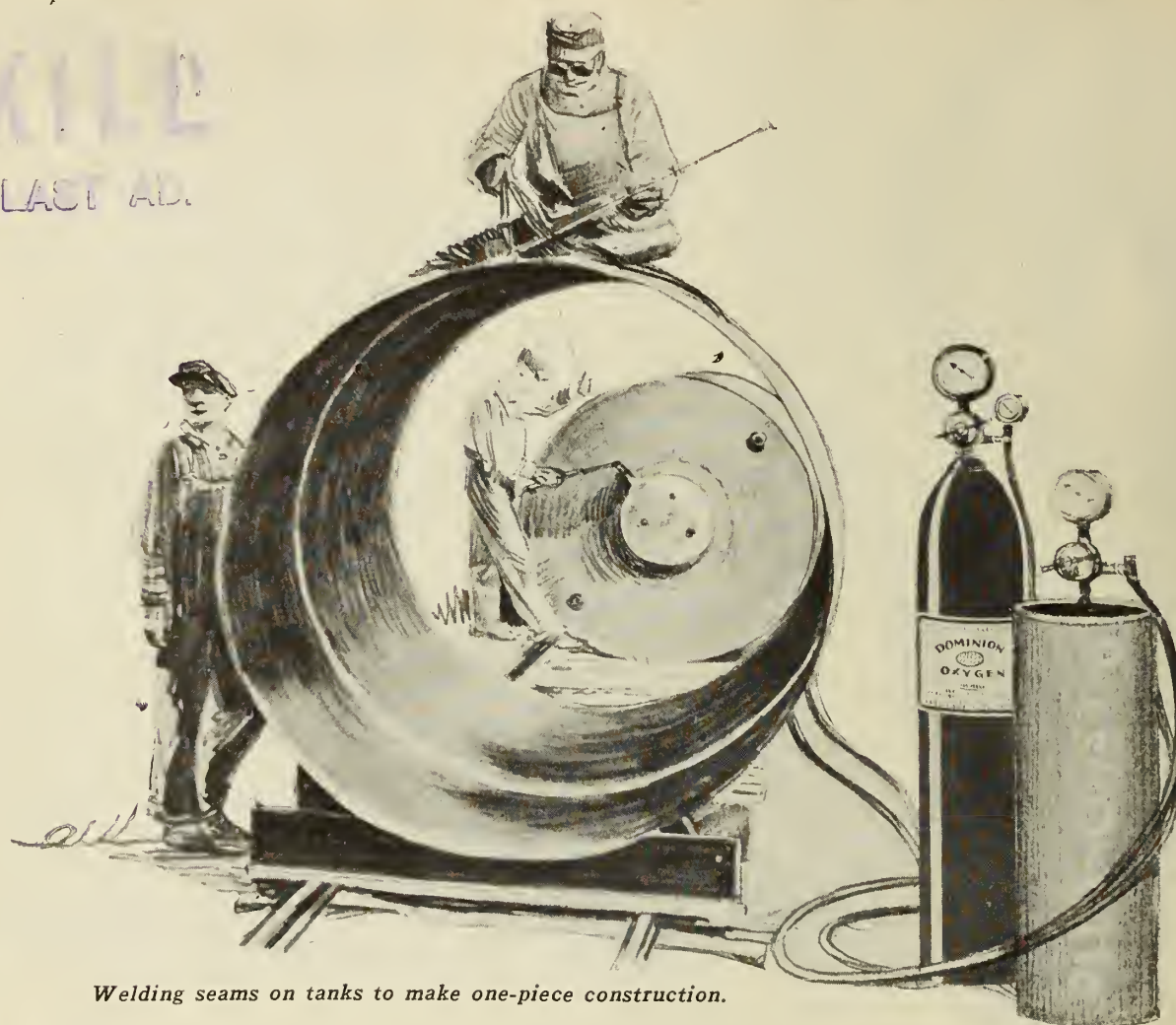
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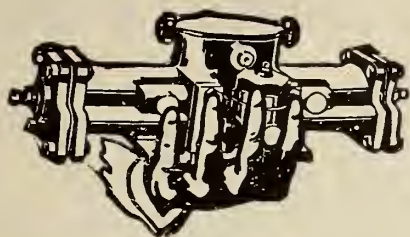
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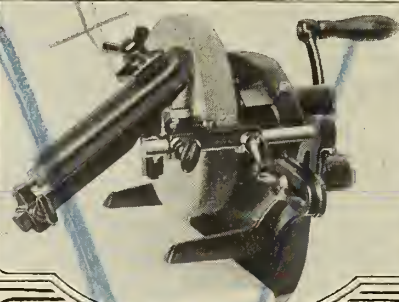
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Intensive Cultivation of Specific Fields Is the Secret of Modern Merchandising Successes

The old school of advertising, still fostered by some advertisers, but largely going out of use, was to buy circulation in terms of quantity rather than quality.

The advertising solicitor who could show the greatest number of millions of circulation at the lowest rate per thousand per line was often successful in selling campaigns to the unthinking.

We still see thousands of dollars wasted in advertising technical products to the general public. In some cases the desire on the part of these advertisers to spend money in advertising, rather than to allow it to go to the government in the form of taxes, is so evident as to call forth a protest from every thinking citizen.

But, the present period of readjustment has set men thinking. It has begun to restore the dollar value to the dollar. It is beginning to uncover the good old-fashioned word "thrift"

from under the pile of fool's gold that buried it.

Thinking men are once again beginning to take the trouble to segregate their logical audiences and to address their advertising messages to specific audiences in the trade language of the needs of those audiences.

Take the railway and marine interests of Canada for instance. They represent the very heart blood of the country. They typify directly and indirectly more than half of all Canada's industrial wealth. Their buying power foots up into thousands of millions of dollars yearly.

And the responsible executives of both the railway and marine interests—which also means the Dominion Government—of Canada are the men who carefully study the advertising pages of every issue of Canadian Railway and Marine World.

These men look to this newspaper as a safe guide in buying.

Can you imagine a specific appeal to a specific audience that gives promise of larger returns than a full page campaign in Canadian Railway and Marine World?

CANADIAN RAILWAY AND MARINE WORLD

Toronto

Member of

Canada

Audit Bureau of Circulations, Associated Business Papers,
Canadian National Newspapers and Periodicals Association,
Canadian Press Association.



KILL

LAST AD

Examine your files carefully each day for signs of wear.

The proper time to discard a file is when the teeth have become just a tiny bit dull.

The slightest loss of keenness means reduced efficiency—and a trifling sum buys a new file.

Our famous brands of files, specially hardened, stay keen and efficient for the longest possible time. They are:

Kearney & Foot—Great Western
American — Arcade — Globe

FILES AND RASPS

Made in Canada by:

Nicholson File Company

PORT HOPE - ONTARIO

marked

Canadian Railway AND Marine World

Founded in 1898 by Acton Burrows.

Number 290.
Index to contents, pg. 191.

TORONTO, CANADA, APRIL, 1922

See page 191 for
Subscription Rates



We manufacture every variety of Helical, Compression and Tension, Elliptic and Semi-Elliptic Leaf Springs for locomotives, tenders, passenger and freight cars, as well as springs for Street Railways, switches, frogs, etc. Our springs have been the accepted standard of spring quality for more than half a century.

Harvard

B.J. COGHLIN^{CO}
Limited
MONTREAL

Agents

TORONTO—Harvard Turnbull & Co.

WINNIPEG—Filer-Smith Mach. Co., Limited

VANCOUVER—Gordon & Belyea, Limited

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS

**DAVIS
STEEL
WHEELS**



Heavy Cars, such as Coal Cars, operating on steep grades, place the wheels used under the heavy equipment of today under excessive strain.

The Davis Steel Wheel is especially adapted to meet this service. Out of 8000 Davis Steel Wheels used under Coal Cars, operating on a certain grade, not one has developed a defect in four and a half years' service.

INTERNATIONAL EQUIPMENT CO. LTD.
MONTREAL, QUEBEC, CANADA.



KENNEDY PROPELLER WHEELS

Cut Shows Propeller 17 Ft. 6 Inches in Diameter, Weight 10 Tons. All Sizes, Sectional or Solid Iron, Semi-Steel or Steel.

Marine Machinery Anchor-Windlasses
Winches, etc.

Steel Castings, All Sizes

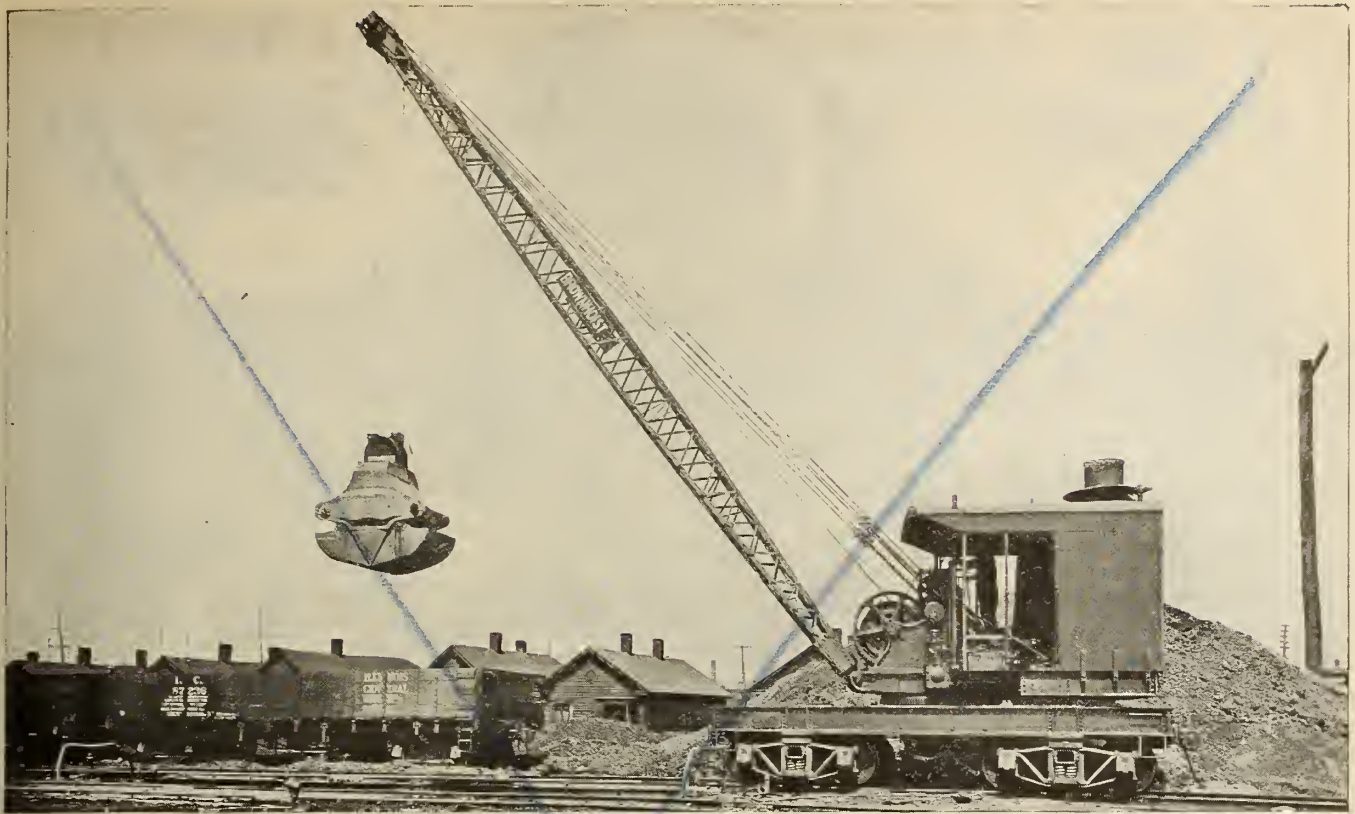
Try us with your next Order

THE WM. KENNEDY & SONS, LIMITED

:

OWEN SOUND

ESTABLISHED 1860



Saving Over \$50 Per Day

After many years experience with locomotive cranes, The Nickel Plate Railroad rely on these cranes to the extent that they are indispensable in their work. They have proved that a crane saves men and money on all the big and little jobs they have to do.

Two Brownhoists are used by this company on grade crossing elimination work. Handling materials from commercial cars to concrete mixers, one Brownhoist crane and an operator do the work of 16 men. Cost records show that this crane alone is saving \$53.45 per day.

The fact that their Brownhoists will operate continuously enables the Nickel Plate to make the most of the days when working conditions are favorable. The cranes are used for excavating, pile driving, switching and many other material handling jobs that are constantly coming up.

The all-around usefulness and dependability of a Brownhoist is shown by the value the Nickel Plate places upon their cranes. Catalog K shows the wide usefulness and many types and sizes of these cranes. May we send you a copy?

The Brown Hoisting Machinery Co., Cleveland, Ohio

Branches: New York, Chicago, Pittsburgh, San Francisco, New Orleans.

Products—Locomotive Cranes, Buckets, Electric Hoists, Larries, Overhead Cranes, Bridge Cranes, Dock Machinery.

BROWNHOIST

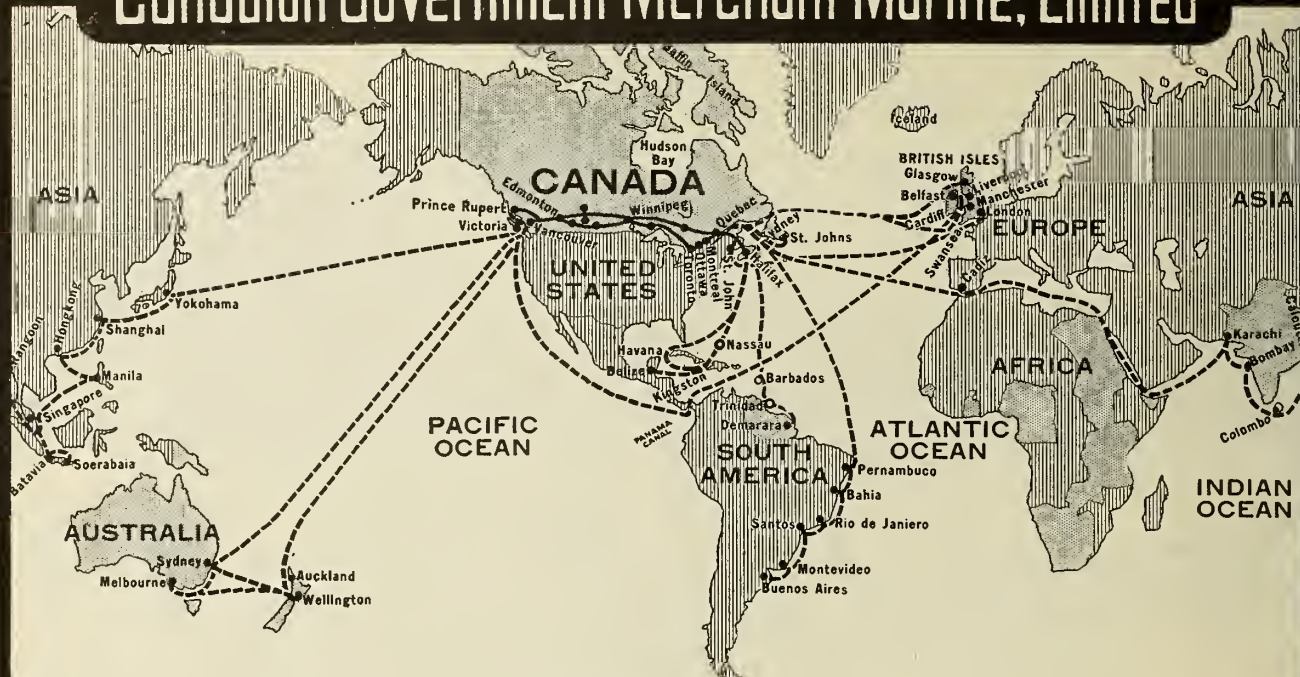
M A T E R I A L H A N D L I N G M A C H I N E R Y

66 Vessels

Canada's
commerce
carriers

**Total
Tonnage
390,000**

Canadian Government Merchant Marine, Limited



REGULAR FREIGHT SERVICES

From Montreal and Quebec in Summer
From St. John, N.B., and Halifax, N.S.,
in Winter.

To the United Kingdom, Liverpool, London,
Glasgow, Cardiff, Swansea, etc.

To Barbadoes, Trinidad and Demerara.

To Havana, Cuba, and Jamaica.

To South America, Rio de Janeiro, Santos,
Montevideo and Buenos Aires.

To India, Dutch East Indies and Straits Settlements via Mediterranean.

To Australia and New Zealand via Panama Canal.

To St. John's, Newfoundland.

From Vancouver, B.C.

To Sydney and Melbourne, Australia.

To Auckland, Wellington, Dunedin, and
Lyttleton, New Zealand.

To China and Japan.

To India and Straits Settlements.

Pacific Coastal Service.

Sailings every ten days.

From Vancouver and Vancouver Island ports.

To Seattle, San Francisco and Wilmington.

REGULAR FREIGHT AND PASSENGER SERVICE

Every three weeks from Montreal in Summer, and Halifax, N.S., in Winter,
To Nassau, Bahamas, Kingston, Jamaica, and Belize, British Honduras.

Superior First Class Accommodation. Excellent Cuisine.

B. C. KEELEY, General Agent, Vancouver, B.C.


F. G. WOOD, General Ontario Freight Agent, Toronto, Ont.

R. B. TEAKLE, General Manager, W. A. CUNNINGHAM, General Freight Agt.,
230 St. James Street, Montreal, P.Q.

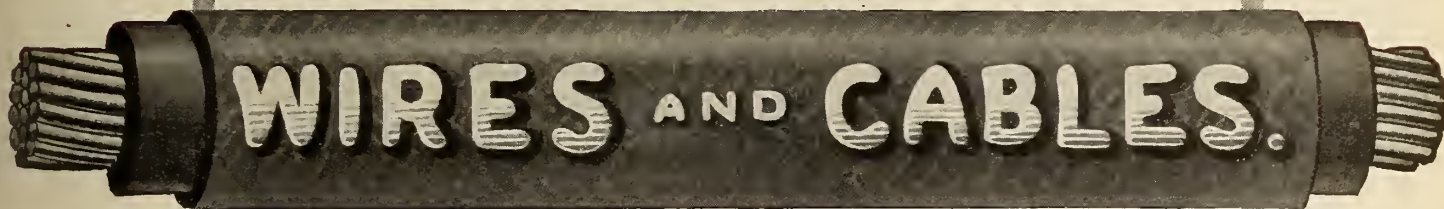



Canadian National Railways

Returned May 31/22

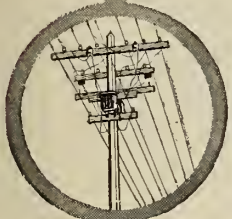


C.G.E.






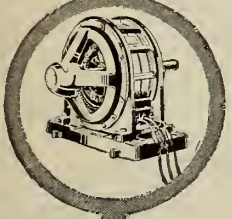
The uses of C. G. E. Wires and Cables are legion. Wherever electricity can be used there will be found a need for one or more types. No matter how large or how small the job may be C.G.E. can "Wire" it.

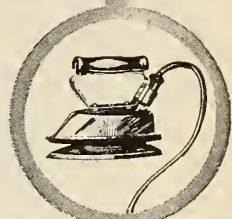

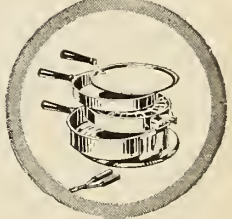



C.G.E. Canadian Black Core Rubber Covered Wires are a product of a Canadian factory. All that years of experience in wire manufacturing can do to enable us to offer our customers PERFECT wire has been embodied in C.G.E. Wires and Cables. It is a guarantee of quality to be able to say that "it is wired with C.G.E. products."



We carry complete stocks of Wires and Cables at our Nineteen Sales Branches from Coast to Coast. Moreover, we have at your disposal experienced Engineers who are ready and willing to co-operate with Architects, Electrical Dealers and Contractors, Electrical Engineers and Central Station Officials for the purpose of rendering service to our customers.



Canadian General Electric Co., Limited

HEAD OFFICE - TORONTO

Branch Offices: Halifax, Sydney, St. John, Montreal, Quebec, Sherbrooke, Ottawa, Hamilton, London, Windsor, Cobalt. South Porcupine, Winnipeg, Calgary, Edmonton, Vancouver, Nelson and Victoria.

One Way to Reduce the Cost of Track Maintenance

Look over your track maintenance costs; then make an inspection trip over a part of your road and see where large portions of your expenditure goes for labor in retamping ties, caused by tie pumping, tightening and replacing track bolts and replacing broken offset bars.

With the conditions existing today, is it consistent to continue shouldering your heavy maintenance burden when it can be materially decreased by eliminating the cause of your excessive track maintenance costs?

The Q & C Rolled Steel Step Joint is a logical solution for saving a large part of this expense.

A Rolled Steel Step Joint—heat treated—pressed to fit any rail section made, embodies the Bonzano features of metal distribution (the depending flange and the bulbed head). These are features that insure extreme rigidity and make the joint as resilient and strong as the unbroken rail.

When you find a Q & C Step Joint in your section—keep an eye on it—compare it with the others and as time goes by you will be convinced of its superiority.

May we send you further information? Drop us a line today.



Not since the invention of the Q & C Bonzano Rail Joint by Adolphus Bonzano, the famous engineer, has any improvement in track devices been of such value as the perfection of the Q & C Rolled Step Joint, which combines the elements of strength, simplicity and economy. Being made of open hearth rolled steel, annealed and strengthened by the Bonzano design with the depending flange, it makes the track where the two unequal sizes of rail are brought together even stronger than the heavier rail itself.

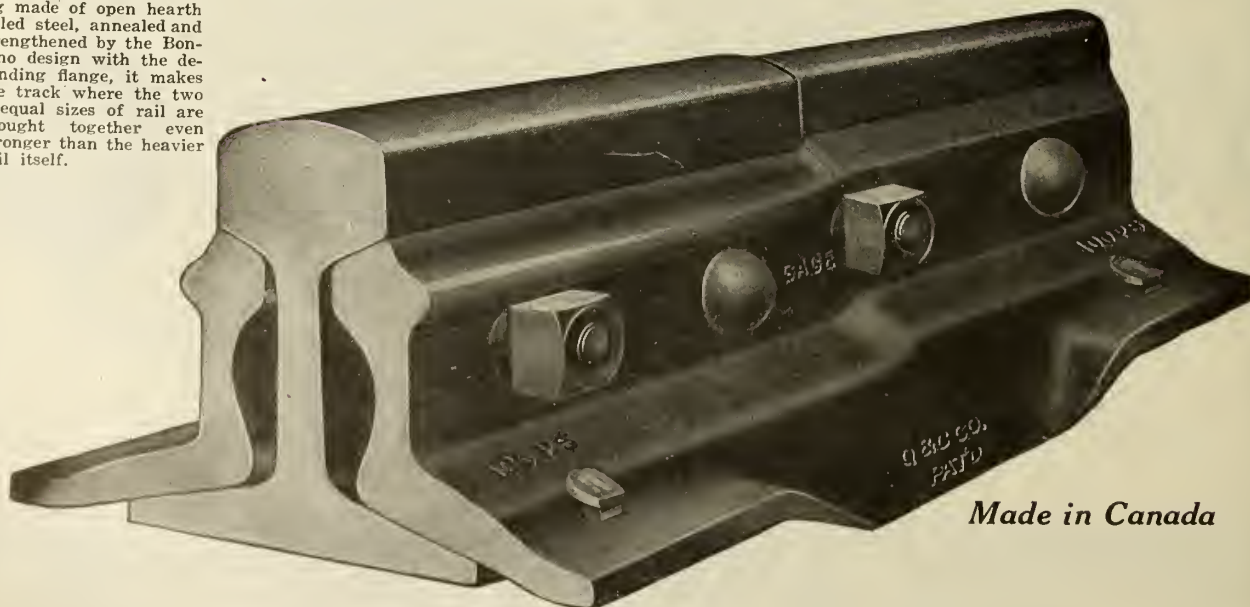
OUR BRANCH OFFICES SPAN THE DOMINION

The General Supply Co. of Canada, Limited

Montreal
Toronto

356 Sparks Street, Ottawa
Vancouver

Winnipeg
Moncton



Made in Canada

BASIC OPEN-HEARTH STEEL and FERRO-ALLOY CASTINGS

for all purposes

KILL
LAST AD.



Let us know Your
requirements
and ask for our
p r i c e s .

CANADIAN STEEL FOUNDRIES LIMITED

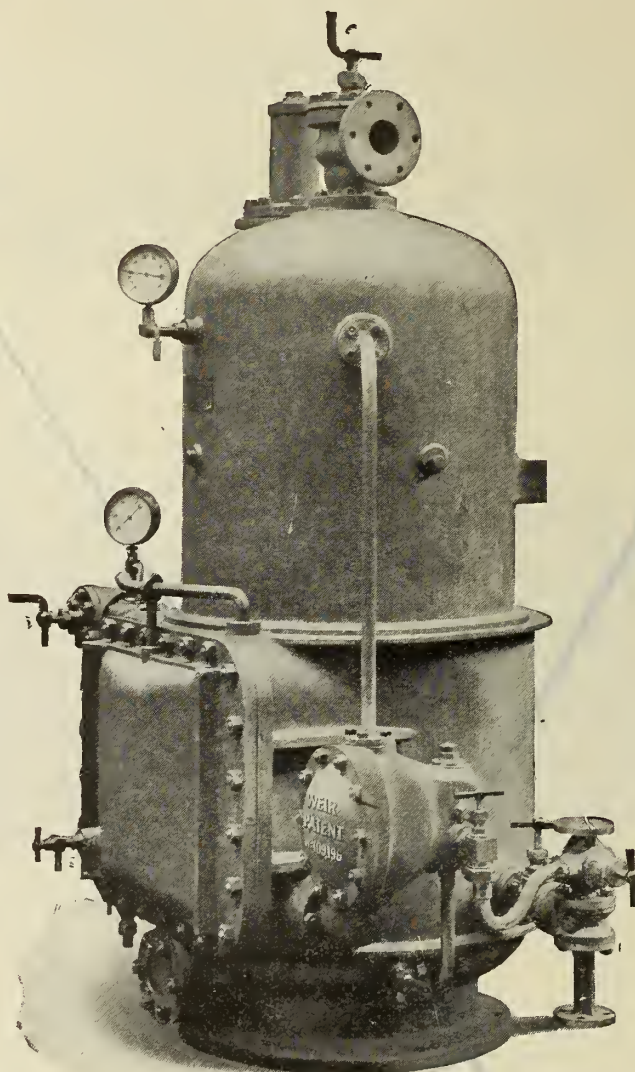
General Offices :

TRANSPORTATION BUILDING

MONTREAL

EVAPORATORS

The New Weir Evaporator



WEIR PATENT
CONTINUOUS BRINING &
AUTOMATIC FEEDING.

Embodies Three Important Improvements

1. The Patent Brine Ejector.
2. The Automatic Feed Regulator.
3. The Special Tube Coupling.

These devices ensure uniform efficiency, simplify working, and lessen costs of upkeep.

They are fully described and illustrated in our New Evaporator Booklet—Send for it.

MADE
IN
CANADA

Contractors to the British Admiralty and War Office and to the Governments of Australia, Canada, Egypt, India, New Zealand, South Africa, Argentine, Belgium, Brazil, Chili, Denmark, France, Greece, Holland, Italy, Japan, Norway, Portugal, Russia, Siam, Spain, Sweden, United States, Etc., Etc., also to the leading Steamship Lines and principal municipalities throughout the world.

MADE
IN
CANADA

G. & J. WEIR (Canada) LIMITED

Sales Engineers

PEACOCK BROTHERS, Limited, Montreal

Branch Offices: Toronto and Vancouver



Advantages of Galena Lubrication

Specialized Oils—Every Galena product is manufactured for a particular function in railroad lubrication, each a tried and proven lubricant for the purpose. Galena Oil perfection is the result of over fifty years of experience and test with all types of equipment and all conditions of service. Of unvarying uniformity, they may always be depended upon to deliver the fullest measure of lubricating value.

Specialized Service—The best of lubricants, improperly used, will not produce satisfactory results. The success of Galena Service Engineers in securing maximum efficiency is too well known to railway men to need comment. This service accompanies Galena Oils without cost to customers and is a guarantee that highly efficient results will be attained.

Economy—The benefits accruing from specialization may be seen in the savings accomplished through Galena lubrication by increased mileage, decreased fuel consumption and wear and tear on bearing parts—savings that amount to many times the price difference between Galena and other lubricants.



Galena-Signal Oil Company

of Canada, Limited

Toronto

Montreal



DOMINION IRON & STEEL CO. LIMITED.

NOVA SCOTIA STEEL & COAL CO. LIMITED.

DOMINION COAL CO. LIMITED.

HALIFAX SHIPYARDS, LIMITED.

EASTERN CAR CO. LIMITED.

"THE ONLY STEEL MAKERS IN CANADA
WHOSE ENTIRE RAW MATERIALS ARE
PRODUCED WITHIN THE BRITISH EMPIRE"

STEEL PRODUCTS *of every
description*

*"Dominion"
"Old Sydney"
"Springhill"*

STEAM COALS

"FROM ORE TO FINISHED PRODUCT"

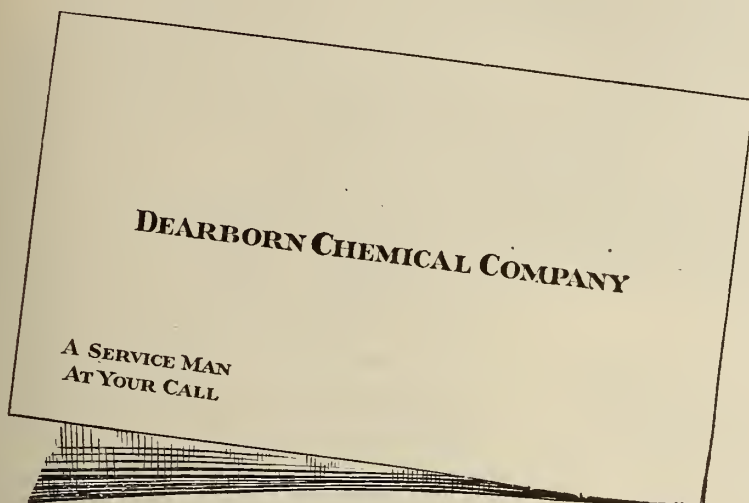
British Empire Steel
Corporation Limited *120 ST. JAMES STREET
MONTREAL*

"Worthy of Executive Attention"



Dearborn

REG. U.S. PAT. OFF.



We know It's Hard

When there are so many claims on your attention, we know it's hard for you to get right down to brass tacks and figure out Feed Water Treatment to a fine point.

But there is no real need for hesitation when we assure you that we will make all water analyses, prepare all data, and submit it in report form, with facts and figures,—

And considering that Dearborn Specialized Water Treatment is being used in well over half of the steam locomotives in the United States, and a large percentage of those in foreign countries,

**Our Proposition
Should Interest
You**

Under The Heading "Savings 1922"

The saving of thousands of dollars on any railroad, by the proper handling of the boiler water proposition, is a matter worthy of the careful consideration of all of those who are watching the profit and loss sheet.

Interesting figures and facts will be submitted on savings resulting from the use of Dearborn Anti-Foaming, Anti-Scaling, and Anti-Corrosive water treating preparations.

DEARBORN CHEMICAL COMPANY

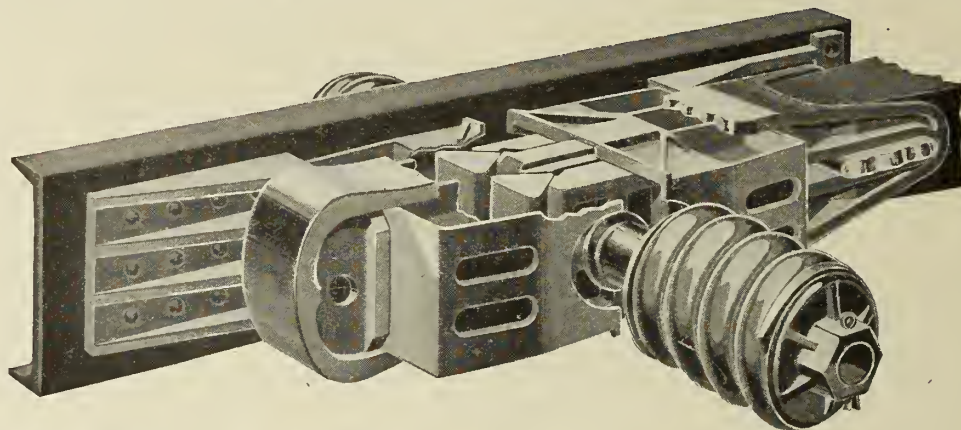
of Canada, Limited

2454-2464 Dundas Street W.,

TORONTO, CANADA

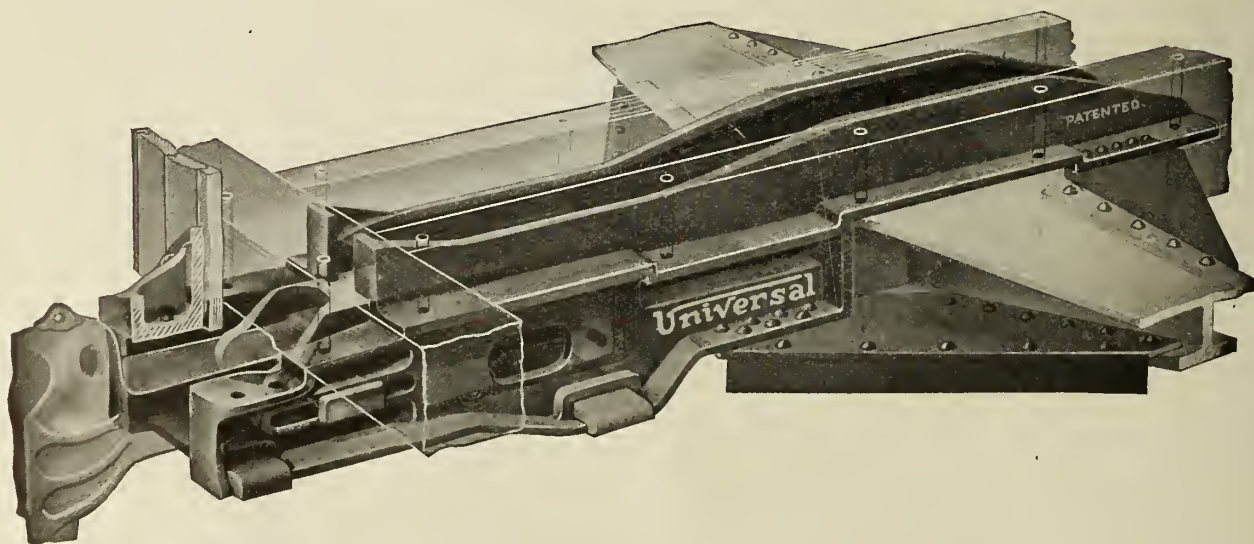
CARDWELL FRICTION DRAFT GEAR

MADE IN CANADA



Universal ATTACHMENTS

MADE IN CANADA



REENFORCING DRAFT ARMS
TANDEM SPRING DRAFT RIGGING
TWIN SPRING DRAFT RIGGING

CAST STEEL YOKES
DRAFT LUGS or PLATES
FRICTIONLESS SIDE BEARINGS

MADE IN CANADA

WEBB. G. KRAUSER

Transportation Building, MONTREAL



THE map above shows the location of the 49 foundries in the United States and Canada, represented by the Association of Manufacturers of Chilled Car Wheels.

Chicago, 3	Sayre, Pa.
St. Louis, 2	Berwick, Pa.
Buffalo, 4	Albany
Pittsburgh, 2	Toronto
Cleveland, 2	New Glasgow, N.S.
Amherst, N.S.	Madison, Ill.
Montreal	Huntington, W. Va.
Mich. City, Ind.	Wilmington, Del.
Louisville	Houston, Tex.
Mt. Vernon, Ill.	Hannibal, Mo.
Ft. Wayne, Ind.	Reading, Pa.
Birmingham	Baltimore
Atlanta	Richmond, Va.
Savannah	Ft. William, Ont.
Boston	St. Thomas
Detroit	Hamilton
St. Paul	Ramapo, N. Y.
Kansas City, Kan.	Marshall, Tex.
Denver	Los Angeles
Tacoma	Council Bluffs
Rochester, N. Y.	

American Railroad Association Standards

650 lb. wheel for 60,000 Capacity Cars
 700 lb. wheel for 80,000 Capacity Cars
 750 lb. wheel for 100,000 Capacity Cars
 850 lb. wheel for 140,000 Capacity Cars

The Standard Wheel for Seventy-One Years.

ASSOCIATION OF MANUFACTURERS
 OF CHILLED CAR WHEELS
 1847 McCormick Bldg., Chicago

CHILLED IRON WHEELS



An installation by the Hydro Electric Railway at Windsor, Ont., 1921.

Brantford Municipal Railway
The Ottawa Electric Railway

Also used by
St. Thomas Municipal Street Railway
Hydro Electric Railway, Guelph

Port Arthur Civic Railway
Kitchener & Waterloo Street Railway

International Steel Twin Ties

PROVIDES reinforced Concrete BASE.
PROVIDES under rail, substantial SUPPORT.
PROVIDES by spot welding rail to tie, ideal BOND.
PROVIDES by means 3" cross Channels, substantial ANCHORS.
PROVIDES by eliminating wood, a MONOLITHIC PAVEMENT.
PROVIDES the way for a lasting pavement and a Street Railway
Track on the same thoroughfare at A LOWER COST.

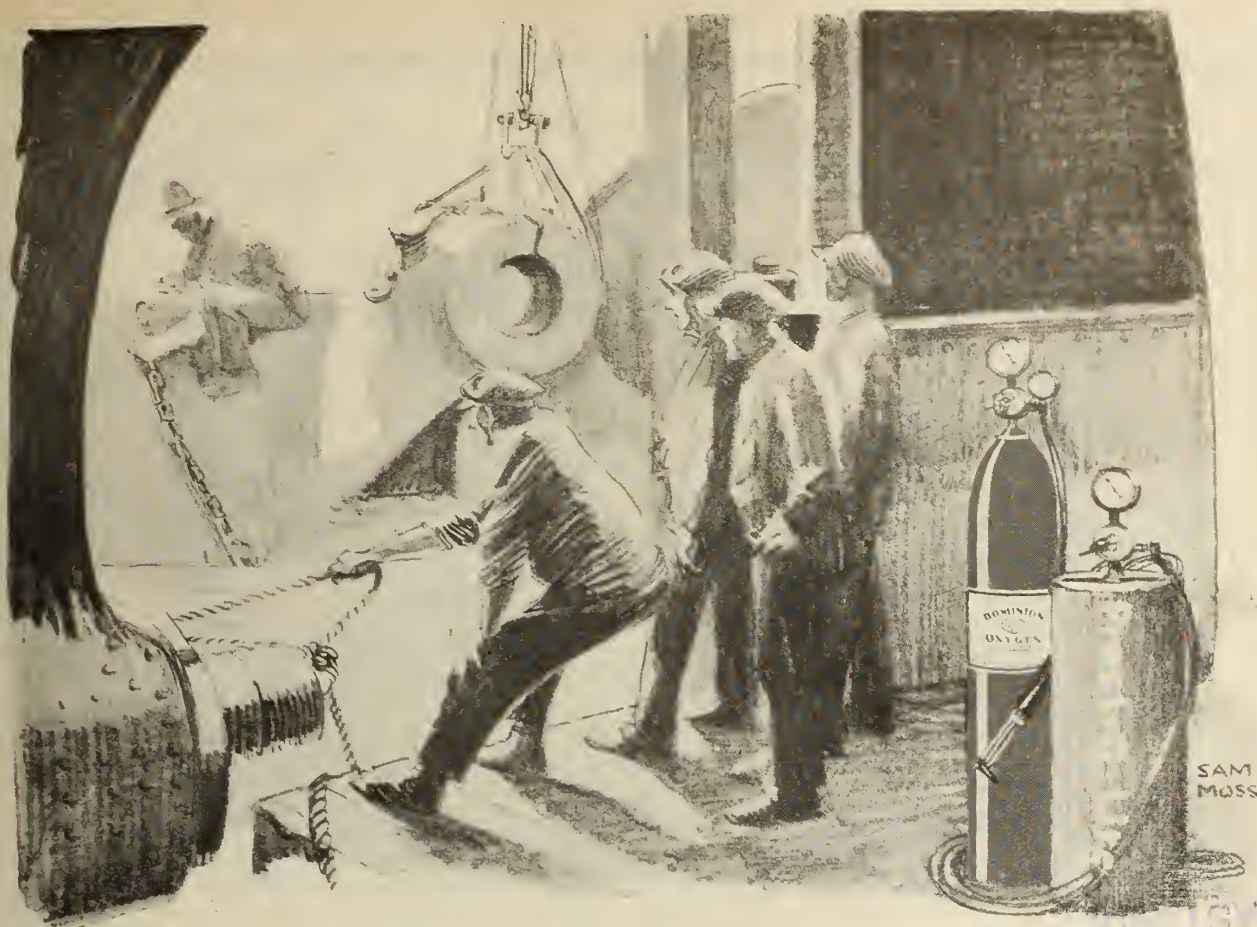
SAVES 40 to 60 per cent. EXCAVATION.
SAVES 30 to 50 per cent. CONCRETE.
SAVES handling 50 per cent. of WEIGHT.
SAVES in track laying considerable LABOR.
SAVES on account large bearing plates JOINT TROUBLES.
SAVES absorption of water by ties, eliminating CRACKED PAVEMENTS.

Manufactured in Canada and Sold by

SARNIA BRIDGE COMPANY

Limited

SARNIA - ONTARIO



Cast iron propeller hub cut with Oxy-acetylene Blowpipe.

DOMINION OXYGEN CYLINDERS

LIGHT IN WEIGHT, SAVE FREIGHT

A real money-saving opportunity is offered to you in Dominion Oxygen Service.

For instance, the cylinder while of ample strength to withstand the use and abuse of much handling and transportation, is exceptionally light in weight, which greatly reduces freight and handling charges. The capacity is sufficient to make constant re-ordering unnecessary.

The green-colored cylinder adopted by Dominion Oxygen is a familiar sight wherever oxygen is used. It is the symbol of oxygen

service that represents an outstanding success in the industrial field.

Uniform purity, a system of reliable immediate deliveries, a conveniently handled cylinder of large gas capacity and a liberal policy of cylinder loans make Dominion Oxygen and Dominion Oxygen Service the choice of oxygen users.

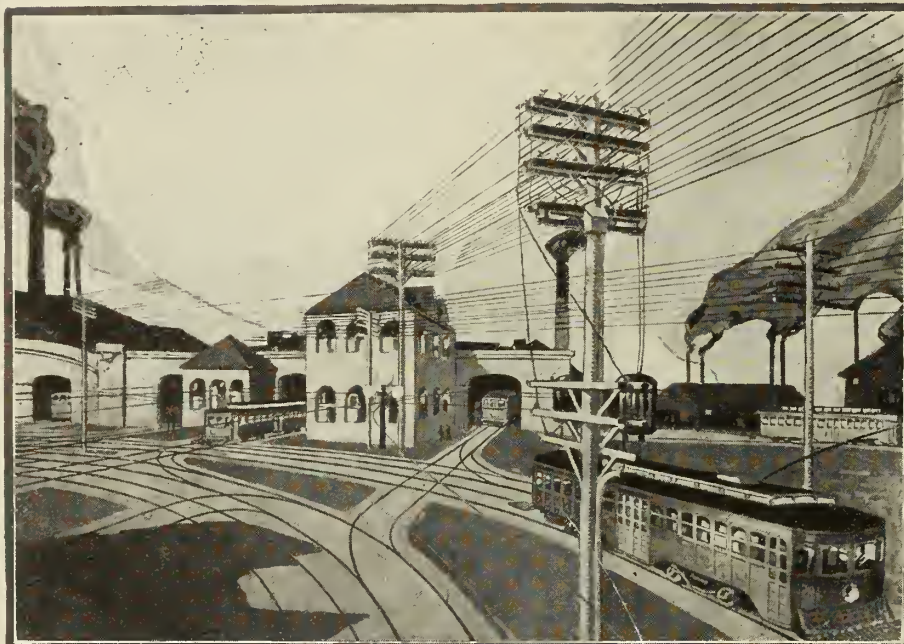
Be certain to obtain our price before placing your oxygen order. Order a sample cylinder—it will go forward the day your order is received.

Dominion Oxygen Company, Limited
Hillcrest Park, Toronto

Montreal Hamilton Merritton Welland Windsor

In Quebec City, order from our warehouse at Grant and Defosses Streets.

D-26



GALVANIZED
**POLE LINE
 HARDWARE**

WIRE
 Copper and Galvanized

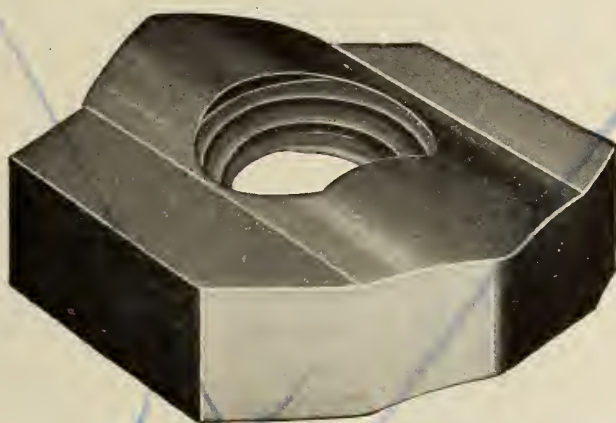
RIVETS
BOLTS, NUTS
WASHERS
SCREWS

**THE
 STEEL
 COMPANY
 OF
 CANADA
 LIMITED**

POLE STEPS
GUY CLAMPS
**CROSS ARM
 BRACES**
**ANCHOR
 RODS**

HAMILTON MONTREAL

Consider Maintenance and Not Initial Cost Only



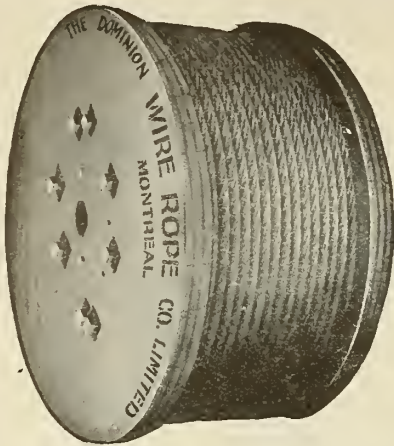
WITH all its permanence, security and economy, and its superior accomplishment, the GRIP NUT is but true to form. If it were not the superior lock nut it would not be specified by every railroad in Canada.

Canada Grip Nut Company Ltd.

St. Johns, Que.

- Montreal -

Winnipeg



Wire Rope

All Constructions—All Sizes—All Lengths

Suitable For
CRANES—DERRICKS—STEAM SHOVELS—DREDGES
COALING TOWERS—TOWING—MOORING ETC.

We know the best rope to recommend for each particular requirement.
Let us advise you

THE DOMINION WIRE ROPE CO., LIMITED

Head Office: MONTREAL

Branches: TORONTO, WINNIPEG

The Improved Hart Convertible Car

Unloads Clean Without Extra Hand Labor



Old Level Floor Car. Note Ballast Left by Plow.

For
Ballasting
Center
Dump
or
Side Dump

For Coal
or General
Service



Improved Car Unloaded by Top Plow. Has no Ballast to be Shovelled out by Hand.

The Car With Gravity Discharge Pockets
—DESIGNED, PATENTED AND BUILT IN CANADA—

The HART-OTIS CAR CO., Limited, MONTREAL

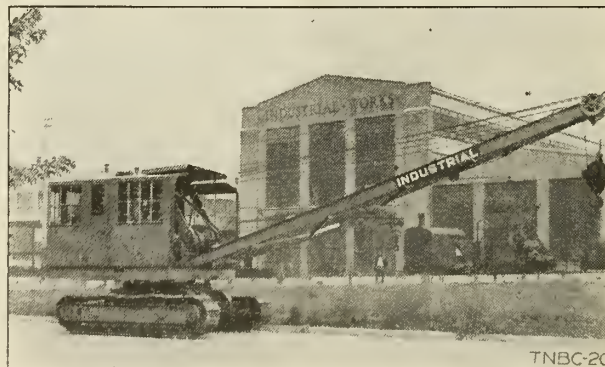
"Industrial" Crawling Tractor Cranes

This Crane has been developed to meet the need for a full revolving crane which can be operated independently of rails.

Ideal for handling coal, sand, gravel and slag with grab bucket.

Equipped with gasoline engine.

One man operated.



This Crane, with half a century of crane building success behind it, is pre-eminently adapted to the needs of many.

The utmost care has been taken to combine the necessary strength and light weight.

We would be glad to tell you all about this outfit.

We can furnish "Industrial" Locomotive and Wrecking Cranes of all Capacities
Pile Drivers—Pillar Cranes—Buckets.

Branch:
**108 Mail Building
TORONTO**

F. H. Hopkins & Co.
Limited

Head Office:
MONTREAL

THE JOHN INGLIS COMPANY, LIMITED

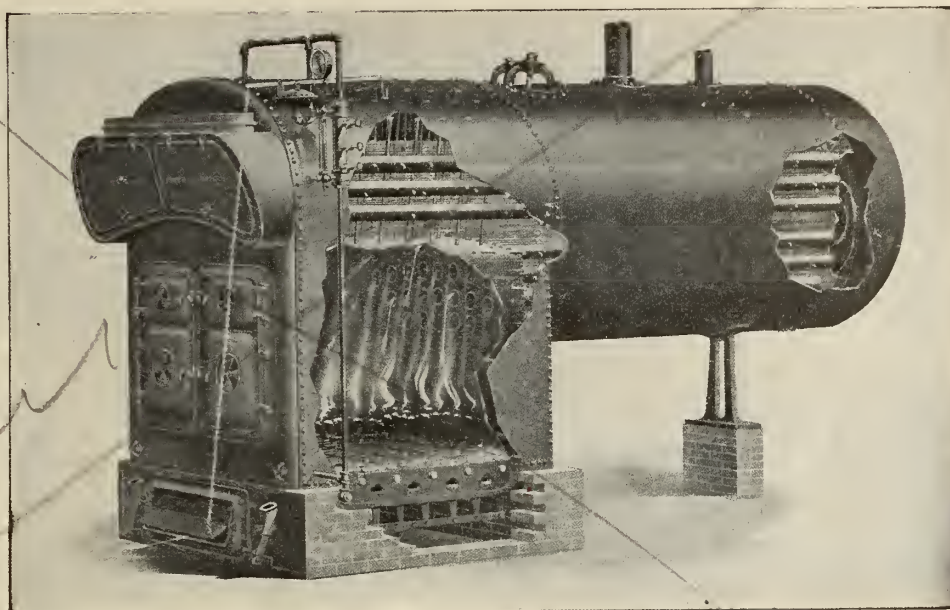
14 STRACHAN AVE., TORONTO, CANADA

Established 1860

Boilers of all Kinds
Tanks Stacks
Steel Plate Work

MARINE
ENGINES,
PUMPING
MACHINERY
and
SPECIAL
MACHINERY

Write us for Catalogs,
Prices, etc.



"Inglis" Portable Firebox Heating Boiler

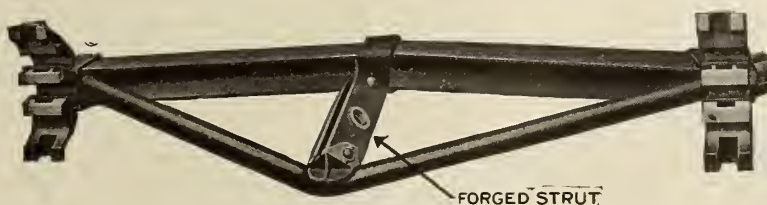
Representatives in Eastern Canada,—JAS. W. PYKE & CO., Ltd., 232 St. James Street, MONTREAL.
Ottawa Representative,—J. W. ANDERSON, 7 Bank Street Chambers.

Buffalo Brake Beam Company

BUFFALO BEAMS ARE BEST BEAMS

Offices

NEW YORK
32 Nassau Street
ST. LOUIS
Syndicate Trust
Bldg.
MONTREAL
10 St. Antoine St.



Works:
BUFFALO,
N.Y.

Canadian Works: HAMILTON, ONT.

Brake Beams for all Classes of Cars, Locomotives and Electric Equipment

Hunt-Spiller Gun Iron

FOR THE PRINCIPAL PARTS OF A LOCOMOTIVE

- 1 Cylinder Bushing
- 2 Cylinder Packing
- 3 Piston—Piston Bull Ring
- 4 Valve Bushing
- 5 Valve Packing

- 6 Valve Bull Rings
- 7 Crosshead Shoes
- 8 Knuckle Pin Bushings
- 9 Pedestal Shoes and Wedges
- 10 Driving Boxes

THE LIFE OF YOUR LOCOMOTIVES

depends largely upon the material applied to the parts listed above. Their failure or their success influences proportionately the failure or success of the locomotive. When buying HUNT-SPILLER GUN IRON, remember the service it gives.

Made only by

Hunt-Spiller Manufacturing Corporation

W. B. LEACH, Pres. & Gen. Mgr.

Office and Works:

J. G. PLATT, Vice-Pres. & Sales Mgr.

383 Dorchester Ave., SOUTH BOSTON, 27 Mass.

Canadian Representative: Canuck Supply Co., Ltd., 371 Aqueduct St., Montreal, P. Q.

The Collingwood Shipbuilding Co. Limited

COLLINGWOOD—ONTARIO and KINGSTON—ONTARIO—CANADA

Steel Ships, Engines, Boilers, Castings, and Forgings

PLANT FITTED WITH MODERN APPLIANCES FOR QUICK WORK



S.S. CANADIAN WARRIOR

Two Dry Docks
and
Shops
EQUIPPED TO
OPERATE
Day or Night
on
Repairs



The Star Brass Works

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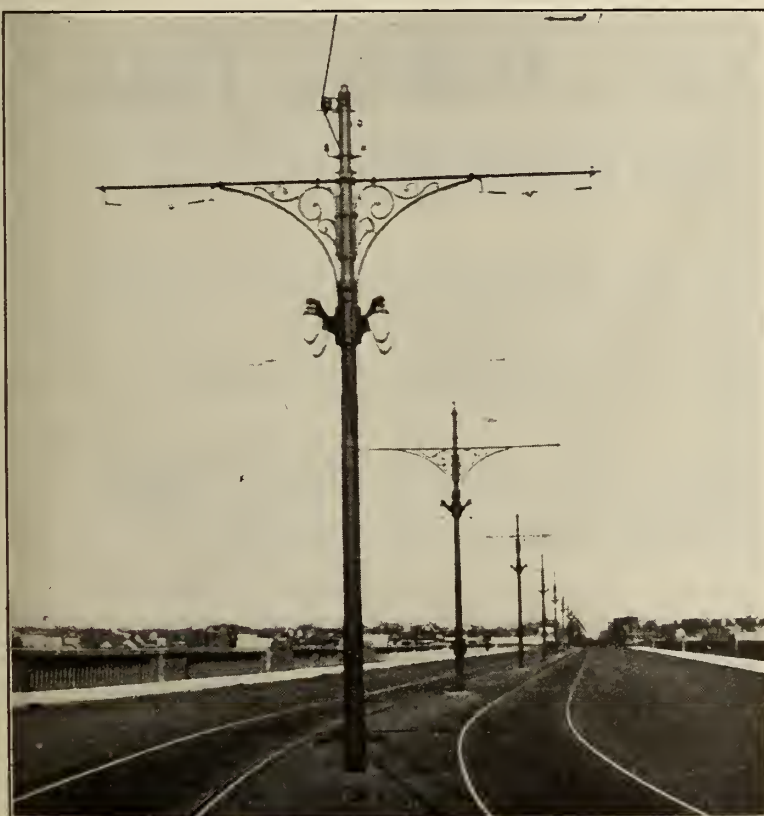
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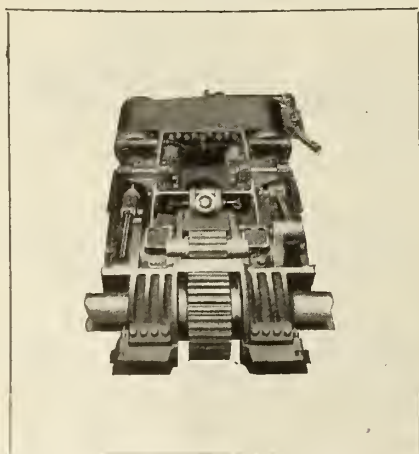
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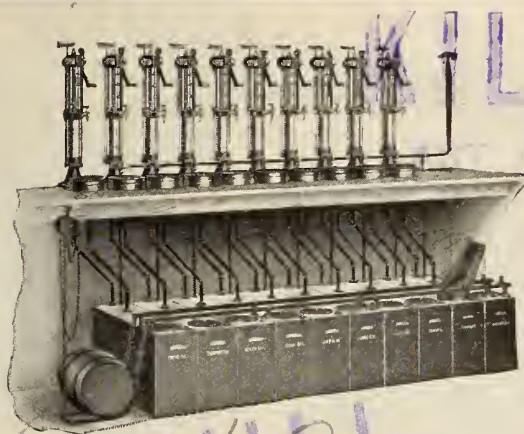
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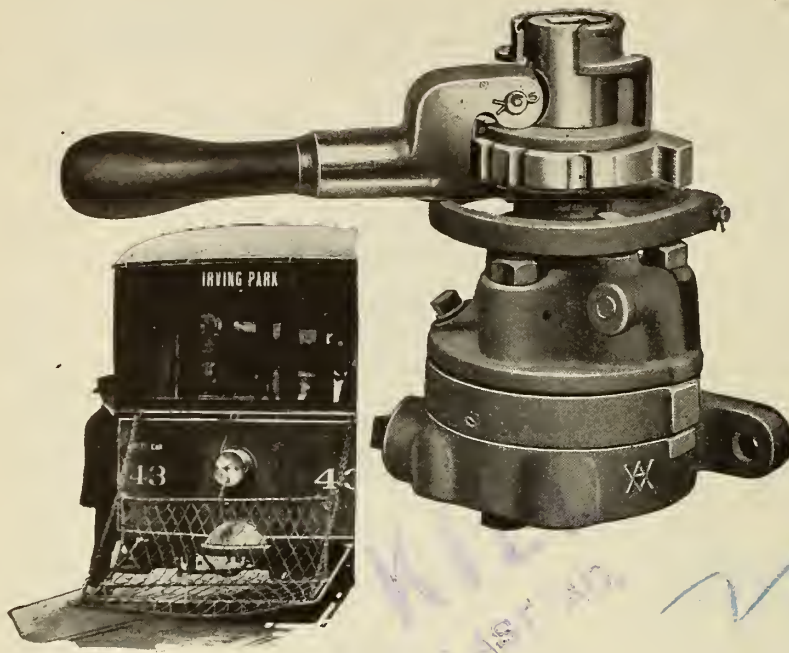
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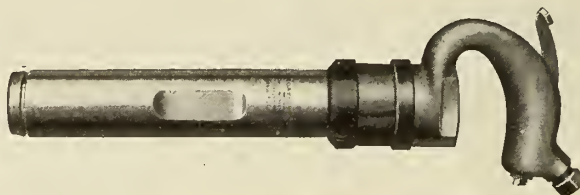
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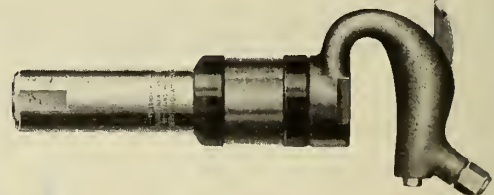


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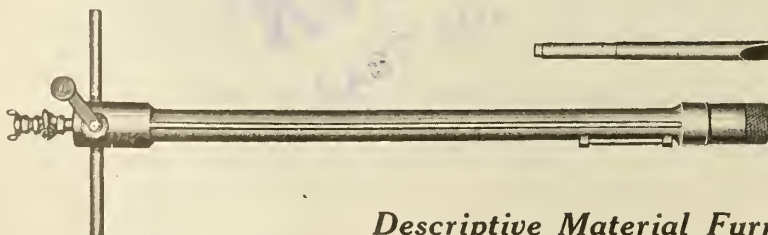
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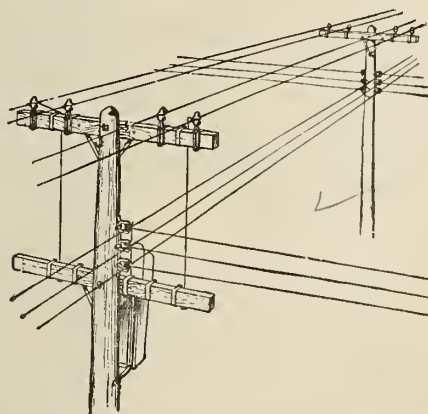
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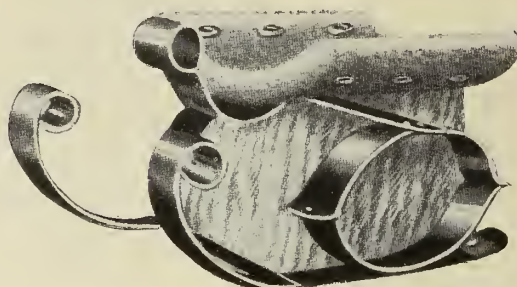
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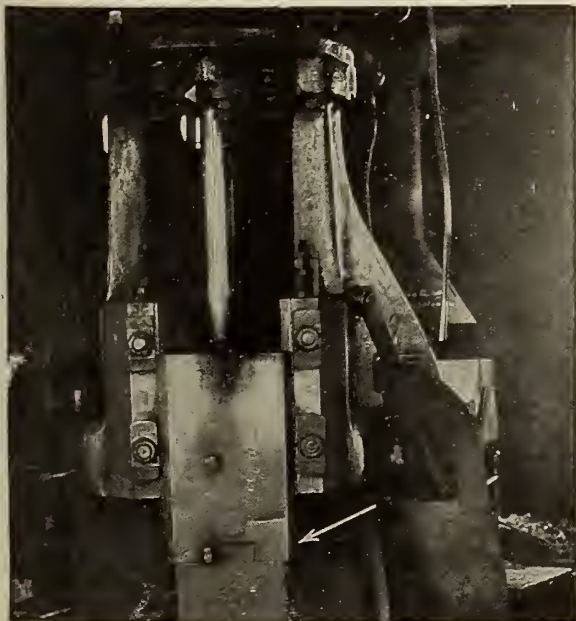
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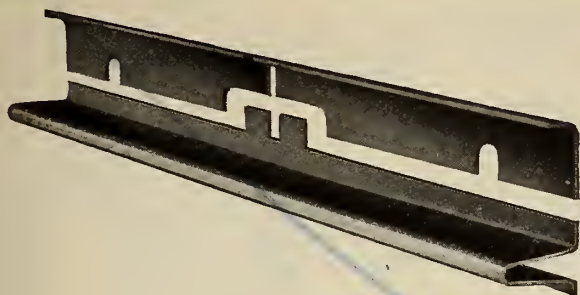
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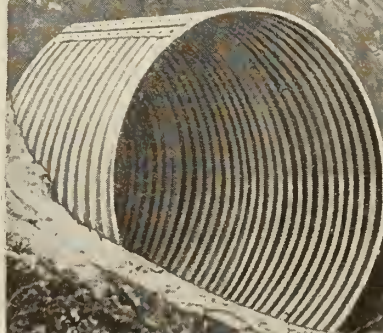
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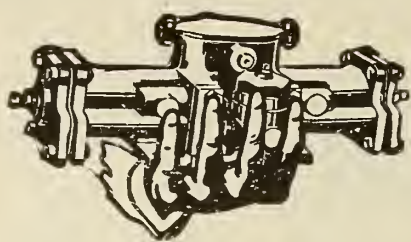
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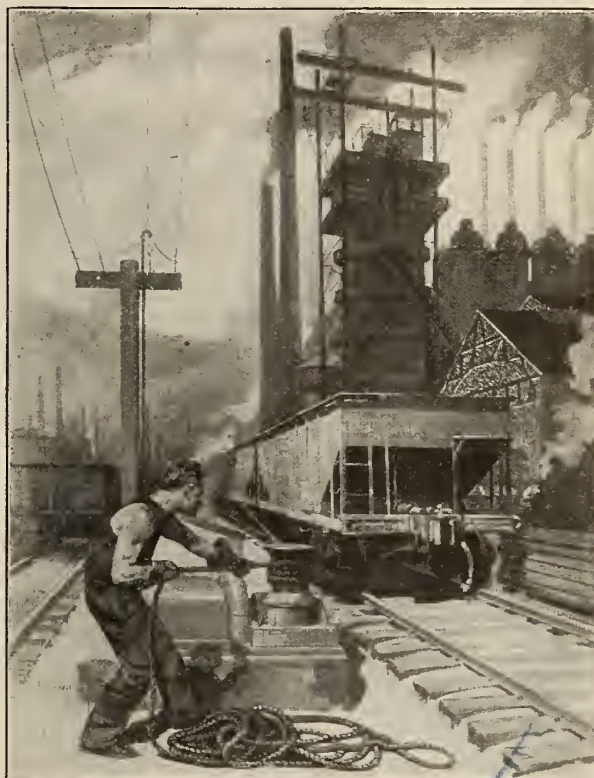
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Canadian Railway and Marine World

April, 1922

Automatic Box Car Unloading in Grain Elevators.

By C. D. Howe.

The transportation of grain from its point of origin on the farm to its destination at a milling point, or, in the case of export grain, in the hold of an ocean freighter at a seaboard port, is one of the great problems of all grain exporting countries. Many millions of dollars are invested in grain elevators for storing and handling grain in transit, while the railways have tremendous investments in rolling stock and terminal facilities for handling this vast traffic. On the North American continent practically all grain is moved by the railways. It is ordinarily moved in wagons or trucks to a near by country elevator, where it is loaded into a standard box

car and moved to a terminal elevator, where the box car is unloaded and the grain placed in storage until it is ordered forward to its further destination. Much export grain moves to the seaboard by a combined rail and water route, which makes necessary its handling through several grain elevators.

The large volume of grain to be handled has demanded the greatest economy of operation in grain elevators. Manual labor has gradually been eliminated, and now plays but a small part in grain handling methods. The modern grain elevator handles grain at a cost per ton considerably lower than the cost of handling any other commodity. The unloading of grain from box cars has, however, not until recently improved with other handling methods, and is still largely the only process in grain handling where manual labor is considerably used. The methods now in use are those of 20 years ago, and only within the last two years have steps been taken to substitute a mechanical device for hand labor in unloading grain from box cars. Practically all grain elevators receiving grain from box cars are equipped with

the manually operated power shovel, shown in the accompanying fig. 1. This device consists of a wooden shovel, to which it attached a cable, connected to a drum on a power driven revolving shaft. The operator carries the shovel over the grain to the end of the car and sets the shovel into the grain, after which the drum engages with the shaft by means of a clutch, and draws the shovel to the car door, where the drum is released by an automatic trip, and the cable freed, so that the operator can again set the shovel in the grain at the end of the car. These shovels are usually operated in pairs, and require two, and sometimes three, operators per car.

struction of at least one of the timber work houses, and therefore it was decided to build a single fireproof work house of reinforced concrete construction to do the work of both timber work houses, and to have an unloading, shipping, cleaning, and handling capacity at least as great as the combined capacities of the two timber work houses. The restrictions imposed by the site made it impossible to provide trackage adequate to serve an installation of car shovel pits. The large staff required to operate the many car shovel pits necessary for proper unloading capacity also presented a labor problem that would severely handicap the operation of the elevator in busy seasons. Without the in-

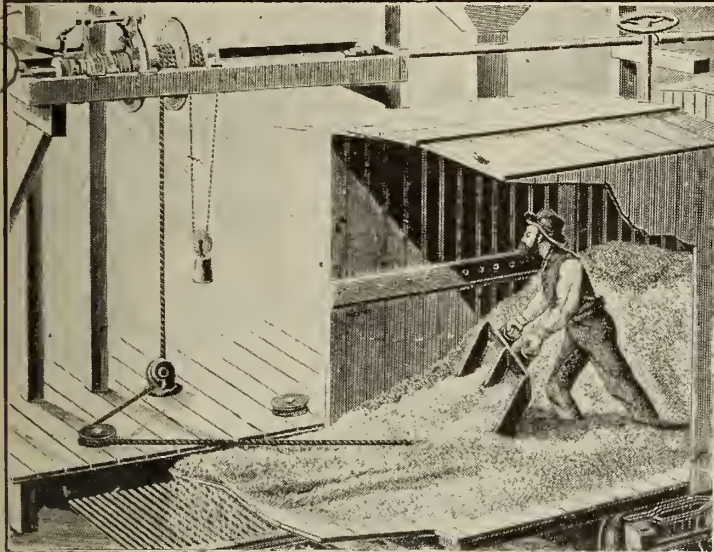


Fig. 1. Unloading box car by power shovel method.

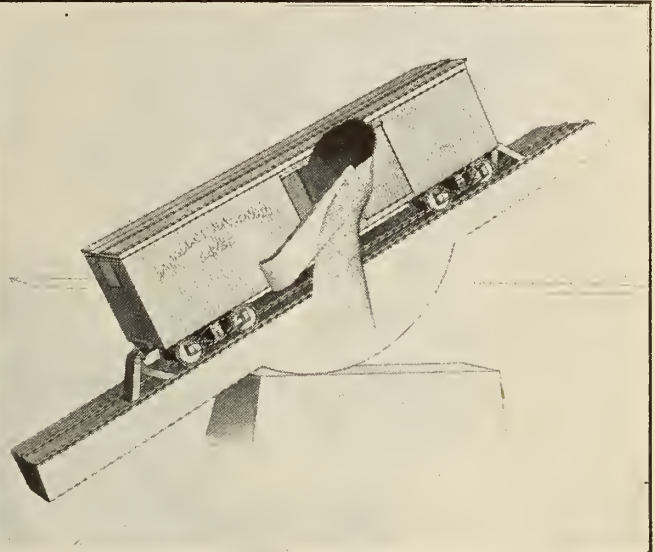


Fig. 2. Unloading box car on automatic dumper by gravity method.

The old method of unloading box cars also involves the removal of the temporary wooden grain door by means of an axe and bars, involving considerable hand labor and loss of time, as well as destruction to the grain door. The men engaged in shoveling cars and opening grain doors are constantly enveloped in a cloud of dust, and are called upon for very heavy physical exertion. Their work is seasonal and intermittent, depending on the business handled at various seasons. As a result, only the poorest class of labor can be obtained for car shoveling, and practically all labor trouble in a grain elevator centers around the shovelers.

The automatic box car unloader to be described in this article was developed for use in the reconstruction of the Canadian National Rys. elevator at Port Arthur, Ont., which is the largest grain handling plant in the world, having a storage capacity of over 8,500,000 bush. of grain. The plant consisted formerly of three fireproof tile storage annexes and two large capacity timber work houses. The deterioration of the timber structures made necessary the recon-

struction of more efficient methods of unloading, the use of a single work house seemed to be impracticable. The unloading device adopted consists of a tilting platform, with auxiliary automatic mechanism for opening the grain door and introducing deflecting baffles into the car, so that, as the car is tipped endwise, the grain content is discharged by gravity out of the side door into the elevator receiving hopper. The introduction of this device into a grain elevator eliminates the inefficient process of car shoveling from the otherwise highly efficient methods of handling grain in bulk. All necessity for manual labor in the grain handling processes is removed, and the employees of an elevator thus equipped are operators, not laborers.

The field for a box car dumper for grain has long been recognized, and patents covering many of the basic features of a box car dumper were taken out 20 years ago. The patentees were, however, unfamiliar with the requirements of grain handling processes and were apparently unable to develop a complete apparatus that would meet the exacting requirements of the grain trade,

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with a result, that the devices covered by the early patents were never placed in operation. Following are the requirements of a successful box car unloader for grain:—1. It must not damage the railway rolling stock, no matter how defective the condition of such rolling stock on arrival at the elevator. 2. It must be designed to handle all types of box cars that may be received at the elevator. 3. It must remove all grain from the car to the elevator pit without loss of grain and without hand labor. 4. It should have means for removing the grain door quickly and without damaging same. 5. It must be made practically fool proof in operation, and safe and reliable under all conditions of operation. 6. It must have speed and economy of operation such as will more quickly and without damaging same. 5. It must be made practically fool proof in operation, 6. It must have speed and economy of operation such as will more than justify its first cost. 7. It must be

Following is a detailed description of the box car unloader apparatus installed at the C.N.R. Port Arthur elevator. Figs. 2, 3 and 4 show respectively an operating perspective, side elevation, and end chine. The bridge consists of two built up plate girders braced rigidly together. The lower part of the girders is formed into a circular tread, which rest on steel tracks, supported on a heavy concrete foundation. Lugs on the tracks mesh with slots in the girders, to ensure proper alignment at all times, and a roller at each end of the bridge operates in a steel guide set in the concrete structure of the unloader foundation as a further aid to keeping the bridge in alignment. The tipping machinery consists of a 75 h.p. motor, connected, through a worm gear and differential, to run at each end of a bridge, by means of which the bridge can be rocked to an angle of 45 degrees in either direction. End locks are provided for locking the four corners of the bridge platform to the foundation. These

justing the door opening mechanism to all varying heights of car floor. The operation of the door opener forces in the grain door, without injuring it, and by a continuous motion carries the grain door inward and upward to the roof of the car, where it remains during the unloading operation. As the door opener is withdrawn, the grain door is dropped on the car floor, and is not manually handled at any stage of the unloading operation. Two deflecting baffles are provided, one at each side of the car door, each operated by a motor connected to a drum shaft with a worm transmission gear. These baffles can be placed across the full width of car, at a 45 degree angle, at the will of the operator, and are used for deflecting the grain out through the side door of the car. The steel baffles are connected by steel cables to the drums mentioned above, and are guided by upper and lower guide castings. In order to provide for the variation in heights of car floors, the forward

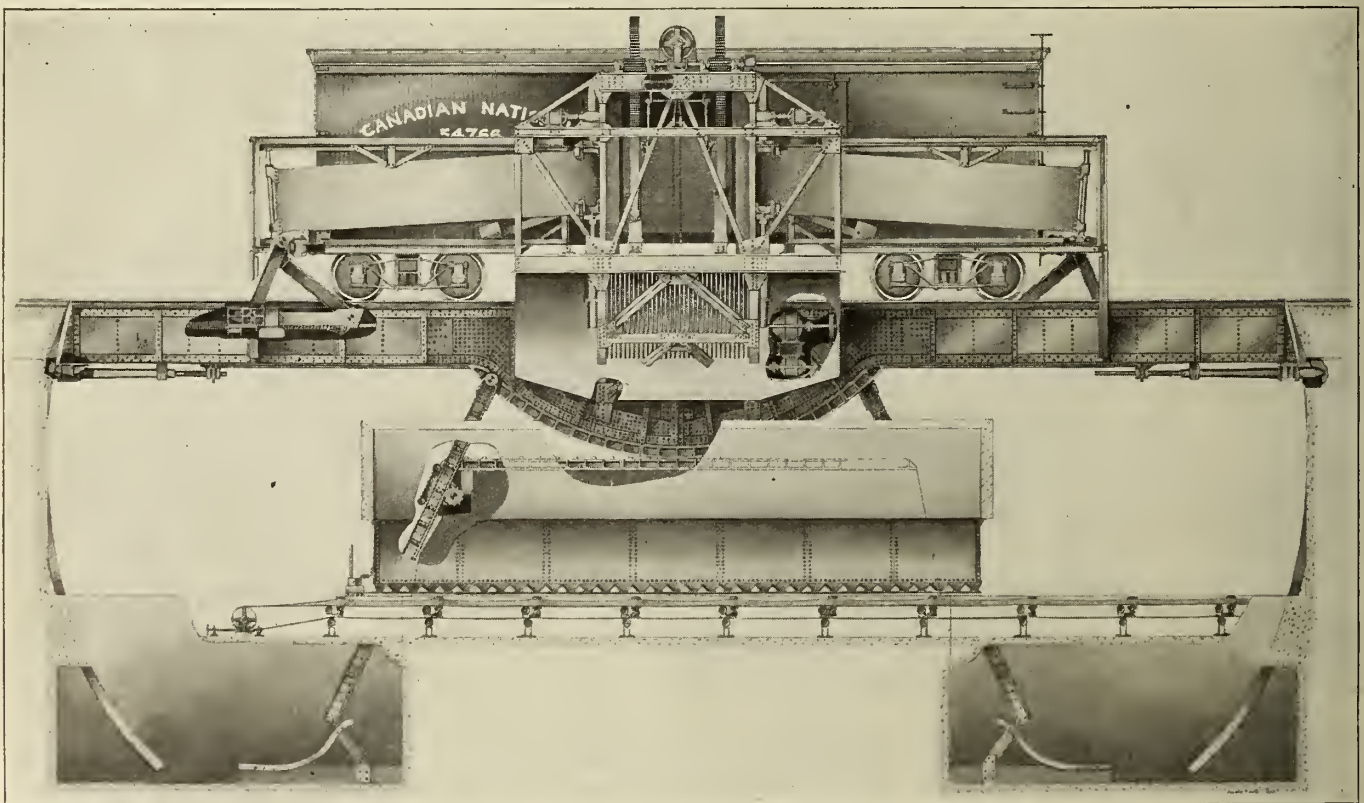


Fig. 3. Side elevation of automatic box car unloading apparatus for grain.

served by trackage that will permit rapid handling of cars to and from the unloader, without interruption to the unloading process, over long periods. Recent developments in automatic box car unloading apparatus for grain have for the most part been along the lines of a combined end tilt and side tilt to the cars. The unloader herein described has been developed for end tilt only, for the following reasons: 1. The side tilt causes strains in the rolling stock, for which it is not designed, and is a source of damage to box car equipment. 2. The advantages to be gained from a side tilt do not compensate for the very considerable additional construction cost necessary to effect the side tilt. 3. The clearance required for apparatus having a side tilt makes necessary an unduly wide track spacing and consequent expensive construction for housing facilities and trackage.

locks consist of a heavy pin, which slides into a cast iron shoe set in the foundation, the pins being all operated simultaneously by one 5 h.p. motor, with screw and link mechanism. Bumpers for centering the car on the bridge platform and holding the car in position during the tipping operation are of the collapsible type, and consist of heavy steel castings, hinged and supported on a crosshead in a guideway, and operated by large diameter screws driven from one motor located near the center of the bridge. These bumpers hold the car in position by clamping it over the draw bars. The door opener consists of two steel levers cast into gate segments. The operation is effected by a motor connected by a worm transmission to a counter-shaft, having a steel pinion at each end. These pinions are geared into the rack segments of the arms before mentioned. Automatic means are provided for ad-

end of the baffle is raised by means of a large nut supported in a casting under the baffle guideway. As the baffle moves into the car, it is lowered until it rests on the car floor, fitting tightly to the car floor and to the far side wall of the car. Deflecting plates are arranged under the car door, to ensure all grain being carried well to the center of the receiving hopper. Flexible deflectors are arranged to prevent any leakage of grain along the side of the car. Steel gratings are provided to protect the fixed hopper and to cover all open spaces around the unloaders. The fixed receiving hopper is part of the grain elevator structure. It is important that this hopper has a capacity of 2,000 bush. of grain, in order that the dumping operation may not be delayed while it is being cleared. The end travel of the car door, incidental to the rocking motion of the unloader, ensures an even distribution of grain in the re-

ceiving hopper, and makes it possible to obtain necessary capacity with a comparatively shallow hopper. The operator's cab is directly opposite the car door, and is provided with glass windows, so that he has an unobstructed view into the car at all times during the dumping operation. The electrical control board is in convenient position before the operator and all operations of the unloader are under his direct control. Particular attention has been paid to features bearing on the safety of operation of the unloader apparatus. The rocking cradle is designed so as to be in a stable equilibrium in all positions and under all conditions of loading of grain inside the car. Therefore, should a breakage occur in the tipping mechanism, the bridge will immediately come to a horizontal position without damage. All motors are equipped with solenoid brakes, and transmission is by self locking worm gears, so that no motion can take place unless actuated by electric current. Limit switches are provided on all important motions, and the operations are electrically interlocked so that they cannot be carried out in improper sequence. The apparatus is practically fool proof and incapable of being damaged by improper operation.

The successful operation of automatic car unloaders depends largely upon the facilities provided in the grain elevator for rapid disposal of the grain as it is unloaded, and also upon the trackage serving the unloaders. The installation at the C.N.R. elevator at Port Arthur, illustrated by figs. 5 and 6, is an example of an elevator properly equipped to operate with automatic unloaders. The elevator is located near the outer end of its site, so that through trackage could not be used. The unloading shed was therefore placed at the shore end of the work house, and the loaded car tracks and empty car tracks arranged side by side. At this elevator each yard track is long enough to hold 30 cars. The spring switch at the dumper is open to the empty track, and the track is graded so that empty cars run off the dumper and clear themselves by gravity on the hump yard principle. Loaded cars are pulled to the dumper by means of an endless cable haulage, which controls the entire yard. Specially designed cable grips are used for attaching the car to the moving cable. The layout permits loaded cars to be set into the elevator yard and empty cars to be moved without interruption of the unloading process.

The trackage layout at any elevator is more or less determined by the site and its location in relation to the feeder trackage. The ideal layout to serve an unloader is through trackage, where loaded cars are set in at one side of the unloading shed, and empty cars taken away at the other side. The objection to the layout before described is the distance necessary to move a loaded car from the yard to the unloader, amounting to about 110 ft. Where stub end trackage is unavoidable the layout shown is, however, as satisfactory as can be obtained.

A hand unloading pit equipped with power shovels is provided back of each of the four unloaders, to be used for unloading bulkhead cars or extremely bad order cars. The location of these pits permits the slow unloading to be carried on without interruption of rapid unloading on the dumpers. The stub track back of no. 4 dumper is extended

alongside the work house, to serve as a loading out track to cars. While the business handled by this elevator is principally receiving grain from box cars and loading out to lake steamships, during the season of closed navigation a maximum loading out capacity to cars of 100 cars a day is required. This is provided by 5 car loading spouts having Sandmeyer ends, serving the loading out track before mentioned. For the loading out process, the use of the corresponding loaded car track and empty car track is reversed. Grain from the receiving hopper at the unloader is delivered by multiple valves to a conveyor

veyor belt, transfer belt, and to a Mayo spout serving a number of work house bins. This rapid system of distribution not only permits economy of operation, but is necessary to permit distribution of the grain as rapidly as it is delivered from the car unloaders.

The elevator's cleaning capacity is adequate to serve its receiving capacity. Grain is shipped to steamships on five loftier legs, with a total average capacity of 75,000 bush. an hour. The elevator is of reinforced concrete construction throughout, except the storage annexes, which are of tile construction. The elevator is electrically driven, with a separ-

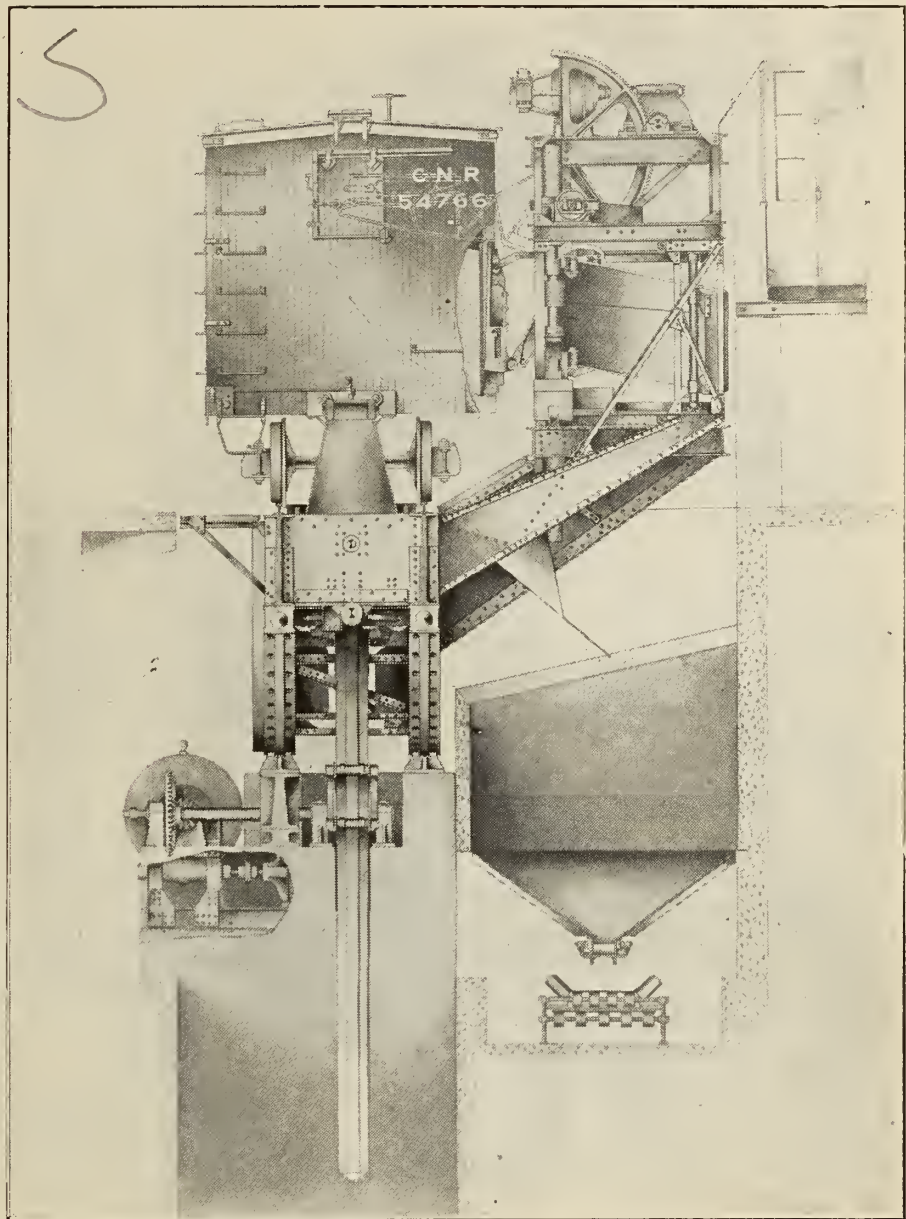


Fig. 4. End elevation of automatic unloader apparatus for box cars with grain.

belt, and loftier leg, discharging to a 2,000 bush. capacity garner over the receiving scale. Conveyor belts and loftier legs, serving the unloaders, have a capacity of 20,000 bush. of grain an hour. The scales are specially designed for rapid weighing, the 2,000 bush. capacity scale hopper having a 28 in. diameter outlet valve at the bottom. Distribution of grain from the scale is controlled by a turnhead, operated from the scale floor. Separate spouts are provided direct from each scale turnhead to a shipping bin, car loading spout, storage con-

ate motor for each machine. Its vacuum cleaning system is as complete as can be devised, and unusual precautions are taken to prevent dust explosions.

The time of the various separate operations involved in unloading a box car of wheat are shown in proper sequence as follows:—

	Seconds
Raising end bumpers and centering car on platform	40
Drawing end pins	10
Breaking in and raising car door (10% of grain content discharged into elevator pit)	15
Tipping cradle 20 deg. to left without baffle (85% grain content discharged into pit)	20

Insert right baffle and tip cradle 45 deg. to right (85% of grain content discharged into pit)	40
Withdraw right baffle, insert left baffle, and tip cradle 45 deg. to left (100% grain content discharged into pit)	50
Withdraw left baffle and level car	10
Withdraw door breaker	12
Insert end pins	10
Drop end bumpers and inspect interior of car	30
Complete operation, 237 seconds, or approximately 4 minutes.	

Removing empty car from the unloader platform, and spotting a loaded car on same, with the layout at the C.N.R. elevator, consumes about three minutes, and results of actual operation show that where wheat only is being unloaded, and no delays occur in distributing the grain inside the elevator, cars can be unloaded at the rate of one car per unloader every seven minutes, or at the rate of better than eight cars per unloader per hour. The unloading operation detailed above is, however, somewhat slower for a car of oats, which usually requires at least one extra tipping of the cradle. Over a long period, unloading is bound to be slowed down by delays incidental to the

loading; two laborers, to move loaded cars on and empty cars off unloader platform; total per unloader 4 men. The operating staff for an unloading shed equipped with 20 hand pits with power shovels averages during rush periods as follows: 25 shovelers, 10 laborers breaking car doors, 5 laborers shunting cars. The average per pit is therefore 2 men. As one unloader will do the work of 6 hand pits, the saving in labor is represented by 4 men for the unloader as against 12 for the equivalent hand pits, or a direct saving of 8 men per unloader. The actual money saved is in the same direct proportion, as at the elevator herein described former shovelers were put on as operators on the unloaders. Assuming that the actual unloading staff at an elevator is equivalent to the maximum staff employed for 200 days a year, which is approximately in line with actual conditions, the direct saving in labor amounts to 1,600 working days per unloader. With labor averaging \$5 a day this amounts to \$8,000 a

As regards cost of initial installation of the unloader, as against an equivalent number of hand pits with power shovels, there is under ordinary conditions but little difference. Installation of unloaders, instead of hand pits, however, will permit in many cases the use of a less expensive property development for the trackage layout. Needless to say, the problem of initial cost differs widely, depending on local conditions maintaining at different elevator sites. Whether or not the unloaders can be installed to advantage in existing elevators is a question requiring separate study for each individual elevator. The general statement can, however, be made that unloaders can be installed to advantage in most existing grain elevators. The writer believes that automatic unloaders represent an important innovation in the business of handling grain in bulk. Their installation permits large saving in labor costs of unloading grain from box cars, increased unloading capacity, greater efficiency in elevator operation, and better

TERMINAL ELEVATOR CANADIAN NATIONAL RAILWAYS PORT ARTHUR, ONT.

TOTAL STORAGE CAPACITY 800,000 BUSHELS
AVERAGE SHIPPING CAPACITY 75,000 BUSHELS PER HOUR
AVERAGE RECEIVING CAPACITY 24 CARS PER HOUR

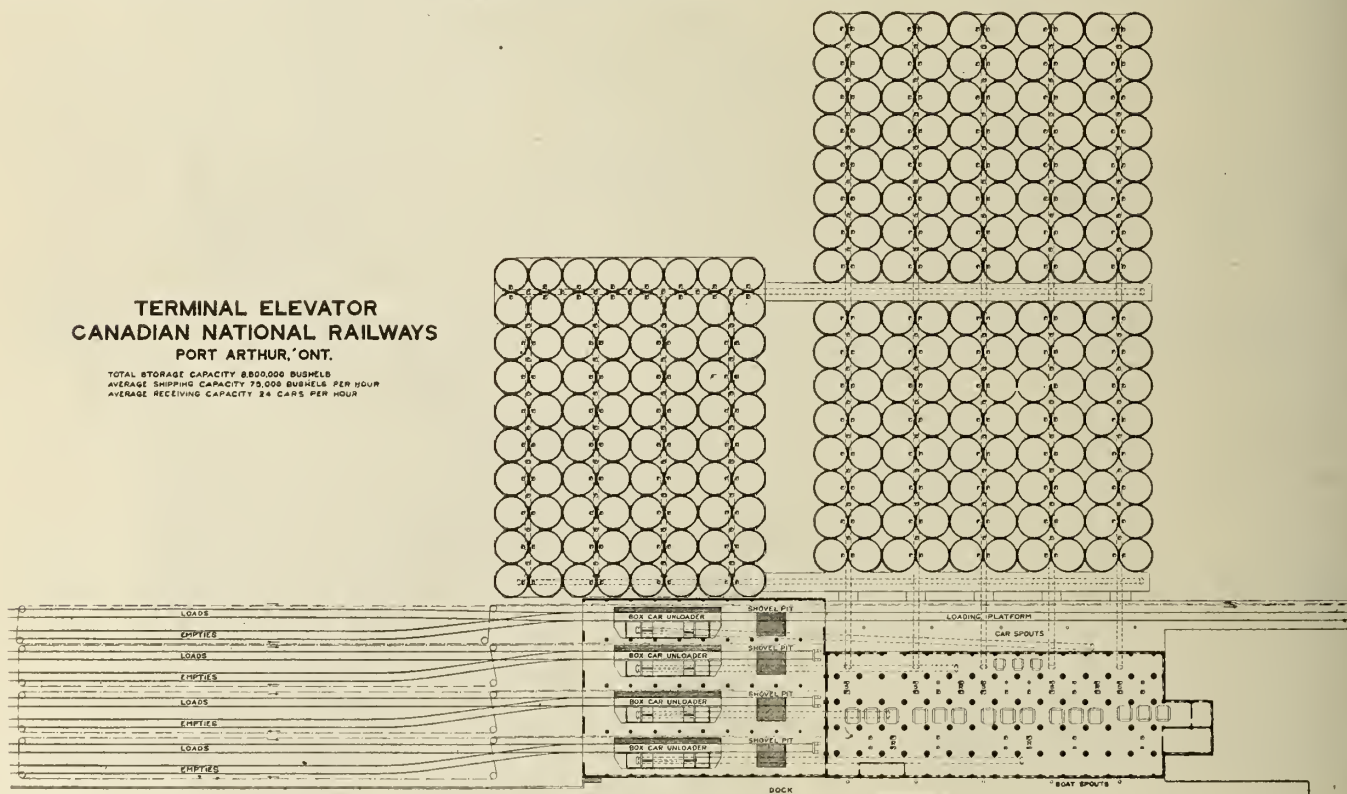


Fig. 5. Plan of Canadian National Rys. elevator at Port Arthur, Ont., showing layout of box car grain unloaders and haulage system.

distribution of grain inside the elevator. Results at the C.N.R. elevator indicate that for a 10-hour day, with normal delays for distribution, about 250 cars can be unloaded on 4 unloaders, or at an average rate somewhat better than 6 cars per unloader per hour. In a large grain elevator equipped with multiple pits having a pair of power shovels at each pit, it is not practicable to unload more than one car per pit per hour, as an average for a 10-hour day, and unloading records for the larger elevators indicate that this rate is practically never attained. For purpose of comparison we will therefore assume average rates of unloading by automatic dumper 6 cars an hour, and by hand pit with power shovels one car per pit per hour. The operating staff for one unloader is made up as follows: One operator, in operator's cab operating both unloader and car haulage; one attendant, at car door, to oversee dumping operation and inspect car after un-

year per unloader. In addition to the direct saving above shown, the unloaders permit a considerable indirect saving. The labor turnover is much smaller with the unloaders, due to better working conditions. The smaller staff required greatly lessens the danger of tying up operations by strikes. Maintenance costs are less for the unloaders than for the equivalent number of power shovels. The door breaker on the unloader does not damage the grain door in removing it, whereas by the hand method of breaking grain doors the door is practically destroyed.

Regarding power costs for one unloader as against 6 power shovels, the peak load for the unloader is about 75 h.p. as against about 6 h.p. for the 6 power shovels. The average power load is, however, less for the unloader than for the power shovels. Under most power contracts the power costs would be less for the unloader than for the shovels.

working conditions for elevator labor. Their use is fully approved by local government weighing and inspection staffs.

Fig. 6, mentioned, in the foregoing article, appears on pg. 173.

The C.N.R. elevator herein referred to was designed and built by C. D. Howe & Co., consulting engineers, Port Arthur, Ont., which firm in collaboration with the Dominion Bridge Co. also designed the automatic unloader installation. The unloaders were manufactured by the Dominion Bridge Co.

The Pere Marquette Rd. in 1921 earned enough to pay a full 15% accumulation on the 5% preferred stock, after the regular 5% prior preference preferred, and had left over an equivalent of about \$2.98 a share for the common. On the year's requirements alone, or allowing for 5% on the preferred, the common would have earned about \$5.73.

Birthdays of Transportation Men in April.

Many happy returns of the day to:—

F.G. Adams, Assistant General Freight Agent, Canadian National-Grand Trunk Pacific Rys., Winnipeg, born at St. John's, Nfld., April 6, 1878.

W. H. Ardley, ex Comptroller, G.T.R., and Grand Trunk Pacific Ry., Montreal, born at London, Eng., April 24, 1858.

Jas. Black, Freight Claim Agent, C. P. R., Vancouver, B.C., born near Seaford, Ont., April 19, 1858.

C. G. Bowker, General Superintendent, Ontario Lines, G.T.R., Toronto, born at Medford, N. J., April 21, 1871.

G. C. Briggs, Architect, Western Lines Canadian National Rys., Winnipeg, born

at Island Pond, Vt., April 21, 1868.

G. E. Cowie, General Freight Agent, United Kingdom Traffic, Canadian National Rys., London, Eng., born at Iowa City, Iowa, April 30, 1883.

J. P. Doherty, Export Freight Agent, Canadian Government Merchant Marine Ltd., Montreal, born at Portland, Me., April 8, 1889.

W. A. Duff, Engineer of Standards, Canadian National-Grand Trunk Pacific Rys., Toronto, born at Hamilton, Ont., April 20, 1877.

A. Gaboury, Superintendent, Montreal Tramways Co., Montreal, born there, April 6, 1875.

Canadian National-Grand Trunk Rys., Ottawa, Ont., born at Montreal, April 14, 1870.

J. H. Johnston, formerly Stores Department, G.T.R., Montreal, now at Barrie, Ont., born at Uxbridge, Ont., April 22, 1866.

Capt. A. H. Kendall, M.C., Master Mechanic, Quebec District, C.P.R., Montreal, born at Aspatria, Cumberland, Eng., April 4, 1878.

A. A. Larocque, President, Sincennes-McNaughton Line Ltd., Montreal, born at Henryville, Que., April 30, 1865.

G. W. Lee, Chairman, Timiskaming & Northern Ontario Ry. Commission, North

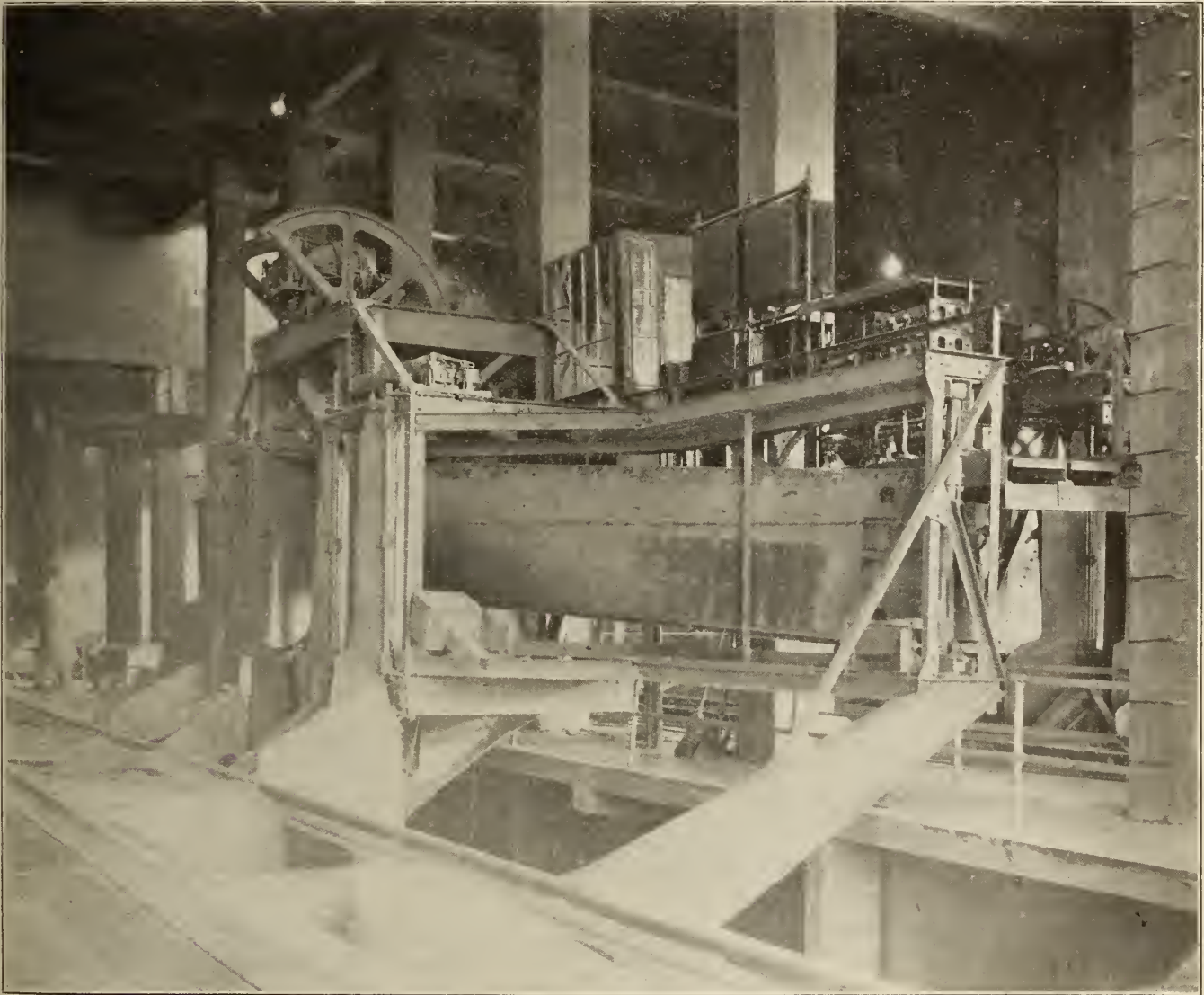


Fig. 6. Unloader platform, showing baffle, door breaker apparatus and operator's cab. See page 171.

at Cockermouth, Eng., April 23, 1886.

Major F. D. Burpee, Manager and Director, Ottawa Electric Ry., and Vice President, Canadian Electric Railway Association, Ottawa, Ont., born there April 25, 1876.

J. R. Caswell, Division Engineer, Sudbury Division, Ontario District, Sudbury, Ont., born at Coldwater, Ont., April 13, 1892.

G. Cobb, Superintendent, Western Division, Reid Newfoundland Co., Bishop's Falls, Nfld., born at Coupar Angus, Scotland, April 21, 1885.

A. V. Collins, Travelling Auditor, Canada Steamship Lines Ltd., Toronto, born

Lieut.-Col. F. A. Gascoigne, D.S.O., Secretary-Treasurer, Canadian Pacific Steamships Ltd., Montreal, born at Gosport, Hants, Eng., April 2, 1866.

J. Murray Gibbon, General Publicity Agent, C.P.R., Montreal, born at Udwella, Ceylon, April 12, 1875.

V. A. Harshaw, Manager, Fredericton & Grand Lake Coal & Ry. Co., and New Brunswick Coal & Ry., Fredericton, N.B., born at Mono, Ont., April 26, 1865.

L. M. Hatfield, Assistant Marine Superintendent, Canadian Government Merchant Marine Ltd., Montreal, born at Yarmouth, N.S., April 4, 1880.

E. J. Hilliard, Division Freight Agent,

Bay, Ont., born at Renfrew, Ont., April 15, 1871.

W. E. McGill, Assistant Superintendent, Smiths Falls Division, Quebec District, C.P.R., Smiths Falls, Ont., born at Toronto, April 5, 1884.

J. A. Macgregor, Manager, Edmonton, Dunvegan & British Columbia Ry., Edmonton, Alta., born at Dufftown, Scotland, April 5, 1873.

G. P. MacLaren, Engineer, Maintenance of Way, Eastern Lines, Canadian Northern Ry., Toronto, born at London, Ont., April 4, 1878.

B. R. Marsales, District Freight Agent, Canadian National-Grand Trunk Pacific

Rys., Saskatoon, Sask., born at Guelph, Ont., April 13, 1887.

Paul J. Myler, President, Canadian Westinghouse Co. Ltd., Hamilton, Ont., born at Pittsburg, Pa., April 24, 1869.

J. H. Norton, Assistant General Freight Agent, Eastern Lines, Canadian National Rys., Moncton, N.B., born at Shaftesbury, Eng., April 21, 1884.

T. R. Percy, General Agent, Canadian Pacific Steamships Ltd., Yokohama, Japan, born in Ireland, April 21, 1888.

G. D. Perry, Vice President and General Manager, Canadian National Telegraphs, Toronto, born at Whitby, Ont., April 19, 1858.

S. J. L. Potter, Local Treasurer, Eastern Lines, Canadian Northern Ry., Toronto, born at Burrington, Devonshire, Eng., April 5, 1887.

R. A. Pyne, Superintendent of Motive Power and Car Department, Western Lines, C.P.R., Winnipeg, born at Toronto, April 10, 1874.

R. E. Richmond, Assistant Ticket Agent, Canadian National-Grand Trunk Rys., Toronto, born at Uxbridge, Ont., April 5, 1888.

Lieut. R. S. Richardson, Superintendent, Canadian National Rys., Fort William, Ont., born at Napanee, Ont., Apr. 9, 1865.

E. W. Smith, Superintendent, Dining and Parlor Car Service, G.T.R., Toronto, born at North Bridge, Mass., April 21, 1869.

J. J. Sullivan, Roadmaster, C.P.R., Lauder, Man., born at Fishers, N.Y.,

Depressed Center Flat Cars, Canadian Pacific Railway.

The C.P.R. has added three depressed center flat cars to its equipment recently. Their principal dimensions are as follows:—

Length over striking castings	43 ft.
Length over end sills	42 ft. 3 in.
Length of depressed platform portion.....	18 ft. 6 in.
Width over stake pockets	9 ft. 11 1/4 in.
Width over side sill web	9 ft.
Height, top of rail to top of floor plate at ends	3 ft. 5 1/2 in.
Height, top of rail to top of floor plate at center	2 ft. 4 in.
Tare weight	55,000 lb.
Capacity in accordance with latest A.R.A. recommendations	155,000 lb.

The underframing includes two center sills, running from end to end of car, and depressed between the trucks, consisting of 3/8 in. plate, with top and bottom angles, with 3/8 in. bottom cover plate extending to within 2 ft. 5 1/2 in. of center of bolster, and additional 1/2 in. cover plate at center. There are two side sills, continuous from end sill to end sill, consisting of 3/8 in. plate, with top and bottom angles, and 3/8 in. bottom cover plate extending to within 5 ft. of bolster, with additional cover plate, 3/8 in., at center. The bolsters are built up of 3/8 in. diaphragms, with 3/8 in. top and bottom cover plates, and having in addition 3 1/2 x 3 1/2 in. reinforcing angles. The cross bearers are built up of 3/8 in. web plates, with reinforcing angles at top and bottom. The cars are equipped with angle floor stiffeners, and the car floors are of 3/8 in. steel plates. The end sills are 12 in. channels.

of this design, and during the Great War very similar cars were used as gun mounts for large calibre artillery.

The cars were built by Canadian Car & Foundry Co., and the first load to be hauled by one of them, no. 309,920, in revenue freight service, consisted of a 5,000 k.v.a. transformer, consigned by the Canadian General Electric Co., from Peterborough, Ont., to the Hydro Electric Power Commission of Ontario, at London, Ont. The weight of the lading was 50 tons, and the extreme height of the transformer from the top of rail was 19 ft.

Requirements for Establishment of Railway Stations.

The Board of Railway Commissioners passed order 9,160, Jan. 6, 1910, providing in paragraph 4 as follows:—"That at all stations, or shipping places, upon the said railway, from or to which the total freight and passenger earnings of the company for the last fiscal year, or where the average earnings for the last three fiscal years, amount to not less than \$15,000, of which \$2,000 shall represent inward traffic, the said railway companies shall forthwith construct and equip suitable and proper stations, not to be below the standard of plans and specifications attached, no. 2, and shall likewise forthwith appoint and continue a permanent agent at such point or points."

The Railway Association of Canada applied to the Board last year, to amend



Depressed Center Flat Car, Canadian Pacific Railway.

April 29, 1866.

G. M. Thomas, Commercial Agent, Canadian National-Grand Trunk Rys., Windsor, Ont., born at Dundas, Ont., April 21, 1876.

C. H. Towle, Assistant Superintendent, Smiths Falls Division, Quebec District, C.P.R., Smiths Falls, Ont., born at Enfield, Me., April 13, 1878.

W. H. Winterrowd, Chief Mechanical Engineer, C.P.R., Montreal, born at Hope, Ind., April 2, 1884.

W. Woolatt, Vice President and General Manager, Essex Terminal Ry., Walkerville, Ont., born at Weedon, Hertfordshire, Eng., April 2, 1855.

The American Railway Association, Mechanical Division's annual meeting will be held at Atlantic City, N.J., June 14 to 21. The reports of committees investigating car matters will be received and discussed on June 14 to 16, and reports of committees investigating locomotive matters will be received and discussed on June 19 to 21. The American Railway Association, Purchases and Stores Division, will hold its annual meeting at Atlantic City on June 19 to 21.

The 4-wheel trucks have Vulcan cast steel side frames and bolsters, and are equipped with A.R.A. class P 6-coil truck springs. Other truck details include A. R.A. axles, 6 x 11 in. journals, McCord pinless lid journal boxes, 33 in. solid rolled steel wheels, and A.R.A. standard no. 3 brake beams, with Creco 4-point support.

The cars are equipped with Westinghouse KD-8-12 air brake equipment, Cardwell friction draft gear, A.R.A. class D couplers, forged steel coupler yokes, Stucki side bearings, Imperial uncoupling device and Western angle cock holders.

These cars were designed for the transportation of heavy machinery which cannot be loaded on the ordinary type of flat car on account of the load projecting above the clearance limit for bridges, tunnels, etc. While they are the first of this type to be built for Canadian railways, so far as can be ascertained by Canadian Railway and Marine World, similar cars of this design have been in use for several years in the United States by the General Electric Co., which had several of them built for the transportation of electrical machinery. In addition, several U.S. railways have cars

the order, by substituting \$25,000 for \$15,000 as the average annual earnings for three fiscal years, and to substitute \$4,000 for \$2,000 of inward traffic. The application was heard at Winnipeg April 25, 1921, and the Board passed order 32,074 Jan. 31, dismissing the application.

The U.S. Interstate Commerce Commission has recently ordered that U.S. railways east of the Hudson River be allowed 15% more of the revenue derived from joint class rates, except in cases where the present divisions of the New England lines are greater than the division going to the line west of the Hudson, in which case they are to be increased by 15% of the division now going to the line outside of New England. This decision was given as the result of a long standing application of the New England roads for a better share of the earnings from through traffic moving under joint rates.

Freight Car Repair Bills.—The American Railway Association, Mechanical Division, has issued a table of weights of common materials to be used in preparing and checking bills for freight car repairs.

Combination Mail and Baggage Cars, Canadian Pacific Railway.

The Canadian Pacific Ry. has had built recently 15 combination mail and baggage cars, an illustration of one of which is given herewith. They have the following dimensions:—

Length over end posts79 ft. 1 in.
Length over buffers82 ft. 10½ in.
Distance between truck centers.....57 ft. 6 in.
Length inside mail compartment.....60 ft. 0¾ in.
Length inside baggage compartment.....18 ft. 1¼ in.
Clear width inside9 ft. 0¾ in.
Height, top of rail to top of floor.....4 ft. 5 3/16 in.
Height, top of rail to top of roof14 ft. 1¾ in.
Weight, empty, with full equipment160,600 lb.

The underframing includes built-up fish belly center sills, 5/16 in. web plates, 9/16 in. cover plates, and top and bottom reinforcing angles. Truck details include Commonwealth cast steel truck frame, truck center bolster and truck cross bolster, A.R.A. axles with 5½ x 10 in. journals, and steel tired wheels 36¼ in. diam. with cast steel centers. The cars are equipped with Westinghouse air brake equipment, schedule L.N. 1812,

Panama Locomotives on G.T.R. Western Lines.

Canadian Railway and Marine World received a letter from Toronto recently as follows:—"The G.T.R. lines shows in its Detroit Division time table, 12 Panama locomotives nos. 1100 to 1111. Have you at any time described this class of locomotive in your valuable paper?"

We have not described these locomotives specifically. We are informed by B. J. Farr, Superintendent, Motive Power and Car Departments, G.T.R., Western Lines, Battle Creek, Mich., that they were built in 1906 by Brooks Locomotive Works, Dunkirk, N.Y., and are what is commonly known as 2-6-0, or mogul type. They were built for the United States Government, and used in the construction of the Panama Canal, hence their name. When the canal was complete, a number of the locomotives were shipped back to the U.S., being purchased by second hand machinery companies. Twelve of them were bought by the Grand Trunk Rail-

for a year or more, notice must be given at the close of the session to the C.P.R. and to the Dean of the Faculty of Applied Science of the University, in order that the scholarship may be open to other applicants. In order to establish prior claim to the next available scholarship, notice of the student's intended return must be given to the company and to the Dean, not later than Jan. 1, preceding the opening of the session in which such scholarship will be available. Applications for certificates entitling eligible persons to enter the competition should be addressed to C. H. Buell, Staff Registrar and Secretary, Pension Department, Montreal. Copies of the calendar containing the conditions of admission and announcement of courses may be obtained upon application to the Registrar, McGill University. Certificate holders should apply, not later than May 10, 1922, to the Registrar of the University, for admission to the examination, and such application must be accompanied by the company's certificate of their eligibility."



Combination Mail and Baggage Car, Canadian Pacific Railway.

and Westinghouse schedule K signal equipment. Clasp brakes are applied, with Simplex forged brake beams and American Diamond S brake shoes. Hand brakes also are included in the equipment. McCord journal boxes with steel inserts are applied. Spring gear includes 40 in. 6-leaf semi-elliptic springs, and triple coil equalizer springs 1 11/16 in., 1¼ in. and 1 1/16 in., and Fowler upper buffer spring. The cars are each equipped with the Coleman patent truck locking device, the Holco improved type centering device, and Stucki side bearings.

The car bodies are of all steel exterior finish, and of all steel interior finish with the exception of the letter cases. Roofs are of the turtle back type, all steel, with exhaust honeycomb type ventilators. Insulation is of 3-ply Salamander. The cars are equipped with Acme type no. 2 diaphragms, Miner friction draft gear, class A-5-P, and Miner friction class B-10 buffers. The couplers, which are of the passenger type, are each equipped with the American Railway Association's standard type D head.

The sorting table and pouch racks are of the most modern type. Each car is equipped with a bunk, fire extinguishers, galvanized steel cooler and all the necessary accessories. The Vapor Car Heating Co.'s heating system is used. The cars were built by the Canadian Car & Foundry Co., Montreal.

way for its western lines, and are being used in switch and way freight service.

Canadian Pacific Railway University Scholarships.

Grant Hall, Vice President, C.P.R., has issued the following circular:—"Two free scholarships, covering four years' tuition in architecture, chemical, civil, mechanical or electrical engineering at McGill University, are hereby offered, subject to competitive examination to apprentices and other employees enrolled on the company's permanent staff and under 21 years of age, and to minor sons of employees. The competitive examination, which will be the regular entrance matriculation examination provided for in the University's annual calendar, will be held at the University, Montreal, and at other centers throughout Canada, in June, 1922. The candidates making the highest average and complying with the requirements of admission will be awarded the scholarships and have the option of taking any of the above courses. Scholarships will be renewed from year to year, to cover a period not exceeding four years, if, at the close of each session, the holder thereof is entitled, under the rules, to full standing in the next higher year. In case a scholarship holder finds it necessary to interrupt his course

E. W. Beatty, President, C.P.R., wrote Sir Robert Falconer, President, Toronto University, recently, as follows: "I am glad to be able to advise you that at the last meeting of our Board authority was granted to provide three scholarships of \$500 each annually to Toronto University for the purpose of inducing graduates of universities in Western Canada to pursue their postgraduate studies at Toronto University, with a view not only to keeping these graduates in Canada but also that they may become better acquainted with conditions in the east, and so tend to promote Canadian unity upon their subsequent return to the west. I am strongly of the view that the movement is one which will obviously be of benefit, not only to the students, but also to the communities in which they afterwards live, and that these circumstances warrant the granting of the scholarships."

Canadian Northern Ry. Land Grant Bonds.—Notice has been given in London, Eng., of the Canadian Northern Ry. Co.'s intention to redeem the entire issue of the 1st mortgage 4% land grant bonds, outstanding April 18, at par, with accrued interest. These bonds are dated Feb. 15, 1909, and are secured by a trust deed to the Empire Trust Company, and the National Trust Company. They will cease to bear interest after April 18.

C.P.R. Cantilever Bridge at St. John, N. B.

The C.P.R.'s new bridge over the St. John River at St. John, N.B., parallels the original cantilever bridge, which was opened for traffic on Oct. 1, 1885. The original bridge was part of the undertaking of the St. John Bridge & Railway Extension Co., which was formed to connect the Intercolonial Ry. at St. John

Track diversion totalling approximately half a mile was required to accommodate the new bridge location.

The new bridge consists of the cantilever portion, and the approach thereto from the west, or Fairville, side, the total length between abutments being 1,265 ft. The approach contains 8 spans of

2,000 tons, and in the river spans of the approach 330 tons. The two main, or river, piers, are spaced at 450 ft. centers and are founded on the rock which projects below low water level from the river banks, and forms shelves on which satisfactory foundation was obtained. These piers are built of concrete, faced with granite from base up to high water elevation, and finish about 43 ft. over the surface of slack water. All four piers of the cantilever bridge have rock foundations, and of the approach, two are founded on rock, the remainder on hard pan.

The accompanying illustrations show generally the design used for the cantilever, the essential differences between the new bridge and the original one being the horizontal top chord and parabolic curves for the bottom chords of the anchor and cantilever arms in the new one, while the older one has its bottom chord horizontal throughout, and its inclined top chord finishes in the lofty towers shown. Both suspended spans have parallel top and bottom chords.

The superstructure of the new bridge was commenced in April 1920 and completed in Dec. 1920. The steelwork was erected between June and Oct. 1921. The bridge was opened for traffic on Nov. 24, 1921.

The work was done under the general supervision of J. M. R. Fairbairn, D.Sc., Chief Engineer, C.P.R., P. B. Motley being the company's Engineer of Bridges, and C. F. Draper, Resident Engineer on the work. The contractors for the substructure were the Foundation Co. and for the steel work the Dominion Bridge Co.

A preliminary description of the new bridge, with plan and progress illustrations, was published in Canadian Railway and Marine World for March 1921.

Hamilton Incline Ry. — The Ontario Legislature has under consideration a bill to incorporate the Ottawa St. Incline Ry. Co., to build an incline railway from



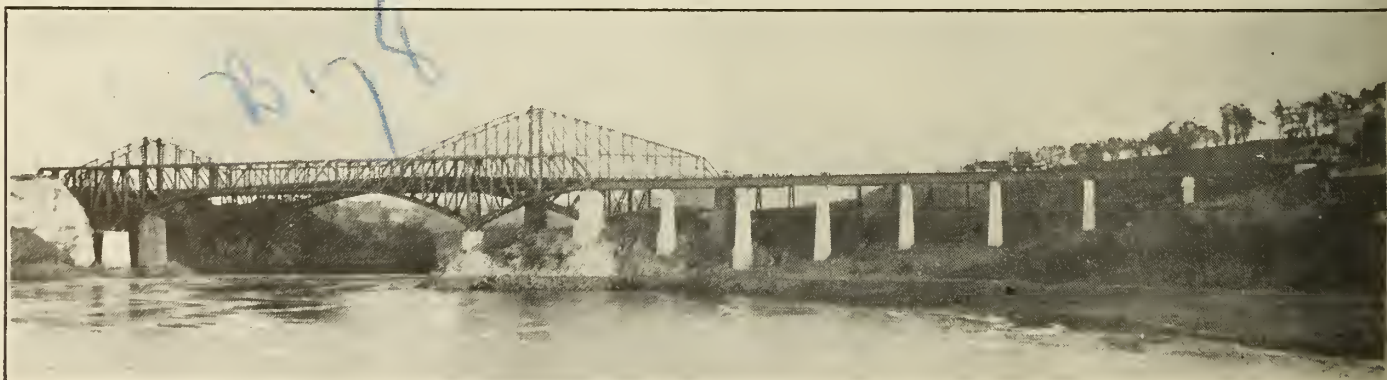
C.P.R. Cantilever Bridge over St. John River, at St. John, N.B.

View from northwest, showing portions of old C.P.R. bridge, and of highway bridge, in background.

with the St. John & Maine Ry. at Fairville, the length of railway authorized being 1.75 miles. This bridge and railway were bought by the C.P.R. and incorporated in its system in 1905.

The new cantilever bridge is on the north side of the original bridge and is 30 ft. distant, center to center. These two bridges form, with the highway bridge, built by the Province of New Brunswick in 1915, a cluster of three

deck plate girder type, each span 70 ft. out to out of steel. The cantilever is made up of 2 anchor arms of 125 ft. each, 2 cantilever arms of 150 ft. each, and a suspended span 150 ft. long, the total distance between centers of anchorages being 700 ft. The anchorages are formed of heavy steel members of I section, with enlarged bases and grillages at the anchor bases, both bases and columns throughout their length being embedded



C.P.R. Cantilever Bridge over St. John River, at St. John, N.B.

View from northwest, showing portions of old C.P.R. bridge, and of highway bridge, in background.

bridges, which span the St. John River at the narrowest portion of the gorge, and close to the reversing falls. The highway bridge consists of a flat span-drel-braced arch 565 ft. between centers of hinges, the rise being one ninth of the span. The spans of the river openings of the original and new cantilever bridges are 477 ft. and 450 ft. respectively, the vertical clearance being increased in the new structure by 2 ft. 7 in. for the length of the suspended span.

in concrete. The anchorage at the east end required excavation in solid rock, and a concrete pier was built for the west anchorage, which forms the dividing point between the cantilever bridge and the girder spans, supporting the ends of both, and was designed with two pre-moulded shafts, into which the steel anchors were entered, and later sealed up with concrete. The approximate weight of the steelwork in the cantilever portion of the structure is

the southerly end of Ottawa St., Hamilton, to the brow or summit of the escarpment in Barton Tp., and to expropriate lands for the line, terminals, yards and buildings. The authorized capital is fixed at \$500,000, and money may be borrowed on such securities as the directors decide. The provisional directors named are: T. H. Simpson, R. H. Baxter, F. H. McCallum, Hamilton; J. R. Simpson, Toronto; W. B. C. Bradley, New York.

Orders By Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a complete record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

General order 357, Feb. 14.—Suspending tariffs or supplements filed by railways in accordance with requirements of general order 354 re out of line haul on western grain to milling points in eastern Canada. This order and the judgment were given fully in the March issue, pg. 135.

General order 358, Feb. 22.—Ordering railways operating in Manitoba, Saskatchewan, Alberta and British Columbia to serve points of applications in respect of highway crossings outside of incorporated cities and towns, on various provincial ministers. This order is given fully on another page of this issue.

General order 359, Mar. 2.—Rescinding general order 355, Jan. 5, defining caretaker agents' duties.

General order 360, Mar. 6.—Requiring railway companies, not later than March 16, to amend their tariffs to provide for allowance, at points east of Fort William, of 50c. per car door of not less than 21 sq. ft., when furnished by shippers of lime in bulk. This order is given fully on another page.

32,121, Feb. 10.—Authorizing G.T.R. to alter bridge carrying its belt line tracks across Yonge St., near Merton St., Toronto.

32,122, Feb. 10.—Authorizing Canadian Northern Quebec Ry. to build spur for Jobin & Genois, Riviere a Pierre Parish, Que.

32,123, Feb. 10.—Approving agreement between Bell Telephone Co. and St. Angele de Laval Rural Telephone Co., Nicolet County, Que.

32,124, Feb. 10.—Relieving Campbellford, Lake Ontario & Western Ry. (C.P.R.) and G.T.R. from maintaining signalman on Sundays at crossing at mile 76.1 Whitby, Ont., so long as present character of movements continues.

32,125, Feb. 18.—Approving plan showing Vancouver Harbor Commissioners' track authorized under order 30,430, and proposed changes in Powell and Alexander Sts., Vancouver, B.C.

32,126, Feb. 21.—Authorizing Hydro Electric Power Commission of Ontario to erect 110,000 volt steel tower transmission lines across G.T.R. property at Grimsby, Ont.

32,127, Feb. 17.—Dismissing application of residents at Parham, Ont., for better C.P.R. station accommodation, an agent in charge and siding of 8 cars long.

32,128, Feb. 17.—Authorizing Canadian National Rys. to build spur for Hayward Lumber Co., Edmonton, Alta.

32,129, Feb. 8.—Approving plan of bell, light, and wigwag signal at Toronto, Hamilton & Buffalo Ry. crossing at River Road, Crowland Tp., Ont., and declaring that for the present such crossing is protected to Board's satisfaction.

32,130, Feb. 16.—Dismissing Bell Telephone Co.'s application for approval of tariffs of rates filed showing increases for exchange service.

32,131, Feb. 18.—Authorizing G.T.R. to divert Osborne St., Reaboro, Ont.

32,133, Feb. 22.—Authorizing Winnipeg Electric Ry. to operate one-man cars over Canadian National Rys. on Pembina Highway.

32,134, Feb. 18.—Authorizing C.P.R. to build crossing at line between Lots 10 and 11, Con. 6, Aubrey Tp., Ont.

32,135, Feb. 21.—Authorizing Canadian National Rys. to build temporary lift span at Sumas River bridge, mile 78.8, Mann Subdivision, B.C.

32,136, Feb. 21.—Authorizing Canadian National Rys. to open for traffic, portion of line near St. Boniface, Que., mile 87.6 to 91.6 from Quebec.

32,137, Feb. 18.—Rescinding order 29,725, June 8, 1920, authorizing G.T.R. to build siding southeast of its station at Cainsville, Ont.

32,138, Feb. 22.—Authorizing Canadian National Rys. and C.P.R., when signals are clear, to operate over crossing in Sec. 29, Tp. 36, Range 18, west 2nd meridian, Sask., without first stopping.

32,139, Feb. 7.—Amending order 31,420, Aug. 23, 1921, authorizing Hydro Electric Power Commission of Ontario to build two tracks over Windsor, Essex & Lake Shore Rapid Ry. single track at intersection of Aylmer Ave. and Wyandotte St., Windsor, Ont., by providing that cost be borne by W.E. & L.S.R. Ry. instead of by H.E.P.C. of Ontario.

32,140, Feb. 16.—Authorizing Winnipeg Electric Ry. to operate one-man cars over C.P.R. on Sutherland Ave.

32,141, Feb. 21.—Authorizing Canadian Northern Pacific Ry. to cross highway at mile 26 in Sec. 11, Tp. 23, Osoyoos Division, Yale District, B.C.

32,142, Feb. 17.—Amending order 31,440, Aug. 26, 1921, ordering Dominion Atlantic Ry. to provide suitable station at Roundhill, N.S., by providing that D.A.R. build a platform there 250 ft. long, by June 30, 1922.

32,143, Feb. 24.—Amending order 32,024, Jan. 14, by providing that home signals and derails

be set clear for Canadian National Rys. instead of C.P.R. at crossing of these two lines at Peebles, Sask.

32,144, Feb. 23.—Amending order 28,533, July 9, 1919, authorizing Canadian Northern Ry. to cross and divert highway in n.w. ¼ Sec. 19, Tp. 22, Range 9, west 3rd meridian, Sask., by providing that existing road allowance between Sec. 19 and Sec. 24, Tp. 9, west 3rd meridian, be closed within right of way limits.

32,145, Feb. 23.—Ordering that in addition to watchman at crossing of George St., Toronto, by G.T.R., C.P.R. and Canadian National Rys., the G.T.R. appoint a second watchman to protect crossing between 6.30 a.m. and 6.30 p.m. daily.

32,146, Feb. 20.—Authorizing Canadian National Rys. to build spur for Marshall Sons & Co., Saskatoon, Sask.

32,147, Feb. 24.—Authorizing G.T.R. to install double automatic bell, with wigwag signals, in lieu of watchman, at crossing of Stave Bank Road, near Port Credit, Ont.

32,148, Feb. 24.—Relieving Canadian National Rys., so long as present character of movements exists, from maintaining signalman on Sundays at crossing of C.P.R. at mile 46.9 Port McNicoll Subdivision, Ont.

32,149, Feb. 24.—Rescinding order 17,142, July 26, 1912, authorizing G.T.R. to build spur for A. Knibb & Son on Lot 3, Con. 3, Lachar Tp., Ont.

32,150, Feb. 24.—Authorizing G.T.R. to use bridge 12 across Beauharnois Canal, milepost 48.98, District 30, Ottawa Division, Ont.

32,151, Feb. 25.—Authorizing British Columbia Public Works Department to build highway across C.P.R. immediately west of Eagle River bridge at Taft, B.C.

32,152, Feb. 25.—Authorizing C.P.R. to build spur for Ontario Rock Co., in east half of Lot 7, Con. 6, Belmont Tp., Ont.

32,153, Feb. 24.—Approving Canadian Northern Ry. revised location through Tps. 16 and 17, Range 7, east of principal meridian, Man., mile 35.89 to 39.94.

32,154, Feb. 23.—Authorizing Halifax & Southwestern Ry. (Canadian National Rys.) to build spur for Walter McNeil, at mile 22.1, Caledonia, N.S.

32,155, Feb. 25.—Authorizing Canadian National Rys. to build spur for Merkle's Ltd., at mile 3.1 Rideau Subdivision, Ont.

32,156, Feb. 24.—Extending to June 1, time within which Canadian National Rys. may complete spur for Imperial Oil Ltd., at Oyen, Alta., authorized by order 31,545.

32,157, Feb. 23.—Authorizing Windsor, Essex & Lake Shore Rapid Ry. to erect trolley wires at intersection of Aylmer Ave. and Wyandotte St., Windsor, Ont.

32,158, Feb. 24.—Authorizing C.P.R. to rebuild bridge 46.4 over Jack Pine River, Nipigon Subdivision, Algoma District, Ont.

32,159, Feb. 27.—Amending order 32,130, dismissing Bell Telephone Co.'s application for increase in rates, by adding City of Ottawa as one of the parties who appeared at the hearing.

32,160, Feb. 27.—Approving agreement between Bell Telephone Co. and Mornington Municipal Telephone System, Perth and Waterloo Counties, Ont.

32,161, Feb. 27.—Authorizing G.T.R. to use overhead bridge at mile 127.98, 1¼ miles east of Komoka, Ont.

32,162, Feb. 27.—Approving agreement between Bell Telephone Co., and Union Telephone Co., Wellington County, Ont.

32,163, Feb. 27.—Authorizing G.T.R., when signals are clear, to operate over London St. Ry. crossing at Richmond St., London, Ont.

32,164, Feb. 27.—Authorizing G.T.R. to use bridge 40 over Grand River, at Breslau, Ont.

32,165, Feb. 27.—Declaring that for the present the crossing of Victoria St., Alliston, Ont., by C.P.R., is protected to Board's satisfaction.

32,166, Feb. 27.—Authorizing G.T.R., when signals are clear, to operate over London St. Ry. crossing at Rectory St., London, Ont.

32,167, Feb. 27.—Authorizing Dominion Atlantic Ry. to install automatic bell and wigwag signal, in lieu of gates and watchman, at crossing of Wentworth St., Windsor, N.S.

32,168, Feb. 28.—Authorizing Esquimalt & Nanaimo Ry. to build spur for Empire Lumber Co. at mile 2.5, Osborne Bay Subdivision, Vancouver Island, B.C.

32,169, Feb. 23.—Amending order 31,924, Dec. 16, 1921, requiring Grand Trunk Pacific Ry. to build ditch on north side of track in section 6, Tp. 13, Range 19, west 3rd meridian, Sask., by changing the township number to "39."

32,170, Feb. 28.—Amending order 18,064, Nov. 16, 1912, to provide that crossing of C.P.R. by Grand Trunk Pacific Ry. at Weyburn, Sask., be protected by an interlocking plant.

32,171, Mar. 1.—Authorizing North American Collieries, Ltd., to build two entries under Canadian National Rys.' right of way in Secs. 19 and 30, Tp. 53, Range 7, west 5th meridian, Alta.

32,172, Mar. 1.—Dismissing complaint of Nelson, B.C., rural municipality against increase of

tolls by British Columbia Telephone Co.

32,173, Feb. 27.—Approving agreement between Bell Telephone Co. and Apsley Telephone Co., Peterborough county, Ont.

32,174, Mar. 2.—Amending order 31,461, Sept. 1, 1921, re appointment of caretaker agent at Amazon, Sask., by C.P.R., and requiring the appointment of a caretaker there.

32,175, Mar. 1.—Authorizing G.T.R. and Toronto Suburban Ry., when signals are clear, to operate over crossing at Davenport Road, York Tp., Ont.

32,176, Mar. 2.—Declaring that for the present, the Quebec Central Ry. crossing near St. Henedine Station, Que., is protected to Board's satisfaction.

32,177, Mar. 2.—Authorizing Canadian National Rys. to connect with Grand Trunk Pacific Ry. near Barlow, Alta.

32,178, Mar. 1.—Approving agreement between Bell Telephone Co. and Korah Central Telephone Co., Algoma District, Ont.

32,179, Mar. 2.—Authorizing Charleswood municipality, Man., to extend Nile St. across Canadian National Rys. in Lots 3 and 4, Headingley Parish, Man.

32,180, Mar. 2.—Authorizing use of bridge carrying Weston Road over C.P.R. at mile 1.4 MacTier Subdivision, and G.T.R. at mile 5.98 from Toronto, in Lot 38, Con. 3, from the Lay, York Tp., Ont.

32,181, Mar. 3.—Declaring that for the present the crossing of 5th Ave., Mount Dennis, Ont., by G.T.R., is protected to Board's satisfaction.

32,182, Mar. 3.—Ordering that gates at the crossing of Logan Ave., Toronto, by G.T.R., be equipped with fringe.

32,183, Mar. 1.—Dismissing application of residents of territory tributary to Muscow, Sask., for order authorizing a private crossing over Canadian National Rys. from the elevator to the post office.

32,184, Mar. 3.—Authorizing Canadian National Rys. to cross and divert highway between Secs. 11 and 12, Tp. 23, Range 17, west 3rd meridian, Sask.

32,185, Mar. 2.—Ordering Canadian National Rys. to erect standard A1 station building at Telkwa, B.C., by Nov. 1.

32,186, Mar. 6.—Authorizing Vancouver, Victoria & Eastern Ry. & Navigation Co., to make highway crossing at Seventh St. Keremeos, B.C.

32,187, Mar. 6.—Ordering G.T.R. to build overhead bridge at milepost 11.68, Hamilton Division, carrying St. Paul St., St. Catharines, Ont., over its tracks, by June 30.

32,188, Mar. 6.—Ordering Canadian National and to maintain telephone service installed between Crooked River and Peesane, Sask., Rys. to appoint a caretaker at Peesane, Sask.,

32,189, Mar. 6.—Authorizing Lethbridge Northern Irrigation District, Alta., to build syphon across C.P.R. in s.e. ¼ Sec. 3, Tp. 9, Range 22, west 4th meridian, Alta.

32,190, Mar. 6.—Declaring that for the present first crossing of C.P.R. west of Dilke station, Sask., is protected to Board's satisfaction.

32,191 to 32,193, Mar. 6.—Authorizing St. Clement's rural municipality, Man., to make 3 highway crossings over Canadian National Rys. between miles 19 and 20, at miles 23 and 26, Victoria Beach Branch, Man.

32,194, Mar. 7.—Approving agreement between Bell Telephone Co. and East Middlesex Telephone Co., of Middlesex, Oxford and Perth Counties, Ont.

32,195, Mar. 6.—Re general order 234, May 22, 1918, respecting milling in transit arrangements to destinations east of Port Arthur, Fort William, and Armstrong, Ont. This order is given fully on another page.

32,196, Mar. 8.—Suspending, pending hearing and decision, Algoma Central and Hudson Bay Ry. tariff C.R.C. 585, showing increases in switching rate on coal from New Ontario Coal Co.'s dock to the C.P.R. at Sault Ste. Marie to 2c. per 100 lb.

32,197, Mar. 7.—Approving agreement between Bell Telephone Co. and Maidstone Tp., Ont.

32,198, Mar. 8.—Authorizing Toronto Tp., Ont., to make crossing at Lynchmere Ave., and Dickson Road, over Canadian Northern Ontario Ry. and Toronto & Niagara Power Co. right of way on Lot 3, Con. 1, South of Dundas St., Indian Reserve.

32,199, Mar. 8.—Ordering Canadian National Rys. to appoint station agent at Bellis, Alta., by Sept. 1, and to build standard third class station building there in the spring of 1923.

32,200, Mar. 10.—Dismissing G.T.R. application to build spur across Waterloo and Huskisson St. and Guelph Radial Ry. to proposed new terminal at Guelph, Ont.

32,201, Mar. 1.—Authorizing G.T.R. and Ottawa Electric Ry., when signals are clear, to operate over crossing at Queen St., Ottawa, Ont.

32,202, Mar. 10.—Authorizing Grand Trunk Pacific Ry. to make road diversion between Secs. 14 and 15, Tp. 28, Range 18, west 2nd meridian, Sask.

32,203. Mar. 10.—Authorizing Canadian Northern Pacific Ry. to cross highway at mile 2.5 Vernon-Kelowna Branch, in Sec. 22, Twp. 9, Osoyoos Division of Yale District, B.C.

32,204. Mar. 10.—Ordering G.T.R. to maintain speed limitation of 10 miles an hour at crossing of Main St., Ilerton, Ont., and to keep back cars occupying siding on each side of crossing at least 100 ft. from street line; coal shed on south side to be moved back so that a car spotted there will not be closer than 100 ft; work to be done in spring this year, when shed is empty.

32,205. Mar. 10.—Authorizing City of Hamilton, Ont., to extend storm overflow sewer across Toronto, Hamilton & Buffalo Ry. near intersection of Simcoe and Wellington Sts.

32,206. Mar. 11.—Declaring that first crossing west of Foxwarren, Man., over C.P.R. is protected to Board's satisfaction.

32,207. Mar. 13.—Approving change of location of portion of spur for Imperial Munitions Board, to enable it to serve the Sidney Roofing & Paper Co., and authorizing Esquimalt & Nanaimo Ry. to build spur therefrom for Shell Co. of California, at mile 0.6, Victoria Subdivision, on B.C. Government property.

32,208. Mar. 11.—Dismissing application of St. Isidore d'Auckland municipality, Que., for order directing Maine Central Ry. to build station and express office and appoint permanent agent there, and ordering M.C.R. to build siding about 340 ft. long there.

32,209. Mar. 13.—Approving location and details of new G.T.R. station at St. Cyr, Que.

32,210. Mar. 11.—Extending to May 31, time within which C.P.R. may build spur for Donald E. Bain Co., Calgary, Alta., authorized under order 31,387, Aug. 17, 1921.

32,211, 32,212. Mar. 9.—Approving Bell Telephone Co. agreements, with Urban & Rural Telephone Co., Kent, Lambton and Middlesex Counties, Ont., and Dunwich and Dutton Telephone Co., Elgin and Middlesex Counties, Ont.

32,213. Mar. 10.—Relieving C.P.R. and Canadian National Rys. from maintaining signalman between midnight and 8 a.m. daily at crossing in Sec. 17, Tp. 30, Range 14, Rosetown, Sask.

32,214. Mar. 13.—Authorizing City of Hamilton, Ont., to extend storm overflow sewer across G.T.R. at intersection of Ferrie and Wellington.

32,215. Mar. 11.—Authorizing G.T.R. to take lands in Kitchener, Ont., for sidings, authorized by order 31,844, Nov. 29, 1921.

32,216. Mar. 13.—Extending to Aug. 24, time within which Esquimalt & Nanaimo Ry. may build spur for Wells Lumber Co., Vancouver Island, authorized by order 30,934, April 25, 1921.

32,217. Mar. 14.—Dismissing New York Car Wheel Co.'s complaint against rates charged by G.T.R. on pig iron from Collingwood, Ont., to Black Rock, N.Y.

32,218. Mar. 13.—Rescinding order 31,613, Oct. 4, 1921, rescinding orders 9,361, Jan. 24, 1910, and 18,221, Dec. 4, 1912, authorizing building of sidings for Kirkfield Portland Cement Co., in Lots 2 and 3, Con. 3, Bexley Tp., Ont.

St. John Ambulance Association Work on Canadian Railways.

The St. John Ambulance Association Canadian branch held its annual meeting at Ottawa, March 10, when the following railway officials were elected among the officers:—Honorary Vice Presidents, D. B. Hanna, President Canadian National Rys.; G. W. Lee, Chairman Timiskaming and Northern Ontario Ry. Commission; Sir Augustus Nanton, President, Winnipeg Electric Ry.; Sir Henry Pellatt, director Toronto Ry. Co.; Lord Shaughnessy, Chairman Board of Directors, C.P.R. Vice Presidents:—Col. J. A. Hutcheson, C.B.E., M.D., G.T.R.; members of the general council:—D. C. Coleman, Vice President C.P.R. Western Lines; Brig.-General Sir John Gibson, Dominion Power and Transmission Co.; Grant Hall, Vice President, C.P.R.; C. A. Hayes, Vice President, Traffic Canadian National Rys.; Howard G. Kelley, President, G.T.R.; M. H. McLeod, Vice President, Canadian National Rys.; A. D. MacTier, Vice President, Eastern Lines, C. P.R. Mr. MacTier was also elected a member of the general executive committee.

The trophies won in the different competitions were presented to the winning teams by the Governor General, Lord Byng. The Montizambert trophy for the Canadian championship was won by no. 2 team, G.T.R. shops, Stratford, Ont.,

which also won the Wallace-Nesbitt railway trophy, the team from the G.T.R. station at Stratford coming second in the latter competition. The trophies offered by Lord Shaughnessy for police teams were won by the C.P.R. Angus shops team for the fourth successive year, in the eastern group, and by the C.P.R. Winnipeg police team in the western group.

The championship trophies were received on behalf of the G.T.R. team by W. D. Robb, Vice President, Transportation, Operation and Maintenance; Col. onel Hutcheson, Chief Medical Officer, and J. C. Garden, General Superintendent, Motive Power and Car Department. The members of the team received gold medallions. W. D. Robb, after receiving the trophies, stated that the G.T.R. maintained a general organizer and three qualified instructors for the classes. About 500 employees are receiving instruction in the classes. To promote efficiency among their own employees there are competitions open for the following trophies:—The Chamberlin silver shield, for the G.T.R. system championship; the Dr. J. Alexander Hutcheson shield for competition among the Montreal teams; the Dr. Deacon trophy, for competition among the Stratford teams, and the Stratford divisional officers' trophy for competition among teams that have never won a competition.

The 12th annual report of the C.P.R. center of the Association, prepared by S. A. Gidlow, General Secretary, showed that during the year ended Sept. 30, 1921, First Aid instruction was given to 1,522 of the company's employees, making altogether 17,209 who had received instruction. During the year 435 qualifying certificates were awarded, and 383 employees took higher examinations. Forty-six classes were organized during the year, including six at Angus shops, Montreal. The other classes were organized at different center along the line. The following challenge cups were open for competition:—Johnson, Angus Shops District; Downie, New Brunswick District; Gutelius, Quebec District; Osborne, Ontario District; Scully, Algoma District; Grant Hall, Manitoba District; Taylor, Saskatchewan District; Price, Alberta District; Busteed, British Columbia District.

Settlement of Dispute Over Queen St. High Level Bridge Construction at Toronto.

The City of Toronto's application for authority to construct a high level bridge over the Don improvement and the C.P.R., the G.T.R., and the Canadian Northern Ontario Ry. tracks at Queen St. East, came before the Board of Railway Commissioners at Toronto on July 3, 1919, Chief Commissioner Mabey presiding. The Board passed order 7813, Aug. 23, 1909, providing that the city be authorized to build the bridge, and that it submit detailed plans to the Board by Sept. 15, 1909, and have the bridge ready for traffic by July 1 1910, the costs be apportioned as follows:—City of Toronto, 15%; Toronto Ry., 15%; C.P.R., 35%; Canadian Northern Ontario Ry., 25%; and G.T.R., 10%. It also provided for maintenance charges, 10% to each of the steam railways, and the balance, 70%, to the City of Toronto. The Toronto Ry. applied to the Board for authority to appeal to the Supreme Court

of Canada, which was refused by order 8139, Sept. 22, 1909.

The Board order 11169, July 15, 1910, extended the time for completion of the work to July 1, 1911. Order 15219, Oct. 31, 1911, authorized the operation of trains under the bridge, as built at that time. Order 24347, Oct. 22, 1915, provided that the C.P.R., C.N.R., and G.T.R., should pay their portion of the cost of the work, upon receipt of monthly certified progress estimates. Order 24437, Nov. 16, 1915, rescinded order 24347, and provided that each of the steam railways and the Toronto Ry. should pay their portions of total expenditure to that date, and afterwards, on monthly progress estimates till the completion of the work. Order 26796, Dec. 5, 1917, provided that interim payments be made as follows:—C.P.R., \$115,000; G.T.R., \$30,000; C.N. O.R., \$135,000, and Toronto Ry., \$80,000.

On Sept. 16, 1920, the city applied to the Board for an order that all the railway companies concerned be made to pay to the city their respective shares of amounts expended by the city to Aug. 1, 1920. The railways contended that properly certified accounts had not been rendered and a joint audit of the city's statement of cost to Aug. 1920 was attempted by the Toronto Ry., C.P.R., C.N. O. R., and the G.T.R. There was great difficulty in arriving at and agreeing upon the correct total cost, and a good many questions cropped up which could not be settled without reference to an engineer. There was a good deal of controversy over the city's account for paving, which was not done until 1914 and 1915, and over the adjustment of land and property damages, some of which were partly attributable to the Wilton Ave. bridge, and the city was still in possession of considerable property bought outright, to lessen damages due to building the bridge. There were also outstanding damage claims, which for various reasons had not been settled. The city did not press for a hearing before the Board while the railways were attempting to come to an agreement. Little progress was made and finally on May 27, 1921, the matter came before the Board in Toronto for the purpose of fixing a final date for the completion of the audit by the various railways of the city's final settlement of cost. Meantime, Lt.-Col. Blair Ripley, C.B.E., D.S.O., District Engineer C.P.R. at Toronto, had been appointed to represent all the steam railways, and to negotiate a settlement with the city, and, on this being made known to the Board, no order was issued. Lt.-Col. Ripley carried on negotiations in an endeavor to reach a settlement and we are advised, that a final settlement has been agreed upon, and the city will take over properties acquired in the handling by it of land and consequential damages, and will assume responsibility in outstanding damages for a fixed amount. The approximate total amount involved is said to be in the neighborhood of \$1,000,000. We also understand that the Toronto Ry. has accepted the figures as the basis of its settlement with the city and that the whole issue has been closed out.

The Brotherhood of Railway Trainmen will hold its convention in Toronto, beginning May 9, which it is expected will be attended by nearly 1,000 delegates. The principal speaker will probably be Hon. James Murdock, Minister of Labor, formerly the Brotherhood's Canadian Vice President.

Freight Rate Hearings by Board of Railway Commissioners.

The Board of Railway Commissioners' hearings in connection with applications for freight rate equalization throughout Canada which were adjourned on Feb. 22, as stated in Canadian Railway and Marine World for March, were resumed on March 13, when G. G. McGeer, representing the British Columbia Government, examined D. O. Lewis, formerly Assistant Engineer, Maintenance of Way, Canadian National Rys., Toronto, but now with the Engineering Corporation, Ltd., Vancouver, who disputed evidence given by W. B. Lanigan, Freight Traffic Manager, C.P.R., and statements and exhibits filed by the C.P.R. and Canadian National Rys. He presented figures dealing with traffic density and operating costs in British Columbia, with the intention of proving that the comparison of railway operating costs as between the prairie and mountain divisions, as introduced by Mr. Lanigan, were fallacious. He claimed that the proper way to arrive at a determination of British Columbia operating costs is to compare them with those on New Brunswick and Quebec divisions where, he claimed, costs are higher. The main purpose of his testimony was to show that higher freight rates in British Columbia are not to be excused on the ground of higher operating costs. Mr. Lanigan was examined further by Mr. McGeer on this date. On March 14 Mr. Lewis was cross examined by E. P. Flintoft, Assistant General Solicitor, C.P.R., in connection with the figures he had given concerning operating costs and traffic density. The cross examination was directed to show that the average cost of operation in British Columbia is much higher than on the prairie sections. Mr. Lewis was further examined by H. J. Symington, K.C., representing Manitoba, and I. Pitblado, K.C., representing the Winnipeg Board of Trade, those prairie province interests being directly opposed to British Columbia's application for more favorable rates into the prairie markets.

On March 15, 16, 17 and 20 Mr. Symington argued that the west is carrying a disproportionate burden of railway operating cost, and declared that the freight rates on grain are more than that traffic can bear, and that the agricultural industry as a whole is paying more than its fair share. He submitted that neither the Board nor the people of Western Canada have any control of railway wages, which is a matter between the railways and their employees. The Board, he maintained should cut the rates, and when that was done, the railways could cut the wages. "If the rates are reduced, he is reported to have stated, 'we do not care where the money will come from to the C.P.R. to compensate it for that. It does not concern us.'" Mr. Symington, like Woodrow Wilson at the Peace Conference, had 14 points, which he submitted. 1. Considering the classes of business that move, the distance it moves and the volumes moving, rates are higher in the west than in the east. 2. Operating revenues on the business that moves are higher in the west than in the east. 3. Net earnings in the west produced from operating revenues are higher than in the east. 4. Net earnings per ton mile in the west far exceed net earnings per ton mile in the east. 5. Percentage of profit to gross is much higher in the west than in the east. 6. The grain traffic is the most profitable

traffic, and is too profitable to the railways compared with other business, in that it is bearing an unfair share of railway operating cost. 8. Net results should be brought into line by a reduction of western rates. 9. Such reductions should be applied to the traffic which produced too great remuneration to the railways, viz., grain traffic. 10. These reductions should be applied to other basic commodities, as cattle, lumber, coal, and the instruments of production, such as agricultural implements. 11. These reductions should next be applied upon the heavy commodities covered by classes 5 to 10, inclusive. 12. Such reductions applied in this way would be equitable and just, and eliminate questions of water competition and U.S. rail competition. 13. Such rate reductions will encourage production and give a purchasing power to the consumer, thus stimulating traffic and so assisting the railways' financial position. 14. The rates on grain are unjust and unreasonable, in that they give too great a return to the railways and destroy the industry, i.e., they are higher than the traffic can bear.

Mr. McGeer, in supporting British Columbia's application, said the cost of operation is no justification for the high rates charged in B.C. and claimed that operating costs there are less than in other provinces with which it is logical to make comparisons, and in which the rates are lower. He stated that the railways have no business to carry traffic at a loss in some parts of the country, and make up for it by charging unduly high rates in other parts, but was informed by the Chief Commissioner that in some cases railways are compelled to carry traffic at a loss, or very near a loss, an example being the winter export grain traffic to Atlantic ports in competition with U.S. carriers. Mr. McGeer entered into an examination of originating tonnage, and claimed that in view of the large tonnage which originates in B.C., the province is being discriminated against by the present rates. He contended that, according to the intent of the agreement entered into between B.C. and the Dominion when the province entered Confederation, the C.P.R. was built as a national project to link B.C. with the rest of Canada. The C.P.R. route, therefore, he maintained, should have been determined after careful consideration of national and public interests, rather than of private and railway interests. He said the company chose the Kicking Horse Pass as its route to the coast, instead of the Yellow Head Pass, and the latter, he argued had been clearly shown, especially by the experience of the Canadian Northern construction, to be the less costly route, although longer. The C.P.R., he argued, chose the shorter route to get to the coast as quickly as possible, with its eye on the development of oriental trade, and he claimed that the C.P.R. had paid, and was still paying, more attention to the development of trans-Pacific traffic than to B.C.'s interests, which, according to the Confederation agreement, were to be uppermost.

Isaac Pitblado, K.C., for the Winnipeg Board of Trade, spoke on March 22 and 23 against British Columbia's application. He stated that Winnipeg mercantile interests were opposed to doing away with the mountain scale of freight rates,

as it would give the Pacific coast wholesalers and manufacturers the same rates as obtain on the prairies, and thus tend to unduly restrict the markets of the prairie province, wholesalers and jobbers. He maintained that B.C. has great natural advantages in its coastal trading opportunities, which should be satisfactory to it; and that it was not justified in seeking more favorable rates into the prairie markets. He also argued against the B.C. application on the ground of operating costs, and gave figures showing that in 1921 it cost \$10,720 a mile of line in Manitoba to move 8,084,000 gross tons, while in British Columbia it cost \$9,971 a mile of line to move 2,539,000 gross tons, which means that for nearly the same operating cost, over three times the amount of traffic was handled in Manitoba. In concluding, he thoroughly explained the disadvantages under which the Winnipeg, Regina, Calgary and Edmonton distributing houses would operate if the mountain rates were reduced.

On March 24 the Board heard the Maritime Provinces' application for a restoration of the arbitration to points west of Montreal, as in effect before the percentage rate increases took effect throughout the country. The application was presented by I. Rand, K.C., representing the New Brunswick Government, and it was opposed by J. K. Smith, Manager Montreal Board of Trade Transportation Bureau, who contended that the restoration of the arbitraries would give the Maritime Province interests an undue advantage over Montreal manufacturers and merchants.

Argument by railway counsel began on March 27. F. H. Chrysler, K.C., representing the Railway Association of Canada, opposed the various applications for rate equalizations, and strongly emphasized the railways' need for adequate revenues. He took strong exception to Mr. McGeer's statement that British Columbia was persuaded that the principle of rate making in effect was unsound, and that unless the C.P.R. saw fit to place the rates on what B.C. considered a proper basis, the people of the province would take such action as seemed advisable. Mr. Chrysler said: "I strongly resent any suggestion that the C.P.R. has been or is operating in B.C. amid such feelings on the part of its people. I strongly resent the suggestion that there might even be a revolution out there if we do not do what they want us to do. The people on the coast do not talk that way, and my learned friend is not truly reflecting their views."

In connection with a discussion of C. P.R. returns, Chief Commissioner Carvell is reported to have said: "Gentlemen, you can take it from me, the railway will either have to earn its dividend or the Government will have to take over the road." In further discussion concerning C.P.R. returns, W. B. Lanigan, Freight Traffic Manager, is reported to have said: "Why shouldn't we prosper after years of hard struggle? There was a day when employees' salaries were not even paid. Now the road is getting on, by efficiency and industry. We are not running this road like some municipalities out west are running their finances."

On March 29, H. J. Symington, K.C., replied on behalf of Manitoba to the railway counsel, G. G. McGeer on behalf

of British Columbia, and J. K. Smith for the Montreal Board of Trade, and on March 30 Attorney General Finns of Nova Scotia, spoke for the Maritime Provinces, which terminated the hearings.

It is not probable that a decision of the Board will be possible in the very near future, and the matter is further complicated by the fact that the Crowsnest agreement will automatically go into effect again on July 7, unless legislation to contrary is passed by Parliament in the meantime. Details concerning this agreement, by which the C.P.R. contracted to give reduced rates on specified commodities in western territory, in return for aid in railway construction, were given in Canadian Railway and Marine World for February, pg. 63. By the Railway Act, sec. 325, sub-sec. 5, the C.P.R. was relieved of its obligation till July 7, 1922. If the agreement could be brought back into force again, a large reduction in rates on basic commodities would result. Freight rates have received a great deal of attention in Parliament during this session, and the Progressive members, particularly, are insistent in their demands that the Crows-

certain reductions in rates on basic commodities, will be submitted to the Government in the near future. The Crowsnest agreement is undoubtedly the most important consideration in regard to

freight rates, and whatever action is taken in connection with the rate structure throughout the country must depend primarily on what is done in connection with that agreement.

Railway Rolling Stock Orders and Deliveries.

The C.P.R., between Feb. 12 and March 14, received one steel sleeping car from its Angus shops, Montreal, the frame of which was built by National Steel Car Corporation.

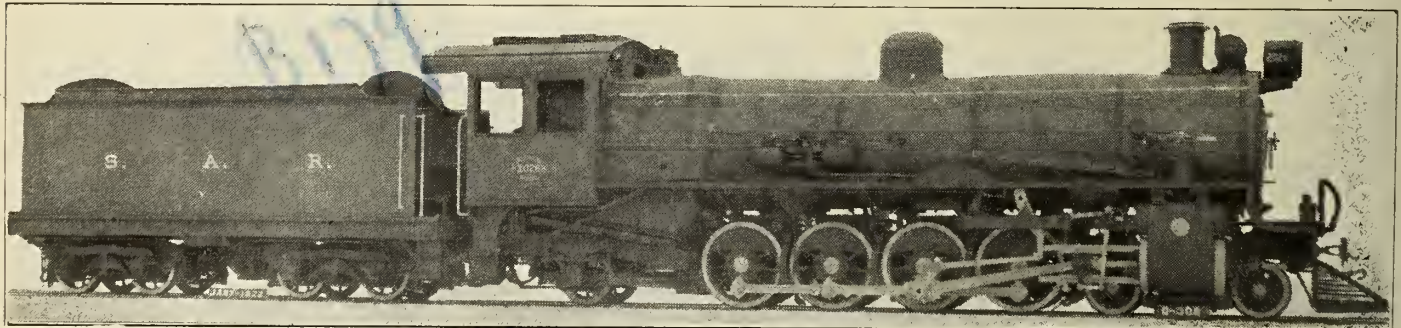
Canadian National Rys., box cars are under repair by Canadian Car and Foundry Co. at its various plants as follows,—Amherst, N.S., 194 cars; Montreal, 255 cars; Fort William, Ont., 270 cars.

The C.P.R. has ordered 3 compartment car frames and 50 express refrigerator cars from Canadian Car and Foundry Co., and has also ordered a self propelling pile driver.

Montreal Locomotive Works has received an order from John B. Smith and Son, for a 4-wheel switching locomotive. Following are the chief details:—

of them were shipped from Montreal to Cape Town, in Oct. 1921. The remaining 10 have been completed and are awaiting the reopening of St. Lawrence navigation, at Montreal. An illustration of one of them is given on this page. Following are the chief details:—

Gauge	.....	3½ ft.
Cylinder, type	.....	Piston valve
Cylinder, diar. and stroke	.....	22 x 26 in.
Tractive power	.....	42,300 lb.
Factor of adhesion	.....	3.52
Wheel base, driving	.....	12 ft. 9 in.
Wheel, base, rigid	.....	8 ft. 6 in.
Wheel base, total	.....	30 ft. 8 in.
Wheel base, total engine and tender	.....	59 ft. 9¼ in.
Weight on drivers	.....	149,000 lb.
Weight on trailer	.....	20,000 lb.
Weight on engine truck	.....	32,500 lb.
Weight in working order	.....	201,500 lb.
Weight, engine and tender	.....	316,000 lb.
Boiler, type	.....	Straight top Belpaire
Boiler, diar. inside first ring	.....	67½ in.



South African Railways' Type 4-8-2 Locomotive.

nest agreement go into effect.

The Governor General's speech, at the opening of the session, contained the following paragraph: "The decline of prices in farm products in 1921, as compared with the prices of previous years, has seriously affected agriculture in many parts of the Dominion. The ill effects of this inevitable deflation have been emphasized by restricted markets, and the absence of any corresponding reduction in the cost of production. While improved methods of culture, grading and storage of farm crops in some parts, and greater diversification in others, would materially better conditions, it is apparent that adequate markets and marketing facilities and reduced transportation and production costs lie at the root of the problem. Recognizing such to be the case, my advisers have lost no time in seeking to gain more favorable conditions of sale and marketing for the products of the farm. Communications have been opened with the authorities of other countries looking to an extension of trade and a widening of Canadian markets, and conferences have been arranged between the railway authorities with respect to the reduction of rates upon basic commodities." Canadian Railway and Marine World is in a position to state that such conferences have been and still are taking place between the principal railways' presidents and chief freight traffic officials and that it is probable that the results of their work, which will most likely propose

Gauge	.....	Standard
Weight, total	.....	65,000 lb.
Wheel base	.....	6¼ ft.
Cylinders, diar. and stroke	.....	13 x 20 in.
Driving wheels, diar.	.....	36 in.
Driving journals	.....	6½ x 8 in.
Boiler, type	.....	Straight top
Boiler pressure	.....	180 lb.
Boiler diar. first ring	.....	41½ in.
Firebox, length and width	.....	41½ x 47 11/16 in.
Tubes, no. and diar.	.....	100—2 in.
Heating surface, tubes	.....	524 sq. ft.
Heating surface, firebox	.....	53 sq. ft.
Heating surface, total	.....	577 sq. ft.
Grate area	.....	12 sq. ft.
Tractive power	.....	14,400 lb.
Factor of adhesion	.....	4.5
Tank, type	.....	Saddle
Capacity, water	.....	1,600 gall.
Capacity, coal	.....	1,200 lb.

Montreal Locomotive Works is building a 4-wheel switching locomotive for St. Lawrence Brick Co. Following are the chief particulars:—

Gauge	.....	3 ft.
Weight, total	.....	28,800 lb.
Wheel base	.....	4½ ft.
Cylinders, diar. and stroke	.....	9 x 14 in.
Driving wheels	.....	27 in.
Driving journals	.....	4¼ x 6 in.
Boiler, type	.....	Straight top
Boiler pressure	.....	175 lb.
Boiler diar. first ring	.....	29¾ in.
Firebox, length and width	.....	30½ x 26 in.
Tubes, no. and diar.	.....	48—2 in.
Heating surface, tubes	.....	191 sq. ft.
Heating surface, firebox	.....	26.5 sq. ft.
Heating surface, total	.....	217.5 sq. ft.
Grate area	.....	5.5 sq. ft.
Tractive power	.....	6,250 lb.
Factor of adhesion	.....	4.6
Tank, type	.....	Saddle
Capacity, water	.....	600 U. S. gall.
Capacity, coal	.....	475 lb.

The South African Rys., last year, ordered 13 locomotives, type 4-8-2, from Montreal Locomotive Works. Three

Boiler pressure	.....	190 lb.
Firebox, type	.....	Copper, Belpaire
Firebox, length and width	.....	79¾ x 65½ in.
Firebox crown, thickness	.....	9/16 in.
Firebox tubes, thickness	.....	1 9/16 in.
Firebox, water space, front, sides and back	.....	4, 3½, 3½ in.
Firebox, depth top of grate to center of lowest tube	.....	18 3/16 in.
Crown staying	.....	Radial
Tubes, no. and diar.	.....	139—2¼ in.
Flues, no. and diar.	.....	24—5½ in.
Tubes and flues, thickness	.....	11 and 9 B.w.g.
Tubes, length and spacing	.....	19 ft. 1½ in., ¾ in.
Heating surface, tubes	.....	1,555 sq. ft.
Heating surface, flues	.....	657 sq. ft.
Heating surface, firebox	.....	138 sq. ft.
Heating surface, total	.....	2,350 sq. ft.
Superheater surface	.....	558 sq. ft.
Grate area	.....	36 sq. ft.
Wheels, driving, diar., outside	.....	48 in.
Wheels, material	.....	Cast steel
Wheels, engine truck	.....	Steel tired 28½ in.
Wheels, trailing	.....	Steel tired, 33 in.
Wheels, tender	.....	Steel tired 33½ in.
Axles, driving	.....	Main 9 x 10; others 8½ x 10 in.
Axles, engine truck journals	.....	5½ x 8½ in.
Axles, trailing truck journals	.....	6 x 12½ in.
Axles, tender truck journals	.....	5½ x 10½ in.
Driving boxes	.....	Bronze
Brakes	.....	Steam and vacuum
Engine truck	.....	S.A.R. standard 4-wheel swing
Trailing truck	.....	2 wheel radial
Grate, type	.....	Rocking with dump
Tender frame	.....	Channel
Tank, type	.....	Water bottom
Capacity, water	.....	4,050 imp. gall.
Capacity, coal	.....	9.2 long tons
Valves, types	.....	11 in. piston

The G.T.R.'s Highland Inn, Algonquin Park, Ont., closed on March 15, after the winter season, and will be opened again from June 15 to Sept. 30.

The C.P.R. has given 300 bags of Canadian flour to the Save the Children Russian Relief Fund.

Steam Railway Operating Revenues, Expenses and Other Statistics for Calendar Year 1921.

The following comparative table for the calendar years 1921 and 1920 has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics.

Transportation Branch.

The figures in the column headed "All railways," include all steam railways with an annual operating revenue of \$500,000 and over, except the St. Lawrence and Adirondack Ry., which is not able to give the 1920 figures, and is therefore being omitted from 1921 reports, as its inclusion would not show a true comparison. The 1921 figures, however, will be available for comparative purposes for 1922.

The column headed "Canadian Government," includes the Intercolonial, Prince Edward Island, National Trans-

	All railways		Canadian Government		Canadian Northern		Canadian Pacific etc.		Grand Trunk		Grand Trunk Pacific	
	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920
Operating revenues												
Freight	\$315,288,485	\$337,653,397	\$29,140,446	\$31,963,119	\$50,991,349	\$48,074,193	\$131,025,533	\$148,177,246	\$54,239,903	\$58,102,053	\$13,285,950	\$10,757,773
Passenger	88,935,231	101,696,371	7,597,928	8,707,609	10,241,830	11,392,338	42,253,946	50,195,266	15,510,164	16,948,180	2,278,917	2,491,318
Mail	7,038,607	3,882,839	905,586	492,001	848,664	446,041	3,406,586	1,764,780	1,183,737	580,238	267,943	150,114
Express	15,615,202	15,271,415	1,345,023	1,307,360	1,899,714	1,737,990	7,769,977	8,166,060	3,255,110	2,639,571	413,019	365,385
All other	22,263,532	24,904,410	1,975,319	2,057,713	3,421,880	3,433,352	11,701,545	13,111,649	2,689,116	3,152,602	392,846	643,958
Total railway operating revenues	\$449,141,059	\$483,409,035	\$40,964,303	\$44,537,803	\$67,403,439	\$65,103,916	\$196,157,571	\$221,415,002	\$76,858,032	\$81,442,647	\$16,638,677	\$14,408,549
Operating expenses												
Maintenance of way and structures	\$85,116,178	\$98,342,299	\$10,393,436	\$13,129,295	\$17,917,596	\$21,357,235	\$29,698,276	\$33,420,636	\$12,862,797	\$12,005,384	\$5,020,065	\$8,147,888
Traffic	96,397,549	114,875,332	10,032,760	11,025,743	16,457,550	16,687,737	37,349,107	47,043,034	17,809,497	21,103,421	4,802,635	6,871,192
Transportation	11,239,580	9,545,789	721,060	767,407	1,467,665	1,360,305	6,290,291	4,999,858	1,583,830	1,304,106	350,289	316,139
Miscellaneous operation	205,209,866	228,835,695	24,232,208	28,144,651	36,479,625	39,577,365	78,467,265	91,985,801	35,574,797	35,512,233	10,238,482	8,550,460
General	6,091,895	7,865,033	660,304	846,512	1,290,256	1,453,327	2,878,759	4,225,237	482,320	501,350	90,934	244,428
All other	11,659,482	11,719,284	511,881	1,074,069	1,972,046	1,811,464	3,998,051	3,550,367	2,904,024	2,787,700	514,235	412,954
Total railway operating expenses	\$413,816,234	\$470,562,122	\$46,551,602	\$54,987,680	\$73,977,675	\$81,544,392	\$158,681,751	\$185,624,935	\$71,179,292	\$76,213,815	\$20,636,166	\$24,543,063
Net operating revenue	\$35,324,824	\$12,846,913	5,587,298	10,449,876	6,574,236	16,440,476	37,475,819	35,790,066	5,678,739	5,228,832	3,997,488	10,134,513
Net operating deficit	92.14%	97.34%	113.64%	123.46%	109.75%	125.25%	80.90%	83.81%	92.61%	93.58%	124.03%	170.34%
Mileage and operating statistics												
Average no. of miles of road operated	38,274	37,857	4,559,22	4,433,56	9,785.4	9,661.8	13,827.9	13,785.8	3,571	3,571	2,807.3	2,807.3
Tons moved (revenue)	95,319	118,279	8,301	12,976	13,634	14,504	25,720	32,924	21,687	25,322	3,674	2,853
Tons moved one mile (revenue)	26,213,219	31,413,219	2,706,274	3,422,139	4,711,313	4,687,603	10,719,346	13,996,450	4,052,564	5,023,651	1,573,879	1,111,628
Tons moved (all freight)	112,004	133,690	10,513	14,689	16,747	17,098	23,027	39,516	4,052,564	5,023,651	1,573,879	1,111,628
Tons moved one mile (all freight)	29,365,306	34,817,079	3,116,293	3,684,681	5,393,066	5,449,355	12,208,478	15,828,199	4,336,796	5,309,619	1,886,779	1,320,349
Passengers carried	44,591	48,985	6,235	7,344	4,862	5,468	15,865	17,549	11,609	12,806	824	824
Passengers carried one mile	2,909,816	3,470,337	298,645	361,555	335,277	287,818	1,379,401	1,739,198	509,330	529,809	77,945	92,262
Freight train miles	51,561	61,219	5,341	6,617	10,305	11,559	19,421	24,747	9,130	10,258	3,111	2,819
Passenger train miles	44,108	46,456	4,651	4,817	6,348	6,992	19,352	20,842	7,733	7,618	1,606	1,539
Mixed freight car miles	7,234	7,115	1,101	1,252	1,784	1,824	6,857	7,005	2,005	2,005	308	308
Loaded freight car miles	1,134,921	1,368,946	126,203	150,022	197,429	213,403	443,356	597,842	181,375	212,609	65,742	56,936
Empty freight car miles	597,611	524,894	52,274	46,790	128,546	103,359	200,087	210,726	104,540	82,636	45,165	32,967
Passenger car miles	317,387	334,785	34,716	36,298	43,707	45,451	144,367	158,250	47,060	46,608	13,851	12,775
Total amount of pay roll	\$239,851,718	\$287,843,361	\$30,208,279	\$37,051,048	\$47,648,771	\$54,112,951	\$86,992,352	\$107,411,942	\$45,865,171	\$53,601,304	\$10,421,184	\$13,075,444
Averages per mile of road operated												
Operating revenue	\$11,734.89	\$12,769.34	\$8,984.94	\$10,015.61	\$6,738.28	\$6,738.28	\$14,185.64	\$16,061.09	\$21,522.83	\$22,806.68	\$5,926.93	\$5,132.53
Operating expenses	\$10,811.94	\$12,429.99	\$10,210.43	\$12,402.60	\$7,560.00	\$8,439.88	\$11,475.48	\$13,464.94	\$19,932.59	\$21,342.43	\$7,350.89	\$8,742.59
Net operating revenue	\$922.95	\$339.35	\$774.51	\$613.01	\$1,178.28	\$1,298.40	\$2,710.16	\$2,596.15	\$1,590.24	\$1,464.25	\$1,576.04	\$1,390.94
Net operating deficit	685.049	829,786	593,583	771,872	\$671.84	\$1,701.60	776,197	1,015,280	1,134,854	1,408,191	\$1,423.96	\$3,610.06
Tons moved one mile (revenue)	767,239	919,700	683,515	831,089	545,616	564,010	882,387	1,148,152	1,214,449	1,486,872	654,287	470,327
Averages per freight and mixed train mile												
Freight receipts	\$5.36	\$4.94	\$4.52	\$4.06	\$3.59	\$3.59	\$6.30	\$5.54	\$5.51	\$5.28	\$3.82	\$3.30
Tons of freight (revenue)	445.9	459.7	420.1	434.8	389.7	389.7	515.1	523.2	411.7	457.2	452.4	341.5
Tons of freight (all freight)	499.4	509.5	483.7	462.2	441.6	407.2	586.7	591.7	440.5	482.7	527.9	405.6
Loaded freight cars	19.3	20.0	19.6	19.1	16.3	15.9	21.3	22.3	18.4	19.3	18.9	17.5
Empty freight cars	10.2	7.7	8.2	5.9	10.6	7.7	9.6	7.9	10.6	7.5	13.0	10.1
Averages per passenger and mixed train mile												
Passenger receipts	\$1.73	\$1.90	\$1.31	\$1.43	\$1.26	\$1.29	\$2.01	\$2.20	\$1.84	\$2.03	\$1.15	\$1.26
Passengers carried	56.7	64.8	51.6	59.6	41.2	44.0	65.6	76.1	60.3	63.4	39.5	46.7
Passenger cars	6.2	6.2	6.0	6.0	5.4	5.2	6.9	6.9	5.6	5.6	7.0	6.5
Averages per freight, passenger and mixed train mile												
Operating revenue	\$4.36	\$4.21	\$3.68	\$3.51	\$3.66	\$3.20	\$4.88	\$4.65	\$4.37	\$4.37	\$3.27	\$3.01
Operating expenses	\$4.02	\$4.10	\$4.33	\$4.01	\$3.95	\$4.00	\$3.95	\$3.90	\$4.05	\$4.09	\$4.06	\$5.12
Aver. length of haul (freight) miles	275.1	265.6	263.7	263.7	345.5	323.2	416.8	425.1	186.9	191.0	428.3	389.6
Average passenger journey, miles	65.3	70.8	47.9	49.2	68.9	70.9	86.9	99.1	43.9	43.4	95.7	111.9
Average tons per loaded freight car	25.9	25.4	24.7	24.6	27.0	25.5	27.5	26.5	23.9	25.0	27.9	23.2
Ratio loaded to total freight car	65.5%	72.3%	70.5%	76.2%	60.6%	67.4%	68.9%	73.9%	63.4%	72.0%	59.3%	63.4%
Ratio of pay roll to operating revenue	53.4%	59.5%	73.7%	83.2%	70.7%	81.1%	44.3%	48.5%	59.7%	65.8%	62.6%	90.7%
Ratio of pay roll to operating expenses	58.0%	61.2%	64.9%	67.4%	64.4%	66.4%	54.8%	57.9%	64.4%	70.3%	50.5%	53.7%
Aver. freight receipts per revenue ton mile	1.202c.	1.077c.	1.082c.	1.082c.	1.082c.	1.026c.	1.082c.	1.059c.	1.222c.	1.156c.	1.388c.	1.156c.
Aver. passenger receipts per pass. per mile	3.056c.	2.544c.	2.408c.	2.408c.	3.056c.	2.938c.	3.056c.	2.886c.	3.056c.	3.120c.	2.924c.	2.701c.

continental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.

The column headed "Canadian Northern," includes the lines operated as the Canadian Northern Ry. System, prior to

its acquisition by the Dominion Government.

This column headed "Canadian Pacific, etc.," includes also the Montreal and Atlantic, and Esquimalt & Nanaimo Railways.

The column headed "Grand Trunk" includes its Canadian lines only up to Sep-

tember. The subsequent figures are for all the company's lines. The revenues of these additional lines located in the United States averaged for the first nine months of 1921 less than one third of 1% of the revenue for October. Their inclusion will, therefore, have little effect on the report.

The Railway Operating Revenues, Expenses and Statistics for 1921.

A study of the table on the preceding page will at once show that, despite higher average rates for transportation of both freight and passengers, the industrial depression which existed throughout 1921 had the effect of limiting traffic sufficiently to greatly contract gross earnings. There was a large reduction in gross operating revenue from both freight and passenger traffic. While the average receipt per revenue ton mile of freight handled was 1.202c. in 1921, compared with 1.075c. in 1920, the higher rate was more than offset by the reduction in the tonnage handled, and while the average rate per passenger mile was 3.056c. in 1921, compared with 2.930c. in 1920, the earnings were much smaller in 1921 on account of the falling off in travel. Fortunately, however, the decrease in gross earnings was accompanied, for the railways as a whole, by a correspondingly greater decrease in operating expenses, caused by the wage reduction effective July 16, the lowered material prices, and by the exercise of strict economy in all operations. This decrease in operating expenses materially lowered the operating ratio and increased the net operating revenue.

The Canadian Government Rys. freight traffic decreased 21%, and passenger traffic 17%, from 1920, and the total revenues decreased 8%. Transportation expenses were reduced 14%, and maintenance expenses 8%, and the operating deficit was reduced from \$10,449,876 to \$5,587,928. Taking into consideration all the circumstances, the result of the year's operations on the C. G. Rys. give rise to encouragement and to the expectation that when the great handicap, low traffic density, is overcome, the lines will show much better results. The low rates which prevailed are also to be taken into consideration. The average freight receipt per ton mile of 1.077c. and also the average receipt per passenger mile of 2.544c. were considerably lower than on the other roads with the exception of the Grand Trunk Pacific, and show the large proportion of low class freight from which a pioneer carrier must derive its revenues.

The Canadian Northern System shows a reduction of the operating loss of \$16,440,476 in 1920, to \$6,574,236 in 1921, and of the operating ratio from 125.25 to 109.75. While much remains to be done in increasing the average train load handled on the system, it is probable that the average train was as heavy as advisable, or possible, with the traffic conditions prevailing, and the increase in the trainload kept pace with the increase in the freight traffic handled, an increase which was notable in view of the prevailing traffic conditions. The C.N.R. freight revenues did not show the increases that would naturally be expected in view of the increased traffic and the substantial percentage increases in freight rates in effect, and this can be explained only by the fact that the great bulk of C.N.R. freight traffic was made up of low grade and low rate commodities.

On the C.P.R. the increase in rates was not sufficient to offset the decreases of 20% in passenger traffic, and 23% in freight traffic, so that total revenues decreased 11%. Maintenance of way and maintenance of equipment, were reduced 11 and 20% respectively, and transportation expenses per revenue train mile showed practically no change. The C.P.R. results for the year are commented on elsewhere in this issue.

Grand Trunk freight traffic decreased 19% and passenger traffic 4%. The increased rates, however, offset these somewhat, so that revenues decreased only 6%. Maintenance of way expense increased 7%, maintenance of equipment decreased 15%, and total expenses decreased 6%, making but slight improvement in net operating revenue and operating ratio.

The Grand Trunk Pacific's outstanding feature of the year's operations was the increase in freight traffic of over 41%. While this was due in part to an operating arrangement with the Canadian Northern, it is reasonable to suppose that it did not mean the diversion of a great deal of traffic from the latter, the freight traffic of which also showed an increase. G.T.P. revenues increased 15%, and this, with the reduction in expenses of 16%, reduced the operating loss by over \$6,000,000. Transportation expenses increased 19%, a very reasonable increase in view of the greater business handled, maintenance of way expense was reduced 38% and maintenance of equipment 30%. The average trainload showed an appreciable increase, accompanying the increased traffic density as shown.

For the railway industry generally, the 1921 results show a substantial improvement over those of 1920, and for that reason they must be regarded as encouraging. However, there must yet be a large improvement in the position of Canadian railways as a whole before they can be on a sound financial basis. While it may be confidently expected that there will be further reductions in operating expenses, it must be realized that demands for freight rate reductions are insistent, and the indications are that any reduction in operating expenses which may take place will be absorbed by freight rate reductions. Permanent improvement in the Canadian railway situation must come from permanently increased traffic, which will bring with it the opportunity of operating more freight ton miles, and passenger miles, without the necessity of materially increasing the freight train miles and passenger train miles. As we have pointed out previously, the railway business is pre-eminently one of increasing and decreasing returns, and it is a fact that additional traffic, within the limit of the capacity of the railways, may be handled at additional costs which are small in proportion to the additional revenue earned, because of that additional traffic. Conversely, when traffic

falls off, while valiant efforts may be made to cut expenses in proportion, it is a difficult task, as many services must be performed whether they are patronized to 100% capacity, or to 50% capacity. The 1921 figures give a case in point. While passenger miles decreased from 3,470,337,324 to 2,909,816,034, passenger train mileage decreased only from 46,456,497 to 44,108,716. The decreased traffic is reflected all through the figures, by decreased freight train and freight car loading, and in tonnage and passengers carried per freight train mile and per passenger train mile respectively. Increased traffic is the crying need of Canadian railways, and it is the only thing which will bring the train miles, the revenue ton miles and the passenger miles into the proper relationship.

The Bad Order Car Situation.

The Railway Association of Canada reported the total number of freight cars on Canadian lines for the 15 days ended Feb. 15 as 202,311. The allowance for bad order cars, on the A.R.A. basis, which assumes a total of 7% of the cars in bad order, worked out to 14,162, while the actual number of bad order cars was 20,011, an excess of 5,849 on the 7% basis. The figure of 20,011 represents a percentage of bad order cars of 9.8. Of surplus cars in good order there were 40,330, making a total number not in use of 60,341, or a total of 46,179 idle cars on the basis of 7% of the cars being in bad order.

For the 15 days ended March 1, the total number of cars on Canadian lines was 203,629. The allowance for bad order cars on the A.R.A. basis worked out to 14,254, while the actual number of cars in bad order was 20,373, an excess of 6,119 on the 7% basis. The figure of 20,373 represents 10% of the cars in bad order. Of surplus cars in good order there were 36,301, making the total number not in use 56,674, or a total of 42,420 on the basis of 7% of the cars being in bad order.

On comparing the figures given above with those of preceding periods, it is evident that the bad order situation is showing no improvement. For the 15 days ended Feb. 1, the percentage of cars in bad order was 9.3; for the 15 days ended Jan. 15 it was 8.82, and for the period ending Jan. 1 it was 9.12. In comparison with the situation in the U.S., however, the conditions in connection with bad order cars on Canadian lines are much superior. American Railway Association Car Service Division statistics shows there were 332,614 freight cars in bad order on Feb. 1, out of a total of 2,282,136 cars on line, or 14.5%. On Feb. 23, there were 437,678 freight cars idle in the U.S. because of lack of traffic, compared with 449,819 on Feb. 15. Of these, 264,814 were in good repair, while the others represented bad order cars in excess of seven per cent. of the total number.

Railway Association of Canada Circulars.

The Railway Association of Canada has issued the following circulars:—

Selling Shipments from Cars on Public Delivery Tracks.—A certain class of dealers in vegetables make it a practice to auction or sell their shipments from cars on public delivery tracks. This is a most undesirable practice, and adds to delay to equipment and congestion of team tracks and roadways.

In accordance with the operating committee's instructions member railways are requested to direct their agents not to permit the improper use of railway premises in this manner.

Bylaws Prohibiting Whistling and Bell Ringing.—It has become a common practice for Municipalities to adopt by-laws prohibiting the sounding of whistles and ringing of bells within certain limits. Compliance with such regulations increases the hazard of train operation, and in some cases interferes considerably with locomotive and train movements. Attention is called to the fact that operating rules in respect to necessary locomotive whistle and bell signals may be carried out notwithstanding municipal bylaws to the contrary, except in the case of whistling and bell ringing as highway crossing signals where by-laws prohibiting such signals have been adopted by the municipality and approved by the Board of Railway Commissioners under the Railway Act, sec. 308. In the circumstances it is recommended that member lines disregard bylaws of this character until approved by the Board of Railway Commissioners.

Giving Highway Crossing Warnings.—The steadily mounting list of accidents at level crossings has focussed the attention of those who have to do with the operation of trains upon the warning signals used as protection against such occurrences. The increasing use of the automobile adds to the hazard at level crossings, and this demands that locomotive men shall exercise greater care and good judgment in giving highway crossing warnings as prescribed by general operating rule 14 (L). In normal conditions, when the signal is given clearly, and of sufficient duration, it gives effective warning. The long blasts of the whistle should be maintained for three seconds, and the short blasts for one second each. There are situations, however, which, in addition to strict compliance with the letter of the rule, require that locomotive men shall use discretion as to the giving of additional warnings, such as in the case of slowly moving trains, adverse high winds, and where it is probable that opposing trains will pass one another at or near the crossing. It is requested that member railways issue instructions to locomotive men in accordance with the foregoing.

Methyl Alcohol Labelling.—The Inland Revenue Act, sec. 266, sub-sec. 2, reads as follows:—"Every person who uses methyl alcohol, or spirits, containing methyl alcohol in any form, in any pharmaceutical, medicinal or other preparation, intended for external use, shall affix to the vessel containing the said preparation, a label bearing the words 'Methyl Hydrate—Poison,' in black letters, not less than one-fourth of an inch in height, indicating the presence of methyl alcohol therein; and every person violating the provisions of this sub-section shall incur a penalty not less than \$50 and not exceeding \$200." Under this sub-section, it is pointed out,

the railways are obliged to see that vessels containing methyl alcohol, or spirits containing methyl alcohol in any form used in their operations, are properly labelled in accordance with the regulations. It is recommended that member railways issue necessary instructions to the departments concerned.

Grain Door Handling Regulations.—Effective as of Jan. 1, 1922, the following regulations shall govern the handling of grain doors used in connection with interline shipments of grain between points on Canadian railways, and the distribution of expense in connection therewith: 1. Grain door expense shall be pro-rated between participating road haul carriers on a revenue basis. 2. Charge of \$1.50 shall be made for each door furnished, the number of doors not to exceed 6 per car. This charge is subject to revision semi-annually. 3. Statement, with bill covering grain doors furnished, shall be rendered by originating

Self Propelled Cars on Steam Railways.

The Manitoba Power Co., which is allied with the Winnipeg Electric Ry. Co., has imported from the United States a gasoline motor passenger car for use on the Winnipeg River Ry. between Lac Du Bonnet and Great Falls, Man., where it is building a 170,000 h.p. hydro-electric plant. A standard gauge track of 14 miles was built by the Winnipeg River Ry. Co., some years ago, from Lac Du Bonnet, the terminus of a C.P.R. branch, of 21.5 miles from Molton, 38.1 miles east of Winnipeg on the main transcontinental line. The management feels that it will be able not to only affect a considerable saving in the cost of transportation between Lac Du Bonnet and Great Falls, but will also make the service between those points much more frequent and efficient than it was when operated by steam trains.

The car, which is illustrated herewith, is gasoline operated, by a 25 h.p. engine. The body, built on a standard chassis, is



Gasoline Motor Passenger Car, Winnipeg River Railway.

carriers to all interested carriers monthly, and be presented within three months after close of period in which service is performed. 4. Grain doors shall be returned by destination carriers to originating carriers, when possible. For reclamation and free return movement to nearest junction point with originating carrier, destination carrier shall be allowed 50c. for each door. 5. Roads performing only destination switching service against which no charge is to be made for use of doors, shall be allowed 20c. door, when returned to delivering road haul carriers. This does not prohibit the making of special arrangements between road haul carriers and switching lines.

Illegal Liquor Selling.—Leo Rosenberg, news agent on a Canadian National Rys. express train, was fined \$300 by the Port Arthur, Ont., Police Magistrate, March 6, for selling intoxicating liquor to an Indian.

of wooden construction, and the interior, from the lower part of the windows, is lined with sheet iron. The body is 21 ft. 8 in. long, 7 ft. 10 in. wide, and 9 ft. 11 in. high from top of rail to top of car. The lower part is painted in maroon, with black trim and stripe. Seats are arranged transversely. Space is provided in the front for carrying packages and express matter, and an arrangement has been made for the removal of one of the side panels to provide a larger opening for loading and unloading packages too bulky to go through the door. The car is lighted by electricity and heated by exhaust from the engine. The interior is finished in white enamel. It is provided with regulation lamps on both front and rear for operation on steam railway lines. The rear wheels are artillery type, with steel tires, the front wheels being of rolled steel.

This car is operating at a cost of 25c. a car mile, and doing work which for-

merly required a steam engine and a combination express and passenger car with a regular train crew, at a cost of \$1.25 a mile. Its operation up to date has been perfectly satisfactory and is meeting all the conditions of the service. The Greater Winnipeg Water District

The Railways' Operating Results for December, 1921.

For Dec. 1921 Canadian railways as a whole had a total operating revenue of \$37,076,979, compared with \$47,103,013 in Dec. 1920. Operating expenses were \$33,767,845, compared with \$46,420,205 in Dec. 1920, and the operating ratio was 91.07 in Dec. 1921, compared with 98.55 in Dec. 1920. The ton mileage of revenue freight decreased from 3,054,973,892 in Dec. 1920, to 2,545,408,476 in Dec. 1921, and passenger miles for the railways as a whole decreased from 251,855,455 in Dec. 1920, to 217,357,733 in Dec. 1921. The pay roll for Dec. 1920 was \$27,894,832, and in Dec. 1921 it was \$17,888,953, but as back pay included in the Dec. 1920 pay roll was \$4,828,356, the net decrease for the month was about 10%.

The Canadian Government Rys., with an operating ratio for Dec. 1921 of 108.50, compared with 152.16 for Dec. 1920, showed considerable improvement. Freight traffic decreased 7%, but passenger traffic increased 10%. Transportation expenses decreased 51%, and maintenance expenses decreased 40%. An improvement in operating efficiency is also apparent; car loading having increased by 3.6 tons a car, and the average train loading was increased by 148.9 tons.

The Canadian Northern System had an operating ratio of 106.92 for Dec. 1921, a great improvement over Dec. 1920, when it was 127.05, but a decided falling off from Oct. and Nov. 1921. While freight traffic was 32% greater than in Dec. 1920, lower freight rates, and an apparent carriage of a greater proportion of low class freight, caused a decrease in freight revenue of 3%. However, transportation expenses showed a satisfactory decrease, and a better train and car loading was evident. In Dec. 1920 the average car loading was but 26.9 tons, and in Dec. 1921 it was 31.8 tons; in Dec. 1920 the average train loading was but 303.7 revenue tons, and in Dec. 1921 it was 475.8 revenue tons. The average operating revenue per train mile was \$3.72 in Dec. 1921, compared with \$3.34 in Dec. 1920, despite the lower rates prevailing.

Canadian Pacific operating revenues were 24% lower in Dec. 1921 than in Dec. 1920, due to large decreases in freight and passenger traffic, but with a reduction of \$785,058 in maintenance of way expense, \$666,049 in maintenance of equipment expense, and \$3,225,963 in transportation expenses, the operating ratio was reduced from 82.85 in Dec. 1920 to 80.16 in Dec. 1921. Car loading fell off, being 32.9 tons in Dec. 1920 and 29.6 tons in Dec. 1921, and train loading also fell off, the average number of tons of revenue freight per train mile in Dec. 1920 being 585.8, and in Dec. 1921, 533.8.

Grand Trunk freight traffic was about 30% smaller than in Dec. 1920, but passenger traffic was about the same. The falling off in freight traffic, combined with reductions in freight and passenger rates, decreased operating revenues from \$7,860,295 in Dec. 1920 to \$5,668,-

Commission is reported to have authorized the purchase of a gasoline driven car with capacity for 42 passengers, from the Service Motor Truck Co., Wabash, Ind., for \$22,300, delivered in St. Bonifac, for operation over the Commission's railway.

995 in Dec. 1921, but operating expenses were reduced in greater proportion. Maintenance of way, maintenance of equipment and transportation expenses all showed large decreases, the total operating expense for Dec. 1921 being \$4,827,244, compared with \$7,633,878 in Dec. 1920. This reduced the operating ratio from 97.12 in Dec. 1920 to 85.15 in Dec. 1921. Freight train and freight car loading both fell off; the average car load in Dec. 1920 was 29 tons and in Dec. 1921 but 23.7 tons; the average revenue trainload in Dec. 1920 was 452.5 tons and in Dec. 1921 but 396.1 tons.

Although Grand Trunk Pacific freight traffic increased from 159,220,515 revenue ton miles in Dec. 1920 to 163,976,762 revenue ton miles in Dec. 1921, the average freight rate fell from 1.103c. per revenue ton mile in Dec. 1920 to 0.926c. in Dec. 1921, which decreased freight traffic revenue from \$1,757,183 in Dec. 1920 to \$1,518,536 in Dec. 1921. Passenger traffic also fell off, and this, coupled with a decrease in the average rate per passenger mile of from 3.461c. in Dec. 1920 to 3.307c. in Dec. 1921, caused an appreciable decrease in passenger revenue. Maintenance of way expenses were slightly greater than in Dec. 1920, and maintenance of equipment and transportation expenses were slightly less. Total operating expenses were \$2,051,943 in Dec. 1921, compared with \$2,095,559 in Dec. 1920. This, combined with the decrease in operating revenues, increased the operating ratio from 102.05 in Dec. 1920 to 114.10 in Dec. 1921. Improvements took place in car loading and train loading; the average carload in Dec. 1920 was 28.4 tons and in Dec. 1921 it was 30.3 tons. In Dec. 1920 the average number of revenue tons of freight per freight train mile was 441.4 and in Dec. 1921 it increased to 480.1. Notwithstanding this increase in operating efficiency, however, the effect of the lower rates was not overcome, resulting in the more unfavorable operating ratio noted.

Interstate Commerce Commission's General Rate Investigation.

Details of the general rate investigation instituted by the U. S. Interstate Commerce Commission were given in Canadian Railway and Marine World for March on pg. 143, covering proceedings up to the middle of February. On Feb. 16, S. Davies Warfield, President, National Association of Owners of Railroad Securities, and other officers of that Association, testified. They asked the Commission to give approval to a plan for the pooling of the U.S. railways' freight equipment, and claimed that the savings by the plan would be large. Shippers of fruits and vegetables, all of whom sought lower rates, were given an opportunity to present their views, and they were followed by shippers of milk, cream, and dairy products, and livestock and packing house products. On Feb. 23

and 24 oil and petroleum shippers claimed that the present rates are unduly restricting their markets. The hearing of evidence was concluded on March 4, after which there was a short adjournment, and argument by railway counsel before the full Commission was begun March 8. The counsel argued that a reduction in rates at this time would be ill advised, and that any reduction in the return to the railways as prescribed by the Transportation Act would be unwise. It was pointed out that the carriers are now before the Labor Board in an effort to have wages reduced to a reasonable level, and that it would be unreasonable to expect railways to reduce their rates until wages are decreased. The opinion expressed by many shippers that rate reductions would make for increased traffic was greatly doubted by the railway counsel. Generally, it was pointed out that the present rates and costs are not such as to afford the railways a fair return, which would make any rate reductions unreasonable and unjust to investors in railway enterprises, and it was also argued that any rate reductions which could be made would be of no benefit to producer or consumer, but the saving would be absorbed by the various middlemen handling the commodities affected.

Counsel for shippers and traffic associations, etc., based their claims for reduced rates on the statement that present rates are holding up business, and that reduced rates would mean greater traffic and, ultimately, greater net revenue for the railways. On March 11 and 13, rebuttal argument for the railways was heard, P. Thom, representing the Association of Railway Executives, advising the shippers who want their rates reduced to go to the Labor Board. He stated the railway's case plainly, and said that to ask the railways to reduce their rates before wages and other expenses are reduced is unreasonable. The arguments were concluded on March 13, and the case closed as far as evidence and argument are concerned. No intimation has been given as to when the Commission will announce its decision.

Reduced Rates on Live Stock Feed to Eastern Provinces.

Owing to representations made by the Prince Edward Island Commissioner of Agriculture as to serious shortage of feed for live stock, the Canadian National Rys. have made the same rate reductions on hay, corn oats and grain screenings to P.E.I. Ry. points as were made recently to afford relief to areas in eastern Nova Scotia in a similar position. Similar action has been taken with reference to reduced rates on the same commodities to New Brunswick areas where corresponding crop shortages prevailed.

Thus giving relief to the Maritime Provinces, is along the same lines as that taken about Dec. 1, 1921, in affording relief to the agricultural industry in certain sections of Quebec. The freight is consigned to the Commissioner or Deputy Minister of Agriculture in each province, and only delivered on his orders, to the farmers or their associations. These reduced rates have been authorized as a temporary measure only, the tariffs expiring April 30.

Freight traffic in the U.S. declined 23% in 1921 from that of 1920.

Railway Development, Projected Lines, Surveys, Construction Betterments, Etc.

Alberta. — An Edmonton press dispatch of March 23 says the Alberta Legislature has passed bills providing \$1,000,000 for extending Alberta's northern railways 39.5 miles and \$514,416 for maintenance and betterments.

Alberta and Great Waterways Ry. — When the Alberta Government took over this railway from J. D. McArthur, the Legislature authorized the expenditure of \$2,100,000 for its completion. Up to the end of 1921, the Government had spent on this work, \$2,323,000, according to a report presented to the Legislature recently by the Minister of Railways. During 1921, 272,000 new ties were used in repair work, and about 50,000 on the new line at Deep Creek, and in new sidings; 203,000 cubic yards of ballast were spread; a new bridge was built over the Christmas River; three permanent water supplies were installed; 95 miles of ditching completed; a mechanical coal-ing plant was erected at Lac La Biche, in addition to the building of section and bunk houses, temporary stations, grain and stock loading facilities, and other work. (Feb., pg. 76). See also under "Alberta."

Bottrel, Alta. — A press report states that the Dogspound local U.F.A., contemplates the construction of a railway. J. T. Boucher, Bottrel, Alta., is named as Secretary of the Railway Commission. The Dogspound district lies alongside the Dogspound Creek, which runs into the Little Red Deer River, the nearest railway point being Cochrane, 23 miles out of Calgary on the C.P.R. main transcontinental line.

Canada Central Ry. — The Alberta Minister of Railways' reports for 1921, presented to the Legislature recently, shows that \$107,584.84 was spent in betterments during the year. In addition \$321,811.16 was advanced on account of the building of the 25 mile extension from Peace River. Of this extension 23.6 miles was completed, except ballasting. The amount authorized to be expended on the extension was \$600,000, and it was estimated that \$550,000 of work had been done to Dec. 31, 1921. (Feb. pg. 76). See also under "Alberta."

Dominion Atlantic Ry. — The Board of Railway Commissioners has amended its order of Aug. 26, 1921, directing the company to provide suitable accommodation at Roundhill, N.S., by ordering that a platform 250 ft. long be built there by June 30. (Jan., pg. 32.)

Edmonton, Dunvegan & British Columbia Ry. — The Alberta Minister of Railways' report for 1921 stated that \$1,187,751.73 was expended during the year on betterments between Edmonton and Grande Prairie. The work included putting in 263,000 new ties; the distribution of 258,000 cubic yards of ballast; the putting in of 179 wooden and corrugated iron culverts; work on bridges and fills; the provision of temporary water supplies at three points; the provision of portable stations at Chisholm and Giroux; the removal of the locomotive house from Spirit River to Grande Prairie; the provision of grain loading platforms at five points and stockyards at two points; the provision of a track connecting the line with the C.P.R. in Edmonton, together with general work on fencing, ditching, repairing buildings, and telegraph line. The result of the work on the line had been to reducing

the schedule time of the passenger trains from 39½ hours to 26 h. 50 min. Of the \$1,500,000 voted for the work, there was expended \$1,475,000, which includes the betterment expenditure on the Central Canada Ry. (Dec., 1921, pg. 646.) See also under "Alberta."

Esquimalt and Nanaimo Ry. — Tenders for the construction of the superstructure of the bridge to be built by the City of Victoria, at Johnston St., were opened March 4, and it is reported that the prices offered were about \$50,000 in excess of the estimated cost of the work, which the superstructure of the bridge outside the bascule span, which is in course of erection by Canadian Bridge Co. It is said that no tender will be accepted at present, but that the Canadian Bridge Co. will fabricate the steel, and that this will be erected under the direction of the City Engineer. (Mar., pg. 124.)

Kettle Valley Ry. — Track is reported to have been laid on the piece of line from Penticton to the head of Skaha or Dog Lake, about two miles. Grading on the line from the southern end of the lake, near Okanagan Falls to the demonstration farm at Oliver, is reported to be well in hand, and it is expected to have this part of the work completed by June 1. Ties for the extension are reported to be on hand, and rails are being delivered. Connection between the two pieces of line will be maintained by a tug and a car barge. The tug York is reported to have been put in repair ready for the work, and the barge is expected to be ready at an early date. (Feb., pg. 76.)

Lacombe and North Western Ry. — Replying to a request made by a deputation from the Rimbey district recently, the Premier of Alberta is reported to have stated that it is the Government's intention to extend the Lacombe and North Western Ry. from the present end of track in the direction of Edmonton. Speaking later in the Legislature, he said that further construction would be provided for this year but, that owing to financial conditions, he could not give any promise as to the mileage which would be built. Provision would be made in the estimates this session for construction purposes.

The line is in operation from Lacombe to Rimbey, 36.5 miles, and in 1921 the Legislature authorized its extension from Rimbey to Edmonton, which would give it a total length from Lacombe to Edmonton of approximately 125 miles. The construction of an extension to Pigeon Lake was authorized in 1921, to some gravel pits in order to obtain a supply of ballast. This extension will form part of the line between Rimbey and Edmonton. (Aug. 1921, pg. 419.)

Lake Huron and Northern Ontario Ry. — We are advised that attempts are being made to reorganize the directorate, and that it is expected some Toronto men will be included. A meeting of shareholders was called to be held in Toronto, March 14, but no information as to what was done has been obtainable. (March, pg. 124.)

Mattawamkeag to Drew's Plantation. — A press report states that Houlton, Me., business men have arranged to finance the Mattawamkeag and Eastern Maine Rd., to build a branch line from the C.P.R. at Mattawamkeag, Me., to Drew's Plantation, Me., 15 miles. This

line would connect with the line projected by the Eastern Maine Rd. from Drew to Houlton, Me., 35 miles.

Montreal, Joliette and Transcontinental Junction Ry. — In connection with this company's application to the Dominion Parliament for an extension of time within which it may build its projected line from Montreal, via Joliette, to a junction with the National Transcontinental Ry., J. J. Denis, M.P. for Joliette, has given notice of a motion in the House of Commons that it is advisable that such a line should be built as soon as financial conditions permit. (Mar., pg. 124.)

Pacific Great Eastern Ry. — Extra gangs of men were reported recently to have been sent out to different points between Squamish and Deep Creek, on account of ice and snow troubles, which are said to have been unusually bad during the winter. (Feb., pg. 76.)

Roberval and Saguenay Ry. — The Quebec Legislature has authorized the company to build a number of lines as follows: — From Roberval, on the Quebec & Lake St. John Ry., around Lake St. John to the Peribonka River, thence southeasterly crossing the Saguenay River to the junction of the Quebec & Lake St. John Ry. and the Ha Ha Bay Ry.; a branch from the above line west of the Saguenay River southerly to Bruno on the Quebec & Lake St. John Ry.; the branch lines and sidings authorized by the Revised Statutes of 1909, article 647, par. 22, 20 miles; and all sidings and branches useful for connecting the companies, with timber limits, or navigable waters; and a branch from its line in Chicoutimi County to a junction with the Quebec & Saguenay Ry. at La Malbaie, Charlevoix County. These lines may be operated either by steam or electricity, or both. (Mar., pg. 124.)

Pere Marquette Rd. — A United States press report states that the company's plans for improvement and betterment for 1922, will involve the expenditure of \$4,035,000, and that an additional \$1,200,000 will be required to complete two of the works which cannot be finished until 1923. The work to be done covers the following betterments on the company's Canadian lines: — Relaying track between Sarnia and Wallaceburg, Ont., 31 miles, and rebalasting line from Sarnia to Chatham, 54 miles.

Quebec and Chibougamou Ry. — H. S. Blake, Montreal, and a representative of British interests associated with the project of building a railway into the Chibougamou mining district, were in Quebec, March 14, arranging for taking in men for development works at Chibougamou. The mining area is northerly from Roberval, about 225 miles by the present available route, but Mr Blake is reported to have stated that it would be reduced to about 165 miles by the construction of the railway, that \$250,000 had already been expended by the British capitalists upon the project, and that it was expected to go on with the railway as soon as financing could be arranged. (Feb 1921, pg. 85.)

Timiskaming and Northern Ontario Ry. — We are officially advised that Grant Smith & Co. and McDonnell Ltd., general contractors for the 70 mile extension from Cochrane, Ont., to near New Port on the Abitibi River, have let the following sub-contracts: — For clearing and grading the whole of the 70 miles, to

Noehren and Mannix, Calgary, Alta.; for concrete work on the first 11 miles out of Cochrane, including the work at the first crossing of the Abitibi River, to C. D. French and Co., Montreal; for building all trestles from mile 12 to 47, to James Brennan, Arnprior, Ont. We are further advised that S. D. Hogan will be in charge of the grading work for Noehren and Mannix, who, it is reported, has purchased a number of dump cars from Foley Brothers, which had been stored in the vicinity of Sudbury, Ont. (Mar., pg. 124.)

Wabash Rd.—We are officially advised that the press report stating that it is proposed to erect locomotive repair shops at St. Thomas, Ont., at a cost of \$500,000, is incorrect. The Wabash Rd., which operates over the old G.T.R. Air Line, has had the repair work on the locomotives used in Canada done for several years in the shops of the old Lake Erie and Detroit River Ry., in St. Thomas, owned by the Pere Marquette Rd. H. Eisele, Assistant Superintendent Locomotive Department, Decatur, Ill., visited the P.M.R. shops at St. Thomas recently, to see how the work on Wabash locomotives was progressing.

The Newfoundland Railway Situation.

The problem of what is to be done with the Newfoundland Ry. has been under discussion for a considerable time between the Newfoundland Government, and the Reid Newfoundland Co. In July, 1921, the Newfoundland Legislature passed an act, confirming an agreement, based upon suggestions made by Sir George Bury, under which the Reid Newfoundland Co. undertook to operate the lines for 12 months from July 1, and to give certain specified services, the Government to pay any loss on operation up to \$1,500,000. A General Manager, from Canada or the United States, was to be appointed by the company subject to the Government's approval. R. C. Morgan, Superintendent, Winnipeg Terminals, C.P.R., subsequently went to St. John's in connection with the appointment, having been granted leave of absence for that purpose, but he was reported in February to have finally resigned the position.

It was reported recently that an inventory of the railway property was being made at the Government's instance in connection with the making of a new arrangement with the company. That some new arrangement is to be made is evident from the fact that the Governor in his speech at the opening of the Legislature, on March 14, said that proposals for operating the railways would be presented for consideration. Mr. Morgan's report to the Government was submitted to the Legislature on March 20. One press report states that he has recommended that the Government take over the system and operate it by a commission, and another report states that the lines may be leased by the Government for an indefinite period.

Railway Operation of Steamboat Lines.—Major-General L. H. Beach, Chief of Engineers, U.S. Army, in addressing the National Rivers and Harbors Commission at Washington, D.C., recently, advocated that Congress should adopt legislation to permit the railways to operate boat lines on inland waterways. The present U.S. law prohibits railways from operating boat lines.

Traffic Orders by Board of Railway Commissioners.

Temporary Doors for Lime Shipments.

General order 360. March 6.—Re application of D. Robertson & Co., Milton, Ont., and Standard White Lime Co., Guelph, Ont., for an order requiring railway companies to supply temporary doors for shipments of lime, in carloads, or to make an allowance when the same are furnished by shippers. Upon hearing the matter at Toronto, Jan. 5, 1922, the applicants, the Christie, Henderson Co., and the Grand Trunk and Canadian Pacific Railways, being represented, and what was alleged; and upon reading the further submissions filed, the Board orders that railway companies be required, not later than March 16, 1922, to amend their tariffs so as to provide for the allowance, at points east of Fort William, of 50c. a car door of not less than 21 sq. ft. when furnished by shippers of lime, in bulk.

Milling in Transit Arrangements.

32,195. March 6.—Re application of Robin Hood Mills, Ltd., Moose Jaw, Sask., and Montreal, for a ruling whether secs. 1 and 2 of general order 234, May 22, 1918, are applicable to milled in transit arrangements to destinations east of Port Arthur, Fort William, and Armstrong, Ont. Upon hearing the application at Ottawa, Feb. 17 and June 15, 1920, the applicants, the Canadian Pacific, the Grand Trunk, and the Canadian National Railways being represented, and what was alleged. The Board declares that the words "to final destination," appearing in rule 6-A of the tariff which was operative when the shipments in question originated, read in connection with the provisions as to reshipment made to Westport, Fort William, Port Arthur, and points east thereof, mean that the through rate, the inception of which in point of time is defined by general order 234, applies to the final destination, even if that destination be east of Fort William or Port Arthur.

Coal Switching Tariff A.C. & H.B. Ry.

32,196. March 8.—Re application of Century Coal Co, Montreal, for an order suspending Algoma Central & Hudson Bay Ry. tariff, C.R.C. 585, effective March 15, 1922, showing increases in switching rate on coal from New Ontario Coal Co.'s dock to the C.P.R. at Sault Ste. Marie, to 2c. per 100 lb. Upon reading the application and what is alleged in support thereof, the Board orders that, pending hearing and decision, the said tariff be suspended.

Pig Iron Rates from Collingwood to Black Rock.

32,217. March 14.—Re New York Car Wheel Co.'s complaint against the rates charged by G.T.R. on pig iron from Collingwood, Ont., to Black Rock, N.Y. Upon hearing the matter at Ottawa, Feb. 7, the applicant and the G.T.R. being represented at hearing, and what was alleged, the Board orders that the complaint be dismissed.

Export Rates on Grain Products.

32,227. March 13.—Re application of Canadian National Millers' Association for an order directing the Canadian Pacific, Grand Trunk, Canadian National and any other Canadian railways interested, to reduce to an equitable basis the export rates on grain products to that of wheat, particularly for shipment lake and rail; and re application of Dominion Millers' Association regarding flour arbitraries over wheat, for export. Upon hearing the applications at Ottawa,

Jan. 26, 1922, the Canadian National Millers' Association, Dominion Millers' Association, Grand Trunk, Canadian Pacific and Canadian National Railways, Quaker Oats Co., Maple Leaf Milling Co., Western Canada Flour Mills, Dominion Flour Mills, St. Mary's Milling Co., and Montreal Board of Trade being represented, and what was alleged; and upon reading the further written submissions filed, and the report of the Board's Assistant Chief Traffic Officer, the Board orders that the applications be refused.

Canadian National Railways Construction, Betterments, Etc.

Meductic, N.B., to Bangor, Me.—The New Brunswick Minister of Lands and Mines, in speaking in the Legislature, recently, advocated the building of a line to 41 miles, from Meductic, on the St. John and Quebec Ry., to a junction with the Maine Central Rd. at Bangor, Me. During 1921 there was some discussion as to the construction of a connection between the St. J. and Q. Ry. and the Maine railway system, the suggested starting point being Pokiok, N.B., 12 miles nearer Fredericton than Meductic, the connecting point with the Maine railway system, was to be at Danforth, Me. A press report states that some progress has been made in the Maine Legislature with a bill for the building of a line to connect with Canadian lines as outlined above.

St. Boniface, Que.—The Board of Railway Commissioners has authorized the opening for traffic of a portion of the Canadian Northern Quebec Ry., near St. Boniface, Que., mile 87.5 to 91.5. This is a division between Glenaldon and St. Boniface, which includes the viaduct at East Burrill, a description of which was given in Canadian Railway and Marine World, May 1921, pg. 247.

Regina Improvements.—A press report states that a large strip of land has been bought in the northwest part Regina, Sask., for the purpose of effecting improvements and extensions of the C.P.R. facilities. It is stated that the curves in the line north of the city will be straightened out; additional yard space laid out, larger shops built, and increased facilities for handling grain provided.

Regina City Council has given an extension of time for the installation of automatic safety devices at the C.N.R. crossings at Smith St. and Dewdney Ave., and at Eighth Ave. and Smith St. The railway track at Regina is to be laid with 80 lb. rails in place of the 60 lb. rails now in use, the work to begin in May. The automatic devices were to have been installed within 90 days from Jan. 16; but in order that the whole work of track relaying and the installation of the devices could be done at the same time, the city consented to a three months postponement.

Vancouver Island Lines.—A press report of March 14, stated that track laying is being started from the end of Cowichan Lake, and that about 12 miles will be laid to the Cottonwood mills. The line has been graded to Nitinat, but it is said not to be the intention to lay track beyond Cottonwood at present.

The report also states that construction is likely to be started this year on a line from Deerholm to Cowichan Bay, about 10 miles, in order to give access to salt water for the shipment of logs from the Cowichan Lake district.

Canadian Pacific Railway Construction, Betterments, Etc.

St. John, N.B., Crossing.—In connection with the Board of Railway Commissioners' order respecting the diversion of Douglas Ave., and the construction of an overhead bridge, referred to in our last issue, the St. John City Council was advised Feb. 28, that a proposed deputation would not wait on it, as the Mayor had announced that no expenditure would be incurred until the courts had decided the action pending between the New Brunswick Government, the C.P.R., and the St. John Ry. Bridge and Extension Co. A summary of the Government's claims was given in our January issue, pg. 23.

We are officially advised that the concrete arch which it is proposed to build will be a skew one with a 96 ft. opening, the arch to be designed and built by the C.P.R., and the St. John City Council grade the road approaches on either side. The gradient of the approach from Douglas Ave. will be 3.5%, and from the summit of the arch running westward to the end of the highway bridge over the river at the falls it will be 5.5%. The cost of the work is divided in the following proportions, after the \$15,000 contribution from the Dominion grade crossing fund is deducted:—C.P.R., 50%; New Brunswick Power Co., 25%; St. John City, 25%. The estimated cost of the work is \$110,000, including land damages. It will be necessary to divert the Strait Shore Road. The gradient from the end of the highway bridge eastward down Strait Shore Road will be 12%, but this is only intended as a more or less temporary gradient until another street is extended giving a lighter gradient, or until the traffic down Strait Shore Road warrants the lessening of the gradient.

St. John to McAdam.—A press report states that 50 miles of new heavy rails will be laid between St. John and McAdam, N.B., this year.

Shore Line Track Relaying.—A press report states that it is intended to lay 72 lb. rails, replacing the present lighter ones, on the Shore line subdivision, West St. John to St. Stephen, N.B., during this year.

Park Ave. Subway, Montreal.—A press report states that it is contemplated to build a subway under the C.P.R. tracks on Park Ave. extension, Montreal, at an estimated cost of \$200,000.

Smiths Falls Freight Sheds.—A press reports states that a fire in the Smiths Falls, Ont., freight sheds on March 2, did considerable damage, the total loss to the C.P.R. and others being about \$75,000.

Windsor Freight Shed, etc.—We were officially advised March 4 that plans and specifications for the new freight shed and yard improvements at Windsor, Ont., were being prepared.

Jack Pine River Bridge.—The Board of Railway Commissioners has authorized the rebuilding of bridge 464 over the Jack Pine River, Nipigon Subdivision, Algoma District, Ont.

Fort William Old Station.—Fire broke out on Feb. 22 in the building used formerly as a station at Fort William, Ont., and now located in the yards near the foot of Bethune St., and latterly used as offices by some outside department. The building was practically destroyed, along with a quantity of records, the total loss being put at about \$50,000. Work was

started at once on clearing up the ruins, and the provision of temporary accommodation for the burned out officials.

Sheho Northwesterly.—A press report of March 12, stated that a C.P.R. party was making a survey from the end of a piece of grading from Sheho, Sask., northwesterly, 16 miles, which was completed about 15 years ago, towards Wadena, Sask. Sheho is a station on the extension of the old Manitoba and North Western Ry. It is stated that the original intention was to extend the line to Prince Albert, and the 16 miles of grading northwesterly from Sheho was done. Later the line from Sheho was extended to Saskatoon.

Drumheller Connection.—The Board of Railway Commissioners authorized the C.P.R. to connect its line with the Canadian National Rys., so as to give it access to the Drumheller coal mining area in Alberta. Chief Commissioner Carvell, in giving judgment, said:—"The question of an entrance into the Drumheller coal field by the C.P.R. was settled by Parliament when a charter was granted giving that right. An agreement was then made by the Canadian National Rys. and this Board providing for the construction of a joint line of 30 miles east of Rosedale, and the Board, only a short time ago, approved the location asked for by the C.P.R. on the north side of the Red Deer River. The C.P.R. now claims that temporarily it wishes to use a connection already in existence on the south side of the river by which it may carry on business for the present, north and west, but not to the east, until the original scheme is carried into effect. The principle which I think should settle the Board's action in the matter would be what would the Board do should the C.P.R. build its line along the north bank of the Red Deer River, and the joint section from Rosedale to Bullpound Creek, and thence to its eastern connection. Would the Board grant transfer facilities or not under these conditions? I think it would—in fact I fail to see how we could do otherwise, and, therefore as the C.P.R. is now into Drumheller, under these conditions I fail to see how we could refuse to grant the physical connection, and therefore an order should issue granting the application."

The C.P.R. line to Drumheller starts at Acme, and its proposed length was about 35 miles. Construction was started in 1920, and track was laid that year for 18.5 miles, and in 1921, a further 16.93 miles were laid.

Coquitlam River Bridge.—A press report states that a bridge is to be built across the river at Coquitlam, B.C., to an estimated cost of \$100,000, to replace the one carried away by floods on Oct. 28, 1921, which was replaced by a temporary bridge, which in turn was carried away by a second flood on Dec. 11, 1921. The new structure will be somewhat longer than the former one, the concrete abutments and piers being placed farther apart, and the total length of the bridge increased to 300 ft. (Mar., pg. 131.)

Electric Operation in Buffalo.—A bill providing that steam railways entering Buffalo, N.Y., city limits shall operate electric locomotives within the city, has been proposed by the Assistant Corporation Counsel.

Railway Earnings.

Canadian National Railways.

Following are total operating revenues total operating expenses, and net operating revenues or deficits, for the Canadian Northern Ry. System, Grand Trunk Pacific Ry., and Canadian Government Rys., the last including the Intercolonial Ry., Prince Edward Island Ry. and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government:—

Jan.	Revenue	Expenses	Net deficits	
			1922	1921
Jan.	\$8,210,401	\$10,433,564	\$2,223,163	\$2,863,058
Decr.	\$2,640,509	3,280,404	639,895	.....

Approximate earnings for February, \$7,471,399, and for two weeks ended March 14, \$4,370,376, against \$10,225,436 and \$4,759,936, for same periods 1921.

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1922, compared with those for 1921. The discrepancies between these figures and those issued by the Dominion Bureau of Statistics are owing to the fact that the Bureau is, at its request, furnished with figures by the C.P.R., including the Esquimalt & Nanaimo Ry., and the Montreal & Atlantic Ry. earnings, as well as the C.P.R. ones. The figures supplied the Bureau are exclusive of certain income items which are included in figures supplied Canadian Railway and Marine World:—

Jan.	Gross	Expenses	Net	
			Decreases	.....
Jan.	\$11,337,975	\$10,854,498	\$483,477	\$157,948
Decr.	\$ 3,127,455	\$ 2,969,508	\$157,948	.....

Grand Trunk Railway.

Following are total operating revenue and total operating expenses for lines in Canada for 1921, also total net operating revenues or deficits for 1921 and 1920, with increases or decreases in totals, as compared with those for 1920, as far as they are available to date:—

Jan.	Gross	Earnings	Net revenues or deficits	
			1921	1920
Jan.	\$6,187,539	\$6,886,930	\$699,391*	\$624,310*
Feb.	5,468,732	5,439,039	29,693	690,857*
Mar.	6,271,921	5,584,721	687,200	398,859
Apr.	5,659,813	5,241,107	418,706	651,789
May	5,957,779	5,596,194	361,585	605,310
June	6,672,766	5,919,063	753,702	456,747
July	6,563,693	5,620,730	942,963	863,642
Aug.	7,472,694	6,084,883	1,387,811	1,345,926
Sept.	7,240,823	7,085,571	155,252	501,078
Oct.	7,132,231	6,210,919	921,312	910,012
Nov.	6,370,483	6,187,587	182,896	847,349
Dec.	5,668,995	4,827,245	841,750	226,416

	\$76,667,469	\$65,856,744	\$5,141,729	\$5,265,545
Incr.			491,518	.....
Decr.	\$ 4,602,572	\$ 5,094,090	.....	.....

*Deficit.

British Ministry of Transport Abolition Likely.—When Sir Eric Geddes gave up his position as Minister of Transport in England recently, he is reported to have stated that in view of the Railways Act of 1921, which restored the railways to private ownership, there was no justification for retaining a separate Ministry of Transport. The Committee on National Expenditure apparently agrees with his views, having stated, "We do not consider that the separate existence of the Ministry can longer be justified, having regard to the curtailment of activity on the termination of Government control of the railways." The members of the committee suggest that economy and efficiency would be attained if all questions of transport by sea, rail, road and canal, and questions of power and coal, were grouped in the Board of Trade, under one Parliamentary Secretary to assist the President." In view of this, it seems likely that the Ministry of Transport will cease to exist in the near future.

The American Association of Traveling Passenger Agents will visit the Pacific Coast at an early date. The C.P.R. is reported to have arranged to place two special trains at the members' disposal and to have arranged for their entertainment at Banff, Lake Louise, Vancouver and Victoria. The visit has been arranged in connection with C.P.R. plans for the promotion of tourist travel to Rocky Mountain and British Columbia resorts from United States points.

Mainly About Railway People Throughout Canada.

James Allen, Assistant Master Mechanic, Canadian National Rys., Winnipeg, died there, March 6, aged 64. He was born at Perth, Ont., and was, for some time, a locomotive man on the Northern Pacific Ry., Winnipeg, and when the Canadian Northern Ry. took over the Northern Pacific lines in Manitoba, he transferred to C.N.R. service, and in 1913 was appointed Road Foreman of Locomotives, and subsequently, Assistant Master Mechanic at Fort Rouge shops.

William A. Armstrong, whose appointment as City Passenger Agent, C.P.R., Windsor, Ont., was announced in a recent issue, was born in Melancthon Tp., Ont., Nov. 25, 1887, and entered C.P.R. service Dec. 12, 1904, since when he has been, to Sept., 1909, clerk, Car Department; Dec. 1909 to Aug. 1911, ticket clerk; Aug. 1911 to Jan. 1914, refund clerk; Jan. 1914 to Jan. 1922, rate clerk, Passenger Department, all at Toronto.

H. E. Beasley, General Superintendent, Esquimalt and Nanaimo Ry., Victoria, B.C., visited C.P.R. headquarters in Montreal in March, afterwards spending a few days with relatives in Toronto. He was accompanied by Mrs. Beasley.

J. E. Dalrymple, Vice President, Traffic, G.T.R., Montreal, gave a silver cup for competition amongst the teams in the G.T.R., Freight Traffic Department's bowling league, the season of which has just closed.

Col. J. S. Dennis, C.M.G., Chief Commissioner Colonization and Development Department, C.P.R., Montreal, addressed the Empire Club of Canada, at Toronto, March 30, on immigration and settlement.

Sir John Craig Eaton, President, The T. Eaton Co., and director of the C.P.R., who died at Toronto, March 30, from influenza, followed by complications, after an illness of six weeks, was born there April 26, 1876. He was, at one time, interested in the Turbine Steamship Co., which had the s.s. Turbinia built in England, for service on Lake Ontario, and later acquired the controlling interest in the Hamilton Steamboat Co., which, with the Turbine Steamship Co., of both of which companies he was President, was subsequently sold to Canada Steamship Lines Ltd. He was elected a director of the C.P.R. in Dec. 1919.

John Ehrke, Assistant to General Superintendent Western Lines, G.T.R., Chicago, Ill., died at Battle Creek, Mich., Feb. 21, aged 63, while there on business.

Watson Smythe Hall, whose appointment as Superintendent, Portage Division, Manitoba District, C.P.R., Winnipeg, was announced in our last issue, was born at Montreal, May 23, 1884, and entered railway service, in 1901, since when he has been, to April 1, 1903, stenographer, Denver and Rio Grande Rd., Denver, Col.; Apr. 1, 1903 to July 1906, clerk, General Superintendent's office, C.P.R., Calgary, Alta.; July 1906 to March 1907, secretary and clerk, General Manager, C.P.R., Winnipeg; March to Oct. 1907, secretary and clerk, General Manager's office, C.P.R., Winnipeg; Oct. 1907 to May 1910, chief clerk to Superintendent, C.P.R., Cranbrook, B.C.; May 1910 to May 1912, Yardmaster, C.P.R., Cranbrook, B.C., and Macleod, Alta.; May 1912 to July 1920, Trainmaster, C.P.R., Macleod, Red Deer, Alta., and Cran-

brook, B.C.; July 23, 1920 to Feb. 24, 1922, Superintendent, Cranbrook Division, British Columbia District, C.P.R., Cranbrook, B.C.

Gordon F. Johnston, who has been appointed General Agent, Passenger Department, in Australasia, Canadian National Rys., entered railway service May 1, 1910, since when he has been, to June 1, 1912, ticket clerk, G.T.R., Richmond, Que.; June 1, 1912 to Apr. 1, 1916, ticket clerk, Grand Trunk Pacific Ry., Regina, Sask.; Apr. 1, 1916 to Sept. 1, 1920, City Passenger and Ticket Agent, same road, Prince Rupert, B.C.; Sept. 1, 1920, to March 16, 1922, City Passenger and Ticket Agent, Canadian National Rys., Prince Rupert, B.C.

W. R. MacInnes, Vice President, Traffic, C.P.R., sailed from St. John, N.B., March 10, on the s.s. Montcalm, for Liverpool, Eng.

Mrs. S. McIsaac, who died at Beaver Cove, N.S., Feb. 26, was mother of J. R. McIsaac, Traffic Manager, British Empire Steel Corporation, Sydney, N.S.

Sir Donald Macmaster, K.C., who died in London, Eng., March 3, after a long illness, was born at Williamstown, Ont., Sept. 3, 1846, and had a distinguished legal career both in Canada and England, where he eventually settled. He represented the Chertsey Division of Surrey, in the British Parliament since Jan. 1910, and recently resigned on account of ill health. While practising in Canada, he served as an arbitrator between the Newfoundland Government and the Reid Newfoundland Co., in connection with railway matters.

Royden Findlay McNaughton, who has been appointed District Passenger Agent, Canadian National Rys., Prince Rupert, B.C., was born at Petrolea, Ont., June 23, 1889, and entered railway service in April 1908, since when he has been, to Oct. 21, 1910, relieving agent, Middle Division, G.T.R., Toronto; Oct. 21, 1910 to July 1, 1912, assistant rate clerk, Canadian Northern Ry., Winnipeg; July 1 to Nov. 1, 1912, chief ticket stock clerk, same road, Winnipeg; Nov. 1, 1912 to March 1, 1913, chief clerk to District Passenger Agent, same road, Saskatoon, Sask.; March 1, 1913 to July 1, 1914, Travelling Passenger Agent, same road, Saskatoon, Sask.; July 1, 1914 to Sept. 1, 1916, Travelling Passenger Agent, same road, Edmonton, Alta.; Sept. 1, 1916 to March 16, 1922, Travelling Passenger Agent, same road, latterly Canadian National Rys., Regina, Sask.

Sir Augustus M. Nanton, one of the C.P.R. directors, returned to Winnipeg early in March, after visiting in England and Scotland. He was the principal guest at a dinner given by the Canadian Club of Great Britain, in London, Eng., Feb. 23, among the other guests being Lord Shaughnessy, Chairman of the Board, C.P.R., and Sir George McLaren Brown, European General Manager, C.P.R. Sir Augustus Nanton spoke on Canada's needs and opportunities, dealing particularly with the development of the great prairie provinces and the opportunities they afford for settling the surplus population of Great Britain. Lord Shaughnessy spoke on Canada's advantages as a field for settlement. A vote of thanks was accorded to the speakers on Sir George McLaren Brown's motion.

Robert Patterson, formerly Master Mechanic, G.T.R. shops, Stratford, Ont.,

died at his home there, March 25. He was born at Brantford, Ont., March 13, 1860. His father was employed in the G.T.R. shops at Stratford for several years. He was educated at the Model School, Toronto, and entered G.T.R. service in 1874, as apprentice machinist, Montreal, and on the expiration of his apprenticeship, was transferred to the Stratford shops as machinist, remaining there until 1881, when he went to Philadelphia as machinist with the Baldwin Locomotive Works, and was later appointed Foreman, machine shop, G.T.R., Stratford, and in the same year General Foreman, Midland Ry., Port Hope, Ont. From 1883 to 1887 he was Locomotive Foreman, G.T.R., Montreal; 1887 to 1888, Locomotive Foreman, G.T.R., Toronto; 1888 to 1896, General Foreman, G.T.R., Toronto; 1896, acting Master Mechanic, G.T.R., Gorham, N.H.; 1896 to 1897, General Foreman, G.T.R., Port Huron, Mich.; 1897 to 1899, Master Mechanic, lines west of St. Clair River, G.T.R., Port Huron, Mich.; Feb. 1899 to Jan. 1918, Master Mechanic, G.T.R. shops, Stratford, Ont. In Jan. 1917 he was loaned to the Imperial Munitions Board and placed in charge of the General Car and Machinery Co.'s plant at Montmagny, Que., and on the completion of his work there, retired from G.T.R. service on pension. During his service with the G.T.R. at Stratford, he was largely instrumental in the inauguration of the present system of training apprentices in force throughout the G.T.R. The funeral took place at Mount Pleasant Cemetery, Toronto, March 27, and was attended by a number of G.T.R. officials. Mrs. G. Peppall, wife of the Assistant Foreign Freight Agent, G.T.R., Toronto, is a sister.

F. H. Phippen, K.C., formerly Chief Counsel, Canadian Northern Ry., who was compelled to withdraw temporarily from the Toronto Ry. arbitration case a short time ago, owing to ill health, returned to Toronto from England, with Mrs. Phippen, on March 11.

F. E. Pittman, General Passenger and Ticket Agent, Reid Newfoundland Co., St. John's, Nfld., left Montreal, March 11 for Halifax, en route to St. John's, after a visit to Canada.

Albert A. Polhamus, General Agent, Passenger Department, C.P.R., Los Angeles, Cal., died there March 11, as a result of internal injuries received when he fell in playing with his young son.

John Bissell Reeve, whose appointment as Night Chief Dispatcher, Districts 4 and 5, Montreal Division, Eastern Lines, G.T.R., Montreal, was announced in our last issue, was born at Island Pond, Vt., May 16, 1886, and entered railway service Oct. 26, 1900, since when he has been, to Sept. 1, 1901, call boy, G.T.R., Island Pond, Vt.; Sept. 1, 1901, to May 1, 1903, car checker, G.T.R., Island Pond, Vt.; May 1, 1903, to May 10, 1906, clerk, G.T.R., at various points; May 10, 1906 to April 10, 1916, operator and relieving agent, G.T.R., at various points; April 10, 1916 to July 1, 1918, dispatcher, G.T.R., Richmond, Que.; July 1, 1918 to June 20, 1919, dispatcher, United States Railroad Administration, Island Pond, Vt.; June 20, 1919, to March 1, 1920, dispatcher, U.S.R.A., Portland, Me.; March 1, 1920 to March 26, 1921, dispatcher, G.T.R., Portland, Me.; March 26, 1921 to Feb. 1, 1922, dispatcher, G.T.R., Richmond, Que.

F. M. Rutter, who was appointed Superintendent, London Division, Ontario District, London, Ont., recently was presented with a gold watch and chain by the staff of the Bruce Division, Ontario District, Toronto, of which he had been Superintendent for about 10 years.

R. B. Stanton, who died at Stamford, Conn., Feb. 24, from pneumonia, aged 76, was, at one time, Division Engineer, Union Pacific Ry., and was also engaged as a mining engineer in Canada, the U.S., Mexico, Cuba and the East and West Indies. He was the author of a number of engineering works, including one on the great landslides on the C.P.R. in British Columbia.

F. C. Stebenne, who died at Montreal recently, aged 62, was an old C.P.R. employe. He entered railway service May 1, 1879, with the South Eastern Ry., at Chambly, Que., and was later transferred to St. Lambert, Que., serving as a telegraph operator. When the South Eastern Ry. was taken over by the C.P.R., in 1889, he was appointed car distributor at Farnham, Que., and transferred to Montreal in June, 1891. In July, 1908, he was pensioned on account of ill health.

Guy Tombs, traffic manager and freight broker, Montreal, and formerly in Canadian National Rys. service, addressed the Electrical Co-operative Society at Montreal on March 1, on transportation.

Amalgamation of English Railways.—London cablegram Mar. 19.—An agreement was signed last night completing the first big railway amalgamation promoted by the Government with a view to securing economy in operation, greater efficiency and the termination of wasteful competition. The companies amalgamated are the London & North-western and the Midland. The London & North-western has a capital of £188,292,156 (roughly \$828,458,484), and the Midland, £203,069,435 (\$897,136,496). The actual amalgamation will take place on Jan. 1, 1923, but this year the lines will be operated in the closest co-operation. The name of the new company will be announced later. The debentures will be guaranteed, and the preference stock of the two companies will be exchanged at par for stock in the new company.

United States Railways Consolidation.—The tentative plan for the consolidation of U.S. railways into large systems, proposed by the Interstate Commerce Commission, was given in detail in Canadian Railway and Marine World for Nov. 1921, pg. 569. The Commission has issued notice of a hearing to be held at Washington on April 24, to hear evidence on the proposed consolidation in the southeastern region, which includes systems 10, 11 and 12 as outlined in the original tentative plan. The notice points out that while the value of the properties to be consolidated must be of the greatest importance in any actual consolidation, evidence as to value will be neither helpful nor material at the present rate of the enquiry. Alternative or modified plans of consolidation may be submitted in lieu of any system proposed in the original tentative plan.

Chairmen of House of Commons committees have been elected as follows:—Railways, canals and telegraph lines, F. S. Cahill, Pontiac, Que. Marine and Fisheries, W. Duff, Lunenburg, N.S.

The Windsor-Detroit Bridge Project.

The Canadian Transit Co. is applying to the Dominion Parliament for the following amendments to its act of incorporation obtained in 1921:—To enable the meetings of shareholders to be held in Detroit, Mich., to ratify an agreement dated June 6, 1921, with American Transit Co.; enabling it to mortgage its assets and undertakings in conjunction with any other company, to secure payment of lands issued by such other company for the construction of the projected bridge from Windsor, Ont., to Detroit, Mich.; to enable the directors to issue bonds and other securities at not more than 7% interest; and for such other powers incidental thereto as may be necessary. (Feb., pg. 76.)

C. E. Fowler, Chief Engineer of the company, spoke on bridge building before the Toronto University Engineer's Club, on March 14, and is reported to have stated that the borings for the foundations of the proposed Windsor-Detroit bridge had been completed. The work showed that rock was found everywhere within 100 ft. of the surface of the water, except at one point where it was 101.8 ft. Borings had been made 14 ft. into the rock, the results showing that it would be possible to have the foundations entirely in solid rock.

A press report states that the terminus of the bridge in Detroit will be in the vicinity of 24th Street, and that the terminal and approach to the bridge on the Canadian side will be at Sandwich.

The Toronto Transportation Club held its second monthly luncheon on March 27, with an attendance of over 70. Vice President G. W. Vaux, General Agent, Union Pacific Rd., occupied the chair, in the absence of the President, Thos. Symington, Superintendent Shedden Forwarding Co., who was in New York. As it was the 40th anniversary of Mr. Symington entering the Shedden Co.'s service, the club sent him a congratulatory telegram, and forwarded a copy of it, with a bouquet of roses to Mrs. Symington, who was at home in Toronto. R. M. Yeomans, of the City Industries Department, spoke on "Toronto as it is" dealing with the city's position and advantages, and was given a vote of thanks proposed by J. W. Hickson, Canadian Freight Agent, New York Central Rd.

British Exports of Railway Material.—That Great Britain has regained its position as an exporter of railway materials, and is maintaining it, is shown by the exports for Jan. 1922, compared with Jan. 1921 and 1920. Locomotive exports for Jan. 1922 were £863,981, compared with £547,428 in Jan. 1921 and £326,147 in Jan. 1920. Steel rail exports for Jan. 1922 were £415,585, compared with £454,887 in Jan. 1921 and but £106,953 in Jan. 1920. The total value of all permanent way material exported in Jan. 1922 was £1,046,063, compared with £1,378,393 in Jan. 1921 and £600,939 in Jan. 1920.

Station Caretaker Agent's Duties.—Canadian Railway and Marine World for February contained, on pg. 60, the Board of Railway Commissioners' general order 355, passed Jan. 5, defining the duties of a caretaker agent at stations at which regular agents are not maintained. On March 2, the Board passed general order 359, rescinding order 355.

Railway Finance, Meetings, Etc.

Atlantic, Quebec and Western Ry.—Quebec Oriental Ry. — J. S. Gordon, Manager of these two railways, is reported to have stated in Quebec, March 10, that the loss in operation for December, January and February, of this winter, was about \$16,000, against \$106,000 for the same three months of 1920-21.

Canadian National Rys.—A syndicate headed by Dillon Read & Co., New York, N.Y., offered recently an issue of \$11,000,000 Canadian Northern Ry. 3-year 5% notes guaranteed as to principal and interest by the Dominion Government at 99%, to yield about 5.15%. The notes are a direct obligation of the Canadian Northern Ry. Co. which forms part of the Canadian National Rys. system, and the prospectus stated that Canadian counsel had advised that they would be secured by the Dominion's full credit and taxing power, equally with its direct obligations. The issue was disposed of quickly.

Minneapolis, St. Paul and Sault Ste. Marie Ry. financial results in 1921 were such that the dividends on preferred and common stock have been reduced to a 4% basis, instead of 7% as heretofore. In 1921 the net operating deficit was \$189,983, fixed charges were about \$4,100,000, and dividends, paid out of surplus, were \$2,646,714, making a total deficit of \$6,937,000. Depressed traffic caused a decrease in gross revenue of 12.7%, compared with 1920, and operating expenses were not curtailed in proportion, the operating ratio being 91.8 in 1921, compared with 90.7 in 1920. In Jan. 1922, the operating deficit was \$350,959, compared with \$974,515 in Jan. 1921. Expenses were cut 26%, compared with Jan. 1921, and gross revenues declined 17.1%.

Thousand Islands Ry. — The annual meeting of shareholders was held at Gananoque, Ont., March 15, when the following directors were elected:—J. E. Dalrymple, President; H. W. Cooper, General Manager; J. H. Valteau, Secretary-Treasurer; J. M. Sparling, and J. Yates. J. M. Rosevear is General Auditor.

C.P.R. After Russian Trade.—London, Eng., cablegram stated that the C. P.R. has been negotiating with the Russian Soviet Government to secure the right to quote through rates over Russian railways. The C.P.R. had this privilege before the war, and as a result was able to capture a large share of the trade with Russia and Siberia. Believing that the time had come for a resumption of trade, the company sent a representative to Petrograd to arrange matters. It is said, however, that so far nothing has come of the negotiations.—Copyright, Montreal Gazette.—A prominent C.P.R. official, to whom Canadian Railway and Marine World referred this press report for verification, characterized it as "hot air."

Bicycle Trespass on a Railway.—The Kingston, Ont., police magistrate fined a Frontenac County school teacher \$10 and costs recently for trespass on C.P.R. tracks. The teacher had 10 miles to go by highway to get to his school, but he could make it in 5 miles by using the railway track, and he had a bicycle fitted up with a third wheel, so that he could operate it on the rails on his daily trips. The railway officials warned him against the practice on several occasions before taking proceedings.

Reporting of Railway Accidents by Conductors, Etc.

The Board of Railway Commissioners passed general order 361, March 15, as follows:—Re sec. 285 of the Railway Act, 1919; general order 244, July 26, 1918, as amended by general order 251, Oct. 4, 1918; circular 110, April 3, 1913, and supplements thereto, April 30, 1918, and June 6, 1918; circular 131, March 11, 1914; and circular 161, March 8, 1918; the Board orders as follows:—

1. That every railway company be required and directed, within six days after the head officers of the company have received information of the occurrence upon the railway belonging to it, or operated by it, of any accident attended with personal injury to any person using the railway, or to any employee of the company, or whereby any bridge, culvert, viaduct, or tunnel on or of the railway has been broken or so damaged as to be impassable or unfit for immediate use, to give notice thereof to the Board, such notice to be addressed to the Board's Chief Operating Officer, and to be printed on hard paper in the forms A (relating to highway crossing accidents only) and B (relating to accidents other than those occurring at highway crossings), schedules to this order; such reports to refer to such accidents as above specified as occur as a result of transportation, that is to say, where movements of trains, engines, or cars are involved therein, and not to accidents occurring in railway shops, or manufacturing establishments, or other places on the railway, unless caused directly or indirectly by train, engine, or car movements.

2. That in the case of derailments, collisions, failure of locomotive boiler, highway crossing accidents, when the same are attended with personal injury to any person using the railway, or to any employee of the company; all other accidents occurring on the railway, attended with personal injury to any person using the railway, or to any employee of the company, and in which accidents the movements of trains, engines, or cars is involved (but not in the case of accidents occurring in railway shops, manufacturing establishments, or other places of the railway company in which the movement of trains, engines, or cars is not involved in the accident); and any damage caused by any such accident to any bridge, culvert, viaduct, or tunnel on the railway, rendering the same impassable or unfit for immediate use (and whether attended by personal injury to any person or employee of the company or not)—the conductor or other employee of the railway company who is in charge of the train, place, or structure in connection with which the accident occurred, shall, at the expense of the company, and at the same time as he reports to the company, send a telegram, addressed to the Board's Chief Operating Officer at Ottawa, containing the following information: date and place; name of railway; number and description of train or trains, engine or engines, concerned; number of passengers, employees, or others killed and injured; statement of any damage to any bridge, culvert, viaduct, or tunnel; a short and concise statement of the apparent cause of the accident; name and title of person sending report.

3. That where any such company grants, or has granted, running rights, or the joint use of its line, or any por-

tion thereof, to another company, and the last named company is concerned in an accident occurring on the said joint section required under this order to be reported, the operating company shall report to the Board as herein provided.

4. That every such railway company place before its conductors or other employees affected by this order a copy of paragraph 2 of the Order, directing them to comply directly with its requirements.

5. That all reports, whether written or telegraphed, made pursuant to this order, be privileged from production.

6. That general order 39, circular 110, with supplements 1 and 2, circular 171, circular 161, and general orders 244 and 251 be rescinded.

A Baggageman is Engaged in Train Operation.—Canadian Railway and Marine World for February, gave on p. 67, a summary of the facts and the judgment of the Quebec Court of Appeal in the prosecution of Frank Lang, a C.P.R. baggageman, for being under the influence of liquor while in his car at Windsor St. Station, Montreal. The Court of Appeal declared that a baggageman is a person whose employment has to do with the operation of trains, and therefore liable under the Railway Act, sec. 423. Lang appealed against this decision, and the Supreme Court of Canada dismissed his appeal, March 14.

C.P.R. Officials' Meeting.—A meeting of C.P.R. freight, passenger, operating, and telegraph officials, and of Dominion Ex. Co.'s officials was held in Prescott, Ont., March 7, E. F. Lawson of the freight department presiding. Among the subjects discussed were prevention of losses of freight; the care necessary in switching freight trains; precautions to be taken in marshalling freight trains; efficiency in service; securing of co-operation between shippers and the public; the safe transportation of explosives and other dangerous articles, and matters affecting claims and accounting.

Exchange and Surcharge on International Traffic.—In accordance with the Board of Railway Commissioners' judgment and order of Jan. 14, 1921, the rate of exchange in connection with shipments of freight between points in Canada and the U.S. from March 1 to 14 was 2 3/16% and from March 14 to 15, was 4%. The surcharge on that traffic for March 1 to 15 was 1%, and from March 15 to 31 was 2%. The rate of surcharge on international passenger business from March 1 to 14 was based on 2% exchange, and from March 15 to 31, on 4% exchange.

Railway Employees' Voting Act.—The Ontario Legislature is being asked to amend this act, which authorized the holding of special polls at which railway employees who may be absent on election days, may vote prior to the regular days, by including among those entitled to vote at the special booths, railway express clerks, and express companies' employees.

The International Railway Association's ninth annual congress will be held in Rome, Italy, from April 18 to 30. Among the reports to be presented is one by H. G. Kelley, President G.T.R., on freight stations.

Port Arthur Elevator Contract.—James Richardson & Sons, Kingston, Ont., are reported to have let a contract for the erection of a storage annex of 1,500,000 bush. capacity to their elevator at Port Arthur.

Grand Trunk Railway Construction, Betterments, Etc.

Pembroke Subdivision.—A press report states that new rails are to be laid from Pembroke to Golden Lake, Ont., 21.9 miles, during this year.

Toronto Belt Line.—The widening of upper Yonge St. necessitated the lengthening of the bridge carrying the old Belt Line across the street. The present width of Yonge St. is 66 ft., and the abutments of the bridge will be carried 10 ft. back on each side, so as to make the roadway 86 ft. wide.

Guelph Freight Shed.—The Board of Railway Commissioners visited Guelph, Ont., March 2, in connection with the company's application to erect a freight shed on the block bounded by Huskisson, Waterloo, Farquhar and Gordon streets, with the spurs and connecting tracks necessary to give connection thereto. The city council opposed the application on the ground that Huskisson St., along which the Guelph Radial Ry. runs, would be crossed on the level; the Hydro-Electric Power Commission of Ontario, which operates the Guelph Radial Ry., also opposed the proposal. It was stated that the placing of the shed on the situation proposed would depreciate property in the vicinity from 20 to 50%. The G.T.R. case was that shippers desired better freight accommodation, and that the site had been selected after a careful survey as being the best from every point of view. The Board refused the application; the main ground against the proposal was the tracks down Waterloo St.

London Division Improvements.—A press report states that at a meeting of maintenance of way officials in London, Ont., March 7, arrangements were made for the carrying out of this year's maintenance and betterments work on the London Division. Considerable work will, it is said, be done by the bridge and building and track departments, including the erection of a new overhead bridge at Hyde Park, to replace the one destroyed by the wreck, on March 3. A temporary bridge was erected immediately after the wreck.

Air Line Division.—A press report states that the track between Glencoe and St. Thomas, Ont., 27 miles, is to be relaid with 100 lb. rails, at an estimated cost of \$200,000. The work is to be done jointly by the G.T.R. and the Wabash Rd., which has an operating contract over this line. (Mar. pg. 133.)

Mabou Coal Areas.—A press report states that the British Empire Steel Corporation is negotiating for the purchase of the Greenwood collieries, and the Mabou collieries in Inverness County, N.S. The Mabou coal areas are estimated to cover 17 square miles, and to contain about 675,000 tons. The companies named are reported to be willing to sell their interests for \$750,000. The Mabou Coal and Ry. Co. built about 5 miles of railway to serve coal mines in the district prior to 1907, and in 1908 had partially graded a 3 mile extension to a junction with the Inverness Coal and Ry. Co.'s line.

Five Canadian National Rys. passenger conductors are reported to have been laid off, and a sixth one to have been put back to conductor of a freight train, as a result of enquiries into handling tickets, according to a Moncton, N.B., press dispatch.

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The Canadian Pacific Railway's Results for 1921.

An inspection of the C.P.R. annual re-
port for the calendar year 1921 which is
published on pages 220 and 221 of this
issue will show that, all things consider-
ed, the company had a year which may
be described as satisfactory. While
gross earnings, \$193,021,854, were less
than in 1920, when they were \$216,641,-
349, despite the average higher freight
and passenger rates obtaining during
1921, the fact is of more significance as
an indication of the extent of the busi-
ness depression which existed during the
year, than of anything else, and the
large reduction of operating expenses
which took place, from \$183,488,305 in
1920, to \$158,820,114 in 1921, is worthy
of greater attention. While decreases in
material costs and in wage rates have
been of great assistance, the fact re-
mains that the task of decreasing ex-
penses to meet conditions of reduced
traffic is at all times a difficult one, and
the C.P.R. management is to be con-
gratulated on the success it attained in
this task in 1921. The figures for the
year dealing with special income ac-
count may also be referred to as satis-
factory.

With an operating ratio of 82.28 in
1921, compared with 84.70 in 1920, the
net earnings for 1921 were \$34,201,740,
compared with \$33,153,044 in 1920. After
payment of fixed charges, preferred and
common dividends, and the pension fund
contribution, the net surplus for the year
from rail and lake steamship operation
was \$755,391 compared with \$450,359 in
1920. In 1919 this net surplus was
\$844,250, in 1918 it was \$2,203,621, in
1917 it was \$12,420,915, and for the year
ended June 30, 1916, it was \$15,444,158.
These figures are worthy of careful con-
sideration. In our introductory para-
graph we stated that 1921 was satisfac-
tory for the C.P.R., "all things consider-
ed," and the modification must be noted.
The statement that the year was satis-
factory must be accepted as correct only
when various factors are taken into con-
sideration, one being the business de-
pression which obtained during the year,
another being the results of the preced-
ing two years, in both of which also the
surplus was but nominal, and a third
being the fact that the railway business
throughout the world has operated with
financial results of a nature altogether
different from those attending railway
operation a few short years ago. To
compare the 1921 figures with those of
1916, say, without taking these facts in-
to consideration, would lead one to the
belief that the C.P.R. had a very lean
year in 1921. Even taking such facts
into consideration, the figures, as we
have said, are worthy of careful consid-
eration. Such consideration would lead,
presumably, to the conclusion, and it is
a correct conclusion, that the railway
business has still some distance to go
before operating revenues and expenses
bear a proper relationship to each other.
An operating ratio of 82.28 is too high.
Everyone believes that this country will
grow and prosper; such growth and
prosperity will inevitably require addi-
tional railway facilities, in the absence
of which growth and prosperity will be
greatly handicapped. It will be well if
these facilities can be provided by a
company whose credit is of the highest,
and that their provision does not mean
the imposing of unduly great additional
fixed charges, the meeting of which
would tend to keep rates unduly high.

The operating ratio must be reduced.

Much is heard these days of the fact
that the C.P.R. is able to earn more than
the customary 10% on its common stock,
at a time when many individuals and
corporations are able to secure but lim-
ited returns on capital, and this is often
used as an argument in propaganda for
the reduction of freight rates. While in
1921 there was earned from the combined
railway and special income ventures a
return of 11.5% on the common capital-
ization, this figure being 11.4 in 1920,
10.8 in 1919, 10.97 in 1918, 15.89 in 1917,
and 16.76 in 1916, if due consideration be
given to the sums put back into the prop-
erty and to the relationship as between
capitalization and property value, the
return to capital in this venture paid by
the Canadian public will be found to be
extremely moderate. Stress is laid on
this fact in an article appearing else-
where in this issue dealing with C.P.R.
and Canadian National Rys. results for
January, where it is argued that railway
revenues should not be further con-
tracted until expenses are reduced to
compensate. The latter principle cannot
be enunciated with too great emphasis.

The portions of the annual report deal-
ing with land sales, additions to fleet,
new financing and proposed capital ex-
penditures are worthy of attention; the
latter would indicate that amounts to be
used for improved facilities and to effect
economies in operation will be expended
with the utmost care and only after a
thorough study directed to secure the
maximum return, which is in keeping
with the times and with the financial re-
turns secured by the company during
the last three years. The divisions of
operating revenues and expense and the
classification of freight traffic are worthy
of study, and an examination of the train
mileage, car mileage, car loading, train
loading and other operating statistics
will indicate that there has been no de-
crease in the high efficiency which char-
acterizes C.P.R. operation.

The one great thing about the C.P.R.
report for 1921, and a thing which has
marked all the company's preceding an-
nual reports, is that it is expressive of
the efficiency, economy and good man-
agement which have always marked the
company's operation, and for this reason
it gives rise to confidence. It would be
difficult to doubt the continued success
of the C.P.R. venture, for that is co-
incident with the continued suc-
cess of Canada. While it is but natural
that cheap transportation is desired by
all classes of the community, and while
it is but natural also, perhaps, that some
sections of the community should show
too great zeal for their own ultimate
good, in the effort to secure cheap trans-
portation, we are cognizant of the fact,
as these over-zealous people should be
cognizant of it, that we have in Canada
the cheapest and most efficient rail trans-
portation of any country. Further, we
are confident that we will have a con-
tinuation of that regulation of railways
which, after all is said and done, has
been fair, to the end that the C.P.R. will
be enabled to keep its credit high, to
grow and expand with the growth and
expansion it makes possible for the coun-
try, and to continue to furnish to a
prosperous Canada transportation which
on a basis of cost and efficiency, is un-
surpassed in any other country in the
world.

An Unnecessary Locomotive Boiler Explosion.

A disastrous locomotive boiler explosion occurred on the London & North-western Ry. of England on Nov. 11, 1921. At an enquiry at which over 40 witnesses were examined, it was shown that continual difficulty had been experienced by locomotive men handling the locomotive the boiler of which exploded, in working the injectors when the boiler was high in steam, and that as a consequence most of the men who had operated it made a practice of working with a reduced steam pressure. The locomotive was reported for defective injectors 12 times in the three months preceding the explosion, and the steam gauge was reported defective four times, and at the enquiry it was shown that the gauge would register up to 300 lb. without the pops opening, although the pops were supposed to be set for 200 lb.

The lesson from this carries right across the Atlantic. Lack of maintenance at locomotive terminals can be "got away with" for a time, but the chance may be taken once too often. The great underlying principle of equipment maintenance is that a stitch in time saves nine, an old and homely adage, but eminently true. With injectors booked twelve times, and the trouble still unlocated, a wrong condition is indicated. It may happen that service demands require repairs to be postponed, but they can be postponed too long. A locomotive man may even start off with but one inspirator working in the cab, but it certainly should not be done.

Tired of Public Ownership?

The French Government will, it is stated in a press dispatch, sell the publicly owned railways, finding that governing the country is a large enough job in itself.

Hotel Rates.

While the public are continually demanding lower railway freight and passenger rates, and strongly object to even a 1c raise in street car fares, most of them put up with other war time increases without any publicly proclaimed objection. This is particularly true in regard to hotel rates, which even before the war had advanced considerably, and are still at the war peak, and in many cases extortionate. A notable exception is the King Edward Hotel, Toronto, which reduced its rates recently, the present ones for rooms on the European plan being as follows per day: Single rooms, without bath, \$2 and \$2.50; with shower bath, \$3 and \$3.50; with tub bath, \$3.25 and up. Hotels in other principal cities, notably Quebec, Montreal, Ottawa, Winnipeg, Edmonton, Vancouver and Victoria should follow suit and get down to reasonable prices.

"A Statistical Expert?"

J. L. Payne, who either styles himself "Former Statistical Expert of the Department of Railways and Canals," or is so designated by Toronto Saturday Night, is contributing a series of articles to that and other papers on "Canada and its Railway Problem." He never had such a title in the public service, but was Comptroller of Statistics in the Department until a former Minister decided to dispense with his services. He was simply a compiler and tabulator of statistics furnished to the Department by transpor-

tation companies, to the inaccuracies in which, as compiled and published by him, Canadian Railway and Marine World found it necessary to call attention year after year. If the figures he is now giving are not more correct than many of those he used to send out officially, little, if any, attention should be paid to them. It would require a great stretch of one's imagination to consider him "A Statistical Expert."

Embargo on Grain to Vancouver for Export.

While British Columbia Government representatives were attending Board of Railways Commissioners' hearings at Ottawa recently in an effort to obtain lower freight rates which would, presumably, encourage the shipment of export grain through Vancouver, Canadian railways had in force an embargo on grain moving west to Vancouver for export. This embargo was placed by the Canadian Pacific and Canadian National Rys. on March 1, owing to the Dominion Government elevator at Vancouver being full, and as the prospect of obtaining release of the large number of cars loaded with grain on the tracks of both railways for delivery to the elevator did not appear bright. The congestion was caused by slow clearance of grain from the port by ocean steamships. The embargo as issued was modified to the effect that for any shippers who have grain for shipment and have ocean tonnage arranged for at a reasonably near date, the railways will issue instructions to their agents to accept such shipments. At the time of writing (March 29) but little, if any, improvement in the situation had taken place, and the embargo was still in effect. This condition of affairs shows the absolute necessity of providing additional elevator accommodation at Vancouver, which should be pressed for during the Dominion Parliament's present session. The exporting of wheat from Alberta and possibly from portions of Saskatchewan through Vancouver, which is its natural route, is only in its infancy and any obstacles in its way should be removed by prompt government action.

Railway Accidents Throughout Canada.

The total number of railway accidents throughout Canada, during February, reported to the Board of Railway Commissioners, was 144, resulting in 14 persons being killed and 154 being injured. Of those killed, 2 were passengers, 6 were employees and 6 were others, and of those injured, 16 were passengers, 121 employees and 17 were others. Under "others" are included 2 persons killed, and 6 injured, in 7 highway crossing accidents. In 3 of these accidents, the crossings were unprotected; in 3, there were speed restrictions; and in 1 the crossing was protected by a flagman, who was not on duty at the time of the accident. A motor truck and an automobile were concerned in 2 of these accidents, a sleigh and a railway motor and sleigh in another 2, pedestrians in 2, and a van in one.

Canadian National Rys. Officials' Salaries.—The Minister of Railways stated in the House of Commons on March 29, in answer to O. Turgeon, Gloucester, N.B., that D. B. Hanna, President, was paid during 1921 \$35,000 salary and \$2,000 director's fees. A. J. Mitchell, Vice President, Finance and Accounts, was paid \$20,000 salary and \$2,000 director's fees.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian National Rys.—D. S. DAVIDSON, Roadmaster, Portage la Prairie, Man., having resumed duty, F. Scott, who has been acting during his absence has been assigned to other duties.

B. S. DUNCAN has been appointed tool room foreman, Fort Rouge ships, Winnipeg, vice J. Holden, deceased.

W. H. FLEMING, heretofore foreman steam shovel, Boston Bar, B.C., has been appointed Roadmaster there, vice — Flynn.

W. J. FOSTER has been appointed Locomotive Foreman, Endako, B.C., vice G. A. Carlson, released from service.

G. H. HEMSWORTH and D. ROSS, whose appointments as Traffic Representatives in the Far East, were announced in a previous issue, will cover the following territory,—China, Japan, Philippine Islands, Straits Settlements and Dutch East Indies, reporting to the General Traffic Agent, Shanghai, China.

P. HENZE, heretofore locomotive man, Dauphin, Man., has been appointed acting Road Foreman of Locomotives there, vice N. C. Ferguson.

G. F. JOHNSTON, heretofore City Passenger and Ticket Agent, Prince Rupert, B.C., has been appointed General Agent, Passenger Department, in Australasia, with office in Australia.

R. F. McNAUGHTON, heretofore Travelling Passenger Agent, Regina, Sask., has been appointed District Passenger Agent, Prince Rupert, B.C., vice G. F. Johnston, City Passenger and Ticket Agent, appointed General Agent, Passenger Department in Australasia.

Canadian Pacific Ry. — G. D. BROPHY, heretofore District Passenger Agent, Banff, Alta., has been appointed District Passenger Agent, Regina, Sask., vice J. A. McDonald, transferred to Banff, Alta.

S. C. HURKETT, whose appointment as Assistant Foreign Freight Agent, Montreal, was announced in our last issue, has charge of the solicitation of export and import rail traffic, via Atlantic ports. A. W. SNELL, who is also Assistant Foreign Freight Agent, Montreal, has charge of the solicitation of export and import ocean traffic via Atlantic ports.

J. A. McDONALD, heretofore District Passenger Agent, Regina, Sask., has been appointed District Passenger Agent, Banff, Alta., vice G. D. Brophy, transferred to Regina, Sask.

Dominion Atlantic Ry. — F. G. J. COMEAU, heretofore General Freight Agent, has been appointed General Freight and Passenger Agent, Halifax, N.S.

R. U. PARKER, heretofore General Passenger Agent, Halifax, N.S., has been appointed General Agent, United States territory, vice J. S. Carder, New England, Agent, who has been appointed chief assistant to General Agent, Office, 12 Milk St., Boston, Mass.

Freight Claims.—The American Railway Association Freight Claims Division states that U.S. railways paid freight claims as follows:—Sept. 1921, \$6,640,523; Oct. 1921, \$6,441,925; Nov. 1921, \$5,783,142. The November figure showed a decrease of 44% from Jan. 1921.

Steam Railway Operating Statistics for Year Ended Dec. 31, 1920.

In the following table the column headed "First track mileage," includes the first track of main line, branches and spurs of lines represented by the respective companies' capital stock, the lines of proprietary companies, the lines operated under lease, and lines operated under contract, but not lines operated under trackage rights, the mileages of which are included in those for the respective owning companies. There were 26 companies operating under trackage rights over 1,076.95 miles of other companies' tracks, the principal being: Canadian Northern, 156.30 miles; Canadian Pacific, 93.90 miles; Grand Trunk Pacific, 129.96 miles; Midland of Manitoba, 69.88 miles; Pere Marquette, 137.93 miles; Vancouver, Victoria & Eastern, 54.95 miles; Wabash, which does not own any line in Canada, 245.40 miles. In addition to the 38,895.64 miles of first

track operated, there were 2,590.55 miles of second track, details of which are given under "Notes to Steam Railway Statistics" on the following page.

The figures in the column headed "Gross earnings" includes passenger and freight earnings, as well as miscellaneous earnings from operation, the latter not being shown separately; the next four columns give the principal operating expenses classified under their various headings, while the last gives the net earnings, which are arrived at by deducting the totals of the four columns referred to, together with some other figures referred to in a note, from the figures in the gross earnings column. The minus (—) mark before figures in the net columns shows that there was a deficit in the operation of the line to the extent of the figures given. The cents have been omitted in all cases,

and the figures in the totals show the aggregate earnings, etc., including the cents, omitted from the detailed items.

The figures in the last column of the table show the net earnings or loss from the operation of the various railways, and their necessary adjuncts. Many companies have income from other sources, and in some cases carry on business apart from their railways; these revenues are brought together in the "Income account," and from them are deducted taxes, rents for lease of other lines, etc., interest or funded debts, sinking funds, etc., leaving, in the final analysis, the net corporate revenue available for dividends, or the gross deficit for the year.

The figures, in brackets, after the names of railways in the following table refer to paragraphs in "Notes to Steam Railway Statistics, on the following page.

Name of Railway	First track mileage	Passenger earnings	Freight and switching earnings	Gross earnings from operations	Maintenance of way and structures	Maintenance of equipment	Traffic and transportation expenses, etc.	General expenses	Net operating earnings
Alberta & Great Waterways (6)	120.70	\$ 41,894	\$ 101,329	\$ 151,372	\$ 67,138	\$ 43,913	\$ 124,484	\$ 7,399	\$ —83,643
Algoma Central & Hudson Bay..	346.20	145,779	2,244,604	2,646,303	652,526	503,303	834,832	83,426	236,765
Algoma Eastern (6)	89.45	75,446	994,373	1,194,611	197,460	157,237	353,708	40,334	446,945
Atlantic, Quebec & Western	104.50	56,626	224,283	280,909	103,488	63,293	158,938	24,106	—68,917
Brandon, Sask., & Hudson Bay..	69.45	31,459	53,068	84,826	105,058	20,388	89,860	8,059	—138,540
British Yukon	101.12	49,468	131,381	184,362	40,453	13,225	56,166	22,271	52,545
Canada & Gulf Terminal	38.40	38,702	101,308	149,334	24,950	15,292	48,575	11,929	48,585
Canada Southern	380.54	7,485,915	15,247,124	23,149,989	2,249,557	5,738,163	8,419,195	535,895	5,906,216
Canadian National—									
Canadian Government (3)	4,359.96	11,206,764	32,186,057	44,537,803	13,129,295	11,025,743	28,698,484	1,074,069	—10,449,876
Canadian Northern	9,586.40	14,500,642	48,647,049	65,103,916	21,357,264	16,687,708	40,937,618	1,811,464	—16,440,414
St. John & Quebec	172.07	96,390	167,200	265,241	263,831	25,462	164,634	4,042	—192,729
Canadian Pacific	13,308.30	64,270,174	146,276,527	217,665,473	32,573,927	46,517,167	93,798,225	3,871,792	35,352,506
Cape Breton (4)	31.00	4,806	7,471	82,278	7,708	1,375	10,649	1,190	—8,645
Central Canada	48.50	16,571	30,324	48,591	53,791	10,763	60,737	10,028	—86,730
Central Vermont	125.36	202,824	341,970	550,294	190,471	38,666	233,608	24,053	63,494
Crowsnest Southern (6)	74.18	20,425	387,748	409,764	182,438	70,154	160,085	14,258	—17,172
Cumberland	32.00	27,227	179,763	221,896	46,787	28,080	98,765	10,861	37,400
Detroit River Tunnel (2)	2.72								
Dominion Atlantic	273.58	822,229	1,332,298	2,189,147	475,164	275,629	1,140,409	92,671	205,272
Eastern British Columbia	14.00	2,492	52,309	58,945	20,218	18,824	28,201	4,767	—13,066
Edmonton, Dunvegan & B.C.	406.80	338,203	720,184	1,108,642	779,904	266,470	690,165	48,164	—700,517
Esquimalt & Nanaimo	199.20	417,966	1,058,980	1,508,482	346,656	178,819	596,002	10,683	376,320
Essex Terminal	21.00		190,239	259,166	32,016	54,778	91,517	86,563	—5,709
Fredericton & Grand Lake C. & Ry. Co.	35.00	13,758	131,627	145,673	30,230	5,889	64,072	6,265	39,214
Grand Trunk (6)	3,562.87	20,673,966	58,674,848	81,170,178	11,943,128	20,997,711	39,308,856	1,780,150	5,575,362
Grand Trunk Pacific (5)	2,744.20	3,195,394	10,820,994	14,408,549	8,147,888	6,871,192	8,865,017	412,954	—10,134,513
Hereford	53.06	31,876	73,037	105,855	82,960	43,008	122,919	7,907	—150,939
International Bridge (2)	1.02								
Inverness Ry. & Coal (1)	60.91								
Kent Northern	28.00	15,045	28,261	43,538	15,273	1,691	15,688	8,081	2,803
Kettle Valley	371.08	449,752	677,294	1,166,314	551,823	162,586	553,071	23,215	—152,055
Lake Huron & N. Ontario	15.00		10,874	10,874		282	7,280	2,750	560
Maine Central	5.10	22,842	7,516	30,359	3,786	5,629	20,520	1,145	—1,023
Manitoba Great Northern	91.77	10,930	60,476	72,580	94,692	14,921	66,322	6,206	—109,561
Maritime Coal, Ry. & P. Co.	16.40	8,952	150,728	159,978	30,968	11,525	55,714	6,009	55,579
Massawippi Valley	35.46	121,582	179,351	303,635	64,193	96,141	243,962	30,483	—131,146
Midland of Manitoba	6.40	215,854	378,919	626,430	128,262	97,622	312,542	25,629	40,424
Montreal & Atlantic	184.40	384,781	1,832,887	2,241,046	500,053	347,046	1,264,815	67,891	61,240
Morrissey, Fernie & Michel	10.85	15,727	102,803	118,530	14,556	23,127	58,935	17,560	4,350
Napierville Jct.	28.46	336,067	311,857	648,677	80,716	60,936	233,773	64,737	208,512
Nelson & Fort Sheppard	55.42	35,223	65,814	103,383	121,725	20,120	86,540	8,443	—133,446
New Brunswick Coal & Ry. Co.	58.00	22,470	40,807	65,693	68,961	7,960	25,429	6,195	—42,854
New Westminster Southern	4.68		5,180	5,226	2,001	16	555		2,653
Northern N.B. & Seaboard (1)	16.90								
North Shore (1)	8.63								
Ottawa & New York	56.90	147,161	246,502	396,637	108,764	88,755	309,272	9,402	—119,556
Pacific Great Eastern	290.50	134,899	386,066	522,282	322,640	163,236	355,546	36,619	—355,765
Pere Marquette	199.04	245,997	4,821,559	5,114,475	753,977	556,163	2,011,310	186,493	1,605,814
Phillipsburg Ry. & Quarry Co.	6.00								
Quebec Central	277.00	893,842	2,582,231	3,541,999	511,694	522,091	1,577,743	107,277	792,379
Quebec, Montreal & Southern	192.18	185,775	597,291	787,977	184,193	293,934	342,956	41,799	—74,906
Quebec Oriental	100.00	110,695	351,694	462,390	136,253	65,715	196,963	25,644	37,813
Quebec Ry., Light & Power Co.	30.97	12,355	163,945	176,695	21,433	46,422	91,219	16,847	771
Red Mountain	9.47	3,529	7,574	11,337	24,674	4,111	20,358	440	—38,247
Roberval-Saguenay	37.00	43,728	313,798	417,128	80,010	53,172	213,917	17,322	52,707
Rutland & Noyan	3.39		9,744	9,744	10,248	3,131	8,901	1,417	—13,954
St. Clair Tunnel (2)	2.24								

(Continued on page 194.)

Steam Railway Operating Statistics for Year Ended Dec. 31, 1920. (Continued from page 193.)

Name of Railway	First track mileage	Passenger earnings	Freight and switching earnings	Gross earnings from operations	Maintenance of way and structures	Maintenance of equipment	Traffic and transportation expenses, etc.	General expenses	Net operating earnings
St. Lawrence & Adirondack	46.14	387,845	1,118,493	1,506,306	186,705	71,265	732,989	12,370	502,975
Sydney & Louisburg	77.01	71,169	1,412,111	1,529,108	286,143	471,065	637,349	55,831	78,717
Temiscouata	122.18	88,951	337,747	433,037	102,887	66,042	171,808	26,094	66,204
Timiskaming & N. Ontario (6) ..	328.50	1,268,633	3,033,086	4,497,411	811,483	779,948	2,050,831	134,608	660,344
Thousand Islands	6.33	20,557	41,955	68,293	8,658	7,610	30,515	6,842	14,665
Toronto, Hamilton & Buffalo	99.95	701,190	2,431,196	3,229,725	521,764	554,818	1,156,857	104,911	853,808
Vancouver, Victoria & Eastern (6) ..	230.75	313,890	655,872	1,052,855	649,070	151,851	663,734	30,481	—450,947
Wabash (in Canada) (6) .....	.....	406,090	4,599,822	5,135,998	684,473	1,192,218	2,500,648	150,808	585,175
	39,414.59	130,443,551	347,340,574	492,101,104	100,186,412	115,613,430	241,243,812	12,239,176	53,967,833
									—40,114,883
									13,853,950

Notes to Steam Railway Statistics.

(1) The following companies either have not reported or are not operating their railways:—Inverness Ry. and Coal Co.; Northern New Brunswick and Seaboard Ry. Co., and North Shore Ry. Co. It was reported in 1919 that the latter company's rails had been lifted and sold.

(2) The Detroit River Tunnel Co., operated by the Michigan Central Rd. Co., which controls the Canada Southern Ry., and the International Bridge Co., and the St. Clair Tunnel, owned by the G.T.R. Co., are of an international character, and are reported on separately, along with other transportation companies of an similar character. See paragraph "International Railways" at the end of this article.

(3) The Canadian Government Rys. include the following which were reported on separately for 1919:—Intercolonial Ry., Elgin and Havelock Ry., International Ry. of New Brunswick, Moncton and Buctouche Ry., Prince Edward Island Ry., St. Martins Ry., Salisbury and Albert Ry., York and Carleton Ry., Lotbiniere and Megantic Ry., and National Transcontinental Ry.

(4) The figures as to earnings, etc., of the Cape Breton Ry. are for six months only.

(5) The Grand Trunk Pacific Ry. figures include those of the Grand Trunk Pacific Branch Lines which were reported upon separately for 1919.

(6) In addition to traffic and transportation expenses, six companies showed \$1,878,156 as water line transportation costs; and 16 lines showed \$7,814,424 as the cost of miscellaneous operations connected with transportation. In addition eight companies showed as credits on account of transportation for investment, the following amounts:—

Algoma Eastern	\$1,013.00
Alberta & Great Waterways	7,919.00
Canada Southern	7,986.33
Canadian Northern	703,042.94
Grand Trunk	6,392.28
Timiskaming and N. Ontario	819.95
Vancouver, Victoria and Eastern	15.67
Wabash (in Canada)	69.54

Total\$727,258.71

Second Track.—Following are the second track mileages in addition to the first track mileages given in the first figures column on this and the preceding pages:—

Canada Southern	243.04
Canadian Government	118.10
Canadian Northern	11.01
Canadian Pacific	1,420.00
Grand Trunk	722.96
Grand Trunk Pacific	25.97
International Bridge Co.	0.58
Montreal and Atlantic	6.50
Quebec Ry., Light and Power Co.	9.50
Sydney and Louisburg	1.00

Timiskaming and Northern Ontario	1.70
Toronto, Hamilton and Buffalo	14.07
Vancouver, Victoria and Eastern	7.12

2,590.55

International Railways.—The following table gives particulars of operations of companies which are of an international character, operating across the International Boundary:—

	Total revenue \$	Total operating expenses \$	Net operating revenue \$
Detroit River Tunnel Co.	1,058,250.90	.....	1,058,250.90
Int. Bridge Co.	431,316.76	146,461.97	284,854.79
Pullman Co.	1,210,247.00	963,252.63	246,994.37
St. Clair Tunnel Co.	306,289.89	279,474.43	26,815.46
Van Buren Bridge Co.	25,512.21	3,104.29	22,407.92
Total	3,031,616.76	1,392,293.32	1,639,323.44

Notices re Railway Crossings of Highways in Western Provinces.

The Board of Railway Commissioners passed general order 358, Feb. 22, as follows:—Re applications to the Board in respect to railway crossings of highways in Manitoba, Saskatchewan, Alberta and British Columbia. In pursuance of the powers conferred upon the Board by the Railway Act, 1919, secs. 34 and 256, and of all other powers possessed by it in that behalf, the Board orders that all railway companies within the legislative authority of the Dominion Parliament, constructing or operating railways in Manitoba, Saskatchewan, Alberta, and British Columbia, do, in addition to any notice required to be served upon the local municipality, or other persons concerned, serve copies of notices of all applications to the Board with respect to railway crossings of highways in the said provinces, and outside the limits of incorporated cities or towns therein, upon the following representatives of the Governments of the said provinces, respectively, viz., in Manitoba, upon the Minister of Public Works; in Saskatchewan, upon the Minister of Highways; in Alberta, upon the Minister of Public Works; in British Columbia, upon the Minister of Public Works; and shall furnish the Board with evidence of service of such notice before any such application shall be disposed of by the Board.

Ride Stealing.—Georges Tessier, in the Montreal Police Court recently, was fined \$10 and costs or 15 days in jail for stealing a ride on a G.T.R. train from St. Henri to Bonaventure station. He was caught riding on the cowcatcher of the engine by one of the railway policemen.

The Railways and Daylight Saving.

The Railway Association of Canada issued the following early in March:—"The railways are, of course, not expressing any opinion as to the merits or demerits of daylight saving. They are themselves controlled by Federal enactment and offer no opinion in the matter. But where one city advances its time on one date, the second on another date, and still a third retains sun time, confusion and inconvenience are caused to travellers, business men, and railway employees. For many years past the railways have made it a rule to change their winter train schedules to summer train schedule on the first hour of the Sunday nearest to May 1, and vice versa on the first hour of the Sunday nearest to Oct. 1. These dates have been found generally satisfactory as the dividing points between summer and winter, and we feel that they might safely be adopted as the dates when daylight saving, if adopted, should begin and end. In this way all important changes in time schedules would take place simultaneously over the whole country."

Montreal and Toronto have already decided to again adopt daylight saving, Montreal acting on the Railway Association's suggestion to put it in effect from April 30 to Oct. 1. Toronto has fixed its dates from May 14 to Oct. 14 and Ottawa from June 4 to Sept. 3.

Grain Shipments Through Port McNicoll, Ont.

Following are particulars of grain shipped through Port McNicoll, Ont., by the C.P.R., from Sept. 1, 1921 to Feb. 28, 1922, and from Sept. 1, 1920 to Feb. 28, 1921, respectively:—

	1921-22	1920-21
Total bush. shipped	31,343,433	12,122,637
Bush. shipped per day	173,168	66,970
Total cars shipped	16,633	7,902
Cars shipped per day	92	43

Atlantic City Conventions.—The American Railway Association, Mechanical Division, will meet at Atlantic City from June 14 to 21 inclusive. Up to March 1, 240 applications had been received from exhibitors, requiring in the aggregate about 80,000 sq. ft. of space. The A.R.A. Purchases and Stores Division will meet on June 19 to 21, and the Association of Railway Electrical Engineers on June 19.

Railway Lands Patented.—Letters patent were issued during February for Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia as follows:—

	Acres
Edmonton, Dunvegan and B.C. Ry.	12.24
Grand Trunk Pacific Branch Lines	188.90

Total 201.14

Canadian Pacific and Canadian National Railways' January Earnings and Expenses.

The C.P.R.'s gross operating revenues for January were \$11,337,974, compared with \$14,465,430 in Jan. 1921, and operating expenses were \$10,854,497 compared with \$13,824,005 in Jan. 1921, leaving net earnings of \$483,477 in Jan. 1922 compared with \$641,424 in Jan. 1921, a decrease of \$157,947. While as compared with Jan. 1921, gross earnings decreased \$3,127,455, operating expenses decreased only \$2,969,508, leaving the company with the smallest monthly net earnings for many years.

The Canadian National Rys., including the Canadian Northern Ry., the Canadian Government Rys., and the Grand Trunk Pacific Ry., gross operating revenues for January were \$8,210,400, compared with \$10,850,909 in Jan. 1921, and operating expenses were \$10,433,563 in Jan. 1922, compared with \$13,713,967 in Jan. 1921, which resulted in the operating deficit being reduced from \$2,863,057 in Jan. 1921 to \$2,223,162 in Jan. 1922.

January is commonly supposed to be one of the worst months of the year in Canadian railway business, as the traffic offering is generally the smallest of any month in the year, and for the additional reason that the difficulties of conducting transportation are increased by unfavorable weather conditions. That the C.P.R. gross earnings should have been smaller than they were in preceding months was to be expected, and that they would probably be smaller than in Jan. 1921 was also to be expected in view of the rate reductions which have taken place within the year. But the fact remains that the C.P.R. Jan. 1922 results are such as to indicate that there does not as yet exist a proper relationship as between income and outgo in the Canadian railway industry. There does not exist a proper relationship as between gross earnings and operating expenses so far as the railways are concerned, and, what is more important, so far as the country as a whole is concerned. The Canadian National Rys. earnings support this statement, particularly in view of the fact that in some months of 1921 those lines earned their operating expenses. After the months of 1921 during which the C.N. Rys. were making a small operating surplus, the January results are most disappointing, and show in an unmistakable manner that, even after allowing for the influence of reduced traffic in January, the relationship as between earnings and expenses has become much worse.

Leaving the Canadian National Rys. out of consideration for the time being, an examination into the C.P.R. position cannot fail to be informative. It is a fact that the C.P.R. is earning and paying dividends of 10% annually on its common stock, although all of this does not come from railway operation. If the common impression that the capitalization of the road represents a sum vastly in excess of the value of its property devoted to the public service was at all correct, western and other daily newspapers would have some justification for their demands that rates and dividends be reduced. But the facts, as disclosed by W. B. Lanigan, the company's Freight Traffic Manager, during recent rate proceedings before the Board of Railway Commissioners, are that in 1921 the value of the investment in the

C.P.R. enterprise was \$894,807,714; the net earnings were \$34,201,740; fixed charges, dividends and contribution to pension fund were \$33,502,277; the rate of return earned on the investment was 3.822%, and the contribution to surplus was 8/100 of 1%. Now, while for the year 1921 the rate of return on the value of the C.P.R. property used in the public service was 3.822%, the Board of Railway Commissioners ordered a reduction in freight rates of 10% effective Dec. 1, 1921, without any reduction of operating expenses accompanying the forced reduction in rates. And at present there are demands from all parts of the country for further reductions in rates, regardless of whether further reductions in expenses are possible or not.

Our contention is that further rate reductions on the traffic handled by the C.P.R., before reduced expenses are an accomplished fact, would be injurious, not only to the C.P.R., but to the country. We maintain that a rate of return of 3.822% on the value of the Company's property used in the provision of efficient transportation for the people is a just and reasonable return so far as the people are concerned, and that it would not be logical to expect to have transportation performed for any smaller return. It has been pointed out that while the C.P.R. is getting this return, industrial concerns, and farmers, are earning smaller returns, or no returns. It has not been pointed out that during 1916, 1917, 1918, 1919 and 1920, when any business man or farmer worthy of the name was able to go ahead and make extraordinarily large returns on his capital, the C.P.R. being a privately owned, but publicly regulated, undertaking, was held down to a return on the value of the investment of 5.473% in 1917, of 4.172% in 1918, of 4.078% in 1919 and 3.862% in 1920. Nor have those publications which have so much to say about the injustice of C.P.R. rates being such as to permit the company to earn a return at present, brought to their readers' attention the fact that the United States law prescribes a return of 6% on the value of railway property devoted to the public use. If the U.S. people see fit to try to attract capital into the work of providing transportation by offering it this return, why should any one in Canada object when the C.P.R. is content to provide transportation for a return of 3.822% on the value of the property. If the C.P.R. had outstanding capitalization equal to the value of its property, and was paying 6% annually on such capitalization, those who complain about the company being able to maintain its dividend at present might have some basis for such complaint; under present circumstances, they are closely akin to the Russian Bolsheviks in their desire to destroy capital.

So much for the equity of the C.P.R. position. How will it affect the country, in the final analysis, if further rate reductions are made before reductions in expenses are an accomplished fact? Looking at this matter broadly, there is a certain amount of rail transportation service to be performed in Canada, and the performance of this service has to be paid for. If anyone can find a way to make transportation more efficient and cheaper, they will be conferring a

service on the country at large, but for the present it is reasonable to assume that the C.P.R., having been in the transportation business for a good many years, is performing its service as cheaply and efficiently as it can be performed. To perform that service, facilities are necessary, which call for expenditures of capital from time to time, and if that capital is not available for expenditure, or is available only on very unfavorable terms, the chances are that the expenditure will not be made, and advantage will not have been taken of the opportunity to make transportation cheaper and more efficient. The more such expenditures are deferred, the more inefficient and costly transportation will relatively become, whether such deferred improvements consist of the electrification of a portion of line at a cost of \$100,000,000, the construction of a short line at an expenditure of \$1,000,000, the application of economy devices to locomotives at a cost of \$1,000 each, or the erection of a cattle loading platform at a cost of \$100. After all, the whole scheme of industry and economics is largely automatic in its applications; if labor be denied a fair return, the community will suffer in the end, and if capital, which is merely wealth collected by saving, be denied a fair return, the community will likewise suffer in the end.

Here is the proposition. If the Canadian people, in their quest for lower transportation charges, see fit to deny the C.P.R. rates for its services, performed as efficiently as it is humanly possible to perform them, which will yield it a fair return and provide something for necessary new expenditures, then the people will be guilty of a policy of false economy which will cost them dearly in the end. There are only two things which will permanently reduce transportation charges, after fair wages to labor and capital have been determined, and those things are greater traffic, and greater efficiency in conducting transportation. Greater traffic will come; in the meantime, let us not be guilty of placing the men who are operating our railways in a position where they will be financially unable to increase transportation efficiency.

The general reduction in rates effective Dec. 1, 1921, took a large revenue from the railways, which should not have been taken until operating expenses had been decreased to compensate, and then the reduction should have been applied to specified commodities. One of the big troubles in this country today is that many of the chief industries are out of gear with each other. The reduction of rates should have been applied so as to assist in putting industries into proper relationship. Further decreases in rates, applied to specified basic commodities, are now talked of. But let it be thoroughly understood that such further reductions, if made before reductions in railway operating expenses are made to compensate for them, and for the reduction of Dec. 1, 1921, will be not only an injustice to the C.P.R., with its return of 3.822% annually on the value of its property devoted to the public use, but will be injurious to the whole of Canada. If rates must be further reduced, operating expenses must first be reduced.

The Canadian National Rys.' position is different, as the people as a whole are called upon to make good the deficits and provide the money for the new facilities which are needed to make transportation efficient. But the fact remains, that the smaller the deficits are which have to be met by the proceeds of taxation, the more equitable will be the operation of these railways so far as the people are concerned. A railway should be a self-supporting commercial proposition. Why should A and B help C to pay for transportation which C receives and which is of no benefit to A and B, and which C will make them pay for anyway if he sells them any of the goods on which he paid the transportation? With railway rates bearing the same relation to expenses as they did before the cut of Dec. 1, 1921, the Canadian National Rys. were in a fair way to earn operating expenses for a complete year; some encouragement was provided. But with rates reduced, and expenses remaining as they were, hope seems once more conspicuous by its absence, and the discouraging influence of monthly deficits is once more apparent. The sooner the C.N. Rys. are able to earn their operating expenses, the better will it be for all Canada, and for that reason further rate

reductions, without reductions in operating expenses to compensate for them, and for the rate reduction of Dec. 1, 1921, would be most ill advised.

So the matter stands. The January results reflect the true position. Railway rates, in relation to railway expenses, are, and have been for some years, too low for the ultimate good of this country. Whether railway operating expenses will be substantially reduced remains to be seen. It may be taken for granted that wage decreases would be strenuously resisted, but the fact is that railway rates must depend largely on wages. If the public thinks railway rates are too high, it will have to realize that it is not because the railways are deriving unduly great net earnings, but because they are faced with unduly high operating expenses, of which wages constitute the greater part, and it will have to realize that railway rates cannot be reduced unless and until railway wages are reduced. Having realized this, the public should realize that their differences are with railway employees, whether their present wages are just or unjust. To look for rate reductions before railway operating expenses are reduced to compensate is to look for something entirely unreasonable.

United States Railways' Financial and Operating Results.

Information furnished Canadian Railway and Marine World by the U.S. Railway Executives, based on reports to the Interstate Commerce Commission, shows that in Dec. 1921 the net operating income earned by class 1 roads in the U.S. was \$51,510,478, representing an annual return on the value of the properties of 3.44%. Operating revenues for the month were \$425,044,000, a reduction of 22.8% compared with Dec. 1920. Operating expenses were \$348,973,000, a decrease of 31.7% compared with Dec. 1920. The net operating income of \$51,510,478 lacked \$38,412,522 of being a 6% return. In Dec. 1921 the railways expended \$142,159,296 for maintenance work, 34.8% less than in Dec. 1920.

Reports, complete except for that of Henry Ford's road, the Detroit, Toledo and Ironton, showed that the railways in the U.S. Eastern District had operating revenues in Dec. 1921 of \$206,383,581, a reduction of 24.7% compared with Dec. 1920, while operating expenses totalled \$165,304,515, a reduction of 34.9% compared with Dec. 1920. The net operating income was \$30,156,634, compared with \$4,057,047 in Dec. 1920. The net operating income for Dec. 1921 was at the annual rate of 5.13%, but fell short by \$5,111,366 of the 6% return authorized by the Transportation Act.

The railways in the Southern district had operating revenues of \$55,070,332, a decrease of 19.1% compared with Dec. 1920, while operating expenses, \$40,480,664, were 40.4% smaller than in Dec. 1920. Net operating income was \$11,209,482, compared with a deficit of \$2,650,282 in Dec. 1920. This was at the annual rate of return of 4.92%, but was \$2,472,518 below a 6% return.

The railways in the Western District had operating revenues of \$163,590,011 in Dec. 1921, a reduction of 21.5% from those of Dec. 1920, and operating expenses for the month were \$143,187,838, a decrease of 24.1% compared with Dec. 1920. Net operating income was \$10,144,362, compared with \$1,942,008 in Dec. 1920. The net operating income

earned was representative of an annual return of 1.49%, but was \$30,828,638 below a 6% return.

The Interstate Commerce Commission report on revenues and expenses for the class 1 roads for the calendar year 1921, with the single exception of the Detroit, Toledo and Ironton, the report of which was not compiled on time, shows that the total railway operating revenue for the year was \$5,563,232,215. Of this, \$3,918,699,970 came from freight, \$1,153,752,002 (including \$32,601,960 sleeping and parlor car surcharge) from passengers, and the remainder from mail, express, etc. Operating expenses for the year were \$4,597,479,241, of which \$763,479,568 went for maintenance of way and structures, \$1,254,221,299 for maintenance of equipment, \$2,286,043,830 for transportation expenses, \$84,186,263 for traffic expenses, and the remainder for miscellaneous operations, general expense and transportation for investment. Net revenue from railway operations was \$965,752,974; taking from this \$280,441,488 in tax accruals, and \$1,978,578 in uncollectible revenue, the railway operating income was \$683,332,908. Further subtracting the debit balances of joint facility and equipment rents, the net railway operating income was \$614,810,531, a return of 3.31% on the tentative valuation of the properties. The operating ratio for the year was 82.64, compared with 93.65 in 1920.

The net operating income of class 1 railways for 1921 scarcely more than covered their interest charges alone, these amounting to \$603,000,000 in 1920 and being somewhat greater than in 1921. Fifty-four railways, with 26,022 miles of track, had operating deficits in 1921, the deficits amounting to \$29,114,000. A belief has existed in the minds of a large part of the U.S. public that the railways were "guaranteed" a percentage of 6% on the value of their properties, but the return of 3.31% is all they get. As pointed out by the Association of Railway Executives, the difference, when expressed in dollars and cents, is large.

Location of Freight Cars.

The Railway Association of Canada reports the location of freight cars on March 1, based on returns from the following railways: Algoma Central & Hudson Bay; Canadian National, including Grand Trunk Pacific; Canadian Pacific; Central Vermont, in Canada; Dominion Atlantic; Edmonton, Dunvegan and British Columbia; Grand Trunk; Kettle Valley; Michigan Central, in Canada; Napierville Jct.; Pere Marquette, in Canada; Quebec Central; Quebec, Montreal & Southern; Timiskaming and Northern Ontario; Temiscouata; Toronto, Hamilton & Buffalo; Wabash, in Canada. The figures are as follows:—Cars owned by reporting railways, 222,862; home cars on Canadian foreign lines, 17,681; home cars on U.S. lines, 38,010; home cars on home roads, 167,171; Canadian owned foreign cars on home lines, 15,062; U. S. owned foreign cars on home lines, 21,396; total cars on line, 203,629; percent on line to total owned, 91.4; excess on line to total owned, —; deficiency on line to total owned, 19,233; home cars in bad order, 19,805; foreign cars in bad order, 568; total cars in bad order, 20,373; per cent in bad order, 10; privately owned U. S. cars on line, 1,799; privately owned Canadian cars on line, 1,034.

C.P.R. Locomotive Data.

A Vancouver correspondent wrote us recently as follows:—"Has the C.P.R. built any locomotives recently larger than Santa Fe 2-10-2? Has the C.P.R. any really large switch locomotives in use?"

We have been furnished with the following official information in this connection. The C.P.R. has not built any locomotives larger than the Santa Fe 2-10-2 type, which were turned out in 1920. The largest switch locomotives the C.P.R. has are those of the 0-10-0 type, of which it has three in yard service in Winnipeg. These were built in 1914, and have a maximum tractive effort of 55,200 lb. The principal dimensions are as follows:—

Cylinders	23½ x 30 in.
Boiler pressure	200 lb. per sq. in.
Diameter of drivers	51 in.
Total engine weight	241,000 lb.
No. of 2½ in. tubes	210
No. of 5½ in. flues	30
Length between tube sheets	16 ft. 5½ in.
Grate area	49.5 sq. ft.
Total equivalent heating service	3781 sq. ft.
Water capacity of tender	7,000 imp. gall.
Coal capacity	12 tons

"The Great Landslides of the C.P.R. in British Columbia."—R. B. Stanton, civil engineer, of New Canaan, Conn., who died recently, is mentioned as the author of a number of works, including "The Great Landslides of the C.P.R. in British Columbia." Canadian Railway and Marine World is particularly anxious to obtain a copy of this work, and would be much indebted to anyone who could give information as to whom it was published by, the date, and any other particulars.

Buffalo and Fort Erie Public Bridge Co.—The Dominion Parliament is being asked to incorporate a company with this title to build a highway bridge over the Niagara River, from Walnut St., Fort Erie, Ont., to Hampshire St., Buffalo, N.Y., with provision for electric railway tracks. Authority to charge tolls for crossing the bridge is asked. German and Brooks, Welland, Ont., are solicitors for applicants.

The Canadian National Railways Discussed in Parliament.

The Canadian National Rys. have been very much to the fore in the House of Commons since Parliament opened on March 9, when the Governor General's speech contained the following paragraph:—"In order that government ownership and operation of our national railways now extending through every province of the Dominion may be given a fair trial under the most favorable conditions, it is intended at an early date to co-ordinate the government-owned systems in the manner best calculated to increase efficiency, and to effect economies in administration, maintenance and operation. The whole transportation situation is one which will require your best attention. It weighs heavily upon our national finances. To assist in obtaining the information essential to an exact understanding and an adequate appreciation of the problem in its many bearings, it is proposed to supplement the work of co-ordination by a thorough enquiry."

E. J. McMurray, North Winnipeg, in moving the address in reply to the Governor General's speech, said: "Private operation has laid down the burden and asked that we take it up and carry it. That being the case, state ownership should be given a chance, not for a year or two, but for a reasonable length of time, having regard to prevailing conditions, to the vastness of the project, and to the failure of private ownership. State ownership should be given a reasonable opportunity to demonstrate its capacity to deal with this tremendous problem."

Right Hon. Arthur Meighen, leader of the Opposition, in his contribution, stated clearly the fact that he has no confidence in the way in which the Liberal Government will solve the railway problem. Concerning the reference to the railway situation in the Governor General's speech, he said: "It will be noted how sedulous the draftsman of the speech has been to use the most evasive and nebulous terms at his command. He does not say there is to be unification of the roads owned by the Government; he does not say there is to be amalgamation; he does not say all are to be brought together as one system, as was the intention of the last Parliament, and, is the intention of the law today." Mr. Meighen went on to say that if the Liberal Government meant to carry out unification and consolidation as contemplated by the law, it would have the support of the Conservative members. Dealing with actual methods of operation of the national system, he said: "With the Grand Trunk coming in, and the entire mileage owned by the people of this country brought into one system, there should be what are called grand divisions, whereby, without in any way impairing the advantages of unification, a measure of local supervision in the operation of the lines would be feasible." In the latter part of his speech he showed his pessimism as to the future of the National roads in the hands of the present Government, and said: "I see in front of me those who have pledged themselves, not that the National Rys. will be unified, but that they will be disrupted; not that the National Rys. will be co-ordinated, but that they will be disintegrated; not that the National Rys. will be kept out of politics, managed by a business board and all brought under that

business board, but that portions of the system will be taken back into politics as they were in politics for many decades. I know the Prime Minister has declared, and I see a reference to it in the speech from the throne, that national operation and ownership shall be given a fair trial, but I for one am apprehensive of the fairness of the trial to be given national ownership and operation at the hands of its inveterate enemies. Gentlemen opposite are elected by the forces opposed to public operation in this country, and they know what those forces are. They know those interests were backing them in the contest, determined to secure their election. I venture to predict that the propagandist will be at work, and that there will be overflooding this Dominion an anti-government operation propaganda, designed to turn the minds of the people in disgust from the public ownership of railways; and that propaganda, the signs of which we see already all around, and under the onrush of which we sit at this very hour, will be very powerfully financed by interests most friendly to this administration."

Hon. W. L. Mackenzie King, Prime Minister, said that in his opinion the Government's intentions were clearly set forth in the Governor General's speech, and any further statement would come from the Minister of Railways. He took exception to Mr. Meighen's insinuations, and said: "So far as this administration is concerned, I will not for one moment accept any of the insinuations or suspicions of my right honorable friend in regard to its intentions in administering the National Rys. We intend to give government ownership of the National System the fairest trial under auspices the most favorable it is possible for a government to secure. We go into it with all sincerity, and in the hope that we may make it a success. I will say with perfect candour that there are gentlemen on this side of the House, as I know there are on the other side of the House, who doubt very much whether public ownership can be made the success which private ownership might be. But there are others who believe that it can be made a success, and so far as it is possible for this Government to demonstrate what can be done under government ownership, it is our intention to see that it is done."

Hon. T. A. Crerar, leader of the Progressive party, said that he was glad to note what was said in the Governor General's speech in connection with the railways. He took it to mean that the Government's intention is to give public ownership of railways a full and fair trial. He pointed out, however, that some things were absolutely vital, the first being that all the roads comprising the Government system be placed absolutely and without any question of doubt under one central management. He said that he was a believer in the principle of public ownership of public utilities. He emphasized the need for consolidation, and said:—"Build your system into one complete whole, and then, no matter what disposition you may desire to make of it in the future, you will have an asset that is worth while. I submit that these roads must have a fair and full trial, and I am glad to know that it is the Government's intention to give them that trial; and so far as their efforts go

in that direction I can assure them that we in the Progressive section of the House will give the Government our support in their endeavors in this respect."

W. F. Maclean, West York, Ont., praised the G.T.R. organization, stating that it was one of the country's greatest assets, and he drew a most impressive picture of the opposition to which government ownership in Canada will be subject, stating, "I think I can see the hand of the Canadian Pacific, and that of its close associate, the Bank of Montreal, joined together in an effort to thwart the Grand Trunk, which is a real rival." In reply to a question, he said that during the last two or three years the Canadian National Rys. have been "fairly well operated." He drew a sharp difference between railway consolidation and co-ordination as mentioned by the Government, and stated that mere co-ordination of the railways owned by the Government would not be sufficient; they must be consolidated under one management. He made an attack on private operation generally, and on the privately owned U. S. railways particularly, claiming that they had "fallen down" badly.

Premier King interjected:—"If it will help to clear my honorable friend's mind, I may say that it is the Government's intention to have one board of directors that will manage the entire system in a manner that will effect economies and further efficiency very much in regard to what he has in view."

Mr. Maclean, in arguing why all the Government railways should be consolidated, pointed out how great economies could be effected, mentioning in illustration the proposed construction of the C.N.R.-N.T.R. Long Lake cut-off, and by the reduction of gradients through Toronto, which latter, he said, would save "hundreds of thousands of dollars."

R. Forke, Brandon, Man., stated that many people in the west had been most favorably impressed with the service given by the Canadian National Rys., and added, "I can see daylight ahead. I can see hope in the future. We have a valuable property and we are going to maintain it, develop it and keep it, and the day will come when we will be proud to have it."

H. J. Logan, Cumberland, N.S., claimed that the management of the Intercolonial Ry. should be centered in the Maritime Provinces, and his arguments followed closely those given by him in a communication to Canadian Railway and Marine World, published in the March issue.

T. L. Church, North Toronto, recommended the adoption of the measure proposed in the Drayton-Acworth report. He stated that his understanding of the C.P.R. was that it "always changed its politics with the party in power; and was friendly to every administration. 'The greatest politicians that this country has ever produced have never sat in the legislatures at all. They have been general managers and presidents of railways.'"

Sir Lomer Gouin, Minister of Justice, said:—"The leader of the Opposition, in speaking of the railway question, endeavored to convey the impression that some mysterious power had inspired those members who expressed themselves as not believing in state owner-

ship or state operation of railways. He has come out categorically in favor of the nationalization of our railways. He is sincere in his views, I know; but why should he cast suspicion on those members who are not of the same opinion in the matter? As the Prime Minister declared in his speech, there are on this side of the House, as there are on the other side, members who do not look upon state ownership or state operation of railways as practicable and profitable for the country. But we own our system of railways and the Government has decided to give the system a fair trial under the best possible conditions. I cannot understand why the leader of the Opposition should doubt the good faith of the Government or of any of its members in this matter. The question is not one which concerns Montreal, Toronto, Winnipeg, Vancouver, or any city in particular; it concerns Canada as a whole, and the solution which we seek is a solution which shall be satisfactory to the interests of our country generally."

A. W. Neill, Comox-Alberni, B.C., said that while in his opinion there was only one course for the Government in connection with the railways, viz., a continuance of the trial of public ownership, he had not very hopeful anticipations as to the result. He related his experiences

in connection with railways in New Zealand, where, he said, politics were fatal to the railways' success, and where large annual losses were experienced until an expert railwayman was put in charge and given full authority. He advocated the securing of a competent railway manager from the U.S. to take charge of the national lines, not that he doubted the ability of Canadians, but he considered it better to bring a man in from the outside, who would be free from all party influences.

E. M. McDonald, Pictou, N.S., stated that the Government had no choice in the matter of operation of the Government railways; it would have to operate them and do the best it could, for the reason that no private interests would acquire them. He made a long speech in which he blamed the Conservative party for the railway situation. He opposed the Canadian Government operating a railway lying partly in the U.S., stating that there was no precedent for such a situation. He argued that the Intercolonial Ry. control should be centered in the Maritime Provinces, and claimed that its operation as a purely commercial proposition was ruining those provinces' trade and commerce.

Sir Henry Drayton, West York, Ont., in a long speech, blamed the Liberal par-

ty for overburdening the country with railways. Concerning Government operation of the portions of the G.T.R. within U.S. territory, he said that the mere fact of the road being owned by the Canadian people generally would not matter; the situation would be the same as if the railway was privately owned by Canadian shareholders. He pointed out that the ownership of the Minneapolis, St. Paul and Sault Ste. Marie Ry. by the C.P.R. had not led to any difficulty. He defended the Conservative Government's action in connection with the Grand Trunk Pacific.

H. Marler, St. Lawrence-St. George, Que., stated that he was not in favor of public ownership of railways, and said: "Public ownership has always meant to me inefficiency, irregularity of service, greater cost, greater taxes, and mounting up of the public debt." He would do everything in his power to help the Government make public ownership a success, but he was apprehensive of the result.

R. J. Manion, Fort William and Rainy River, Ont., said that the only way to remove the deficits attending national railway operation would be to secure a large immigration of the proper type and build up the population of the country on the right basis

Railway Wages and Working Conditions in Canada and the United States.

No developments of importance took place in the railway wage situation in Canada during the past month. All wage rates agreed upon as between the railways and employees, as outlined in previous articles on the subject in Canadian Railway and Marine World, are still in force. It is reported that the Railway Association of Canada's wage committee is preparing to take up the question of wages and working conditions with the maintenance of way employees and the railway shop employees, but at the last meeting (March 23) no definite action has been taken. It is expected that a convention of the chairmen of American Federation of Labor, Division No. 4, Railroad Department, which embraces in its membership Canadian railway shop employees, will be held in Winnipeg, March 27, when, it is presumed, general wage conditions will be discussed.

During March a good deal of publicity has been given in Toronto newspapers to statements made by J. F. M. Stewart of the Canadian Manufacturers Association's executive before Toronto Board of Trade's young men's membership, his statements resulting in a recommendation to the Board that it "take some definite step toward having placed before the Canadian people information as to wage conditions on railways, with their consequent effect on freight rates and the prosperity of the country." It is reported that Mr. Stewart stated, in connection with wages paid to members of the stronger railway unions, that no industry could live for a week and pay corresponding wages for similar kinds of work.

While, as before stated, no developments of importance have taken place in Canada during the week, much has been going on in the U.S. Practically all the U.S. railways have applications before the Labor Board for wage reductions affecting most classes of employees, and hearings on them began before the Board in Chicago on March 7. J. W. Higgins, Executive Secretary, Associ-

ation of Western Railways, initiated proceedings by stating that of over 300,000 employees in 5,327 industries in 28 different states, about 80% are receiving much lower wages than are being paid to railway employees who are performing work of a similar nature. He claimed that the high wages paid on railways are a cause of great dissatisfaction among employees in industrial works, and he expressed the opinion that this condition is largely the cause of the hostility toward railways exhibited by industrial interests and a large portion of the public. He attacked the proposition of having standard rates of wages to apply throughout the entire U.S., stating that living costs and other conditions varied so widely that it was impossible to have just rates of pay prevailing under such an arrangement. He particularly emphasized that it is entirely unfair for a railway to have to pay the rate for skilled shopmen to men who were employed on rough work which does not require any great degree of skill. In addition to the testimony of Mr. Higgins, representing the western carriers as a whole, many individual carriers had representatives at the hearing, who acquainted the Board with conditions peculiar to their properties. In the western railway's application, the following changes are asked for: machinists, boilermakers and blacksmiths, reduction from 77c. to 67½c. an hour; car repairers, 72c. to 50c.; car repairers' helpers, 54c. to 35c.; pipe-fitters, 77c. to 50c.; bridge and building gang mechanics, 58c. to 53c.; helpers, 44c. to 36½c.; signal gang foremen, 78c. to 72½c.; signal maintainers, from 73c. an hour, to a graded scale of from 60c. to 67½c.; shop trades apprentices, from present range of from 34c. to 59c., to 29c. to 54c. an hour; for monthly paid employees, decreases from \$10 to \$14 a month, according to present salaries and class of work.

J. G. Walber, representing U.S. eastern railways, stated that investigations

had shown that for ordinary labor, while the average paid by the railways is 41c. an hour, the average for outside industries is 30c. For car repairers, the railway rates average 72c. an hour, and outside industry rates 48.8c. For machinists, the railway rate is 77c. an hour, and the average rate in outside industries 56c. He further pointed out that while the peak in prices was reached in May, 1920, when the index number of wholesale prices was 272, on Jan. 1, 1922, the index number was 148, representing a reduction of 45% from the May peak. He submitted the following statement: "The employees' interests are not opposed to those which we represent. The prosperity of railway workers is interwoven with and dependent upon the success of the railway business itself. The public generally, including wage earners in other industries, should not be called upon to pay transportation charges based on an inordinately high level of railway wages. It is not alone, however, because of the compelling necessity for reduction in labor costs that the carriers proposed to their employees reductions in wages, but also because the carriers are convinced, and now respectfully submit to the Board, that the new schedules of pay which they have proposed are just and reasonable in the light of the specific elements enumerated in the statute for the determination of wages."

B. M. Jewell, President American Federation of Labor Railway Employees' Department, claimed that a great many of the carriers were not legally before the Board because their applications to the Board for wage reductions had not been preceded by conferences such as are required by the Transportation Act. The carriers' representatives disputed this, and Mr. Jewell's representations did not apparently carry much weight, the carriers' representatives being successful in showing that the Transportation Act had been complied with. The labor representatives then tried to have other railways denied a hearing, on the ground

that they had contracted out a lot of equipment repair work, the contractors for the repair of this equipment not being subject to the Board and paying lower wages than the railways would be compelled to pay. The Board did not see fit to deny these roads opportunity to present their applications for the reason mentioned, Ben Hooper, a public member of the Board, stating that a decision in this matter would soon be rendered by the Board, altogether independently of the wage hearing in progress. Details of the hearing before the Board concerning this contracting of equipment repairs were given in a previous issue of Canadian Railway and Marine World. The wage hearing before the Board is being continued, but an early decision is not expected.

As stated in Canadian Railway and Marine World for March, arrangements had been made for a committee representing eastern U.S. railways to meet leaders of the locomotive and train service brotherhoods in an effort to come to some agreement concerning wages without the necessity of going before the Labor Board. This action was taken on the suggestion of the Secretary of Commerce, Herbert Hoover. A committee representing eastern railways met representatives of the locomotive men and firemen, but it soon became evident that no agreement could be arrived at, with the consequence that the matter of wages as it affects these employees will go before the Board.

On March 4 the Labor Board announced new rules covering the service of railway telegraphers, the chief features of which are that while the basic 8-hour day is recognized, punitive overtime will not be paid till after the completion of the 9th hour of continuous service, and split tricks may be required as long as the day's work is kept within a 12-hour spread. New rules for "supervisors of mechanics," which means all foremen below the rank of general foremen, who supervise mechanics in the repairing of equipment, have also been issued by the Board. These men are to be paid monthly salaries, and no reduction in salary is to be made because of shops working short time. The Board has also drafted a new set of rules for American Railway Express Co. employees recognizing the basic 8-hour day, providing for payment of punitive overtime after the 9th hour of continuous service, and permitting the use of employees in split tricks, providing the day's work comes within a spread of 12 hours. A new set of rules covering train despatchers' services was also made effective by the Board March 1.

Newfoundland Hydro Electric Development Plans.—A St. John's press dispatch of March 15, stated that the Premier had been advised by the Reid Newfoundland Co., that it would withdraw its proposals for extensive water power development for the use of general industries along the Humber River on the west coast of Newfoundland. Details of the proposal which had been reported on by Sir W. G. Armstrong Whitworth & Co., Newcastle-Upon-Tyne, Eng., were given in previous issues Canadian Railway and Marine World.

Railway Electrification in Switzerland.—The Swiss Government is reported to be planning to spend 57,000,000 francs this year, in extending the electrification of its railways.

Grain in Store at Elevators.

Returns made to the Dominion Bureau of Statistics, Internal Trade Branch, for the week ended March 10, showed that the quantity of grain in store at elevators throughout Canada, increased by 1,501,119 bush., made up as follows,—oats 1,125,655, barley 337,317, and rye 38,147. The amount of wheat decreased 1,048,829 bush., and flax 32,080. In western country elevators increases were shown as follows,—wheat 480,665 bush.; oats 475,725, barley 102,856, and rye 2,507; flax decreased 29,644 bush. Of the total quantity in store, viz.,—38,174,507 bush., the amounts held by provinces were as follows,—Manitoba 4,765,095, Saskatchewan 20,584,540, Alberta 12,656,147. The receipts of wheat were 2,880,741 bush. and the shipments 2,385,932. The interior terminal elevators showed increases in wheat of 57,091 bush., oats 82,526, barley 12,814, flax 5,410, and rye 696. The receipts of wheat at Vancouver were 345,020 bush., and the shipments by ships were 448,437.

In the public and private terminal elevators at Fort William and Port Arthur, increases were shown in wheat, of 684,929 bush., oats 279,167, barley 93,787, and rye 33,808. There was a decrease in flax of 7,846 bush. The receipts of all grains were 2,802,675 bush., and the shipments by rail were 1,718,830. Of the total rail shipments of all grains, 457,054 bush. were shipped to the Atlantic seaboard, and 528,705 were shipped for domestic consumption.

The private terminal elevators at Winnipeg showed decreases in wheat and oats of 45,169 and 22,646 bush. respectively, and an increase of 4,870 in barley.

The eastern public elevators showed a decrease in wheat of 1,043,537 bush., and increases of oats 368,368, barley 145,503, and rye 2,136. The receipts of wheat were 65,843 bush. by ships, and 589,601 by rail, and the shipments were 512,873 by ships, and 1,237,551 by rail.

The quantity of U. S. grain in store in the public elevators in the east was 3,781,166 bush., compared with 433,888 at the same period of 1921. The U.S. lake ports showed decreases in wheat of 1,336,193 bush., oats 207,794, and barley 39,035.

Among the Express Companies.

L. J. Columbus heretofore assistant accountant, has been appointed cashier, Dominion Ex. Co., Calgary, Alta., and has been succeeded by F. R. Young.

The Canadian National Ex. Co. has opened an office at McDiarmid, Ont., and closed its office at Kelly's Siding, Ont., the latter place being made a star point.

The Dominion Government has referred back to the Board of Railway Commissioners, for further consideration, its order of Feb. 1921, authorizing an increase in rates on cream, and has asked the Board to consider the question of a reduction of the rates on cream, and also whether in view of the fact that cream is only one commodity affected by the 20% increase authorized in the commodity rates, a general reduction in commodity rates can be made. The appeal was made for the National Dairy Council, by D'Arcy Scott, K.C., a former member of the Board of Railway Commissioners.

The City of Toronto's appeal against the Board of Railway Commissioners'

recent judgment re express rates, was dismissed by the Dominion Government on March 19, the Minister of Justice having reported that it was not a case in which the Government should interfere with the Board's order, and he recommended that the appeal be dismissed. The city asked that general order 327, with regard to express rates be rescinded, or in the alternative, that the order be varied by reducing the percentage of increases authorized.

Telegraph, Telephone and Cable Matters.

G. D. Perry, Vice President and General Manager, Canadian National Telegraphs, Toronto, and Mrs. Perry, have been spending a short time in Florida.

The annual meetings of the American Railway Association, Telegraph and Telephone Division, were held at the Jefferson Hotel, Richmond, Va., March 21 to 23.

Repairs to the Canadian Pacific Telegraph lines between Fort William and Port Arthur, proceeded during March, following on the damage caused by storms. The estimated cost is reported as exceeding \$12,000.

Sir Babington Smith, Chairman, Pacific Cable Board, and other officials, are expected to visit British Columbia next summer, in connection with the proposed duplicate cable line to Australia. The duplication of this cable will probably cost about \$20,000,000, and in this connection, it is proposed to lay a 6-wire cable between Vancouver and Bamfield Creek, where the Canadian end of the cable starts.

Louis Samuel Humes, District Commercial Superintendent, Canadian National Telegraphs, Montreal, died there suddenly from a ruptured artery in the brain, aged 62. He was born at Freeport, Ill., and started as a student in telegraphy with the Western Union Telegraph Co. at Menominee, Wis., and later served with that company in various capacities at Minneapolis, Minn., Marquette, Mich., Duluth and St. Paul, Minn. He moved from St. Paul to Toronto about 18 years ago, and entered Great North Western Telegraph Co's service, and shortly after was transferred to Montreal as local manager. In Jan. 1915, he was appointed Superintendent, Montreal District, and continued in the same position when Canadian National Telegraphs assumed control. He was buried at Mount Royal Cemetery, March 6.

Broadcasting by Radio Telegraph Experimental Stations.

The Deputy Minister of the Naval Service, G. J. Desbarats, C.M.G., sent the following circular March 10 to experimental license holders: "With regard to your experimental license no. which authorizes broadcasting by radio-telephone, the Department has decided that this class of service has now passed beyond the experimental stage, and that commencing with the next fiscal year, April 1, 1922, stations undertaking this service will be classified as Public Commercial and will require a public commercial license for which the fee is \$50 a year. Your experimental license automatically expires on March 31. Kindly advise if you desire to have it renewed or if you wish to make application for a public commercial license to cover your broadcasting service."

Electric Railway Department

Electric Railway Operating Statistics for Year Ended Dec. 31, 1920.

The figures in the following table are reproduced from statistics prepared by the Dominion Bureau of Statistics. The following abbreviations are used in the names of railways: E., electric; E.R., electric railway; E.S.R., electric street

railway; S.R., street railway. The minus mark (—) in the column for the net income or deficit, shows that there was a deficit in the operation of the line to the extent of the figures given.

The figures in the first column of figures show the first main track mileage. In addition to this mileage, the lines reported having 504.32 miles of second track, and 219.14 miles of sidings and turnouts.

Name of Railway	1st Main track mileage	Gross earnings from operation	Miscellaneous income	Operating expenses	Taxes funded debt, etc.	Net income or loss	Total car mileage	Fare passengers carried	Freight carried tons
Brandon Municipal Ry.	9.90	\$45,219		\$50,379	\$21,667	\$—26,828	261,512	809,024	
Brantford & Hamilton Ry.	23.19	287,747		187,767	94,525	5,453	423,073	860,872	4,985
Brantford Municipal Ry.	14.61	191,733		147,633	27,083	17,017	499,856	3,085,489	
British Columbia E.R.	244.84	5,249,688	\$1,567,644	4,287,406	1,231,144	1,298,782	14,082,933	69,138,085	470,691
Calais S.R.	7.00	55,697		51,759	6,394	—2,456	183,960	695,567	
Calgary Municipal Ry.	66.50	921,806	7,894	709,103	120,326	100,269	3,133,637	17,091,356	3,840
Canadian Resources Development. . .	1.75	33		891		—859	6,388	647	
Cape Breton Electric Co.	30.59	345,988	136,851	321,876	133,936	27,026	755,939	4,936,673	
Chatham, Wallaceburg & Lake Erie Ry.	37.05	197,166		197,351	42,503	—42,688	304,000	180,000	158,000
Cornwall S.R. Light & Power Co.	4.00	64,350		45,737	1,219	17,393	233,500	626,410	145,438
Edmonton Radial Ry.	32.82	745,623		667,499	164,700	—86,576	2,022,069	12,371,091	100
Fort William S.R.	20.61	184,380	65,386	161,067	64,440	24,259	640,514	3,442,002	
Grand River Ry.	18.55	395,064	641	328,200	23,233	44,272	363,716	1,516,089	177,163
Guelph Radial Ry.	8.70	77,781		86,566	2,538	—11,323	297,975	1,478,530	15,345
Hamilton & Dundas S.R.	6.95	103,037		107,847	6,648	—11,458	203,378	1,149,943	310
Hamilton, Grimsby & Beamsville ville E.R.	22.60	207,387		224,256	17,860	—34,729	431,328	936,846	55,376
Hamilton Radial Ry.	22.86	229,370		226,082	70,303	—67,015	466,000	1,519,660	
Hamilton S.R.	17.40	1,015,883		817,586	120,795	77,501	2,888,918	23,856,107	
Hull Electric Co.	16.54	335,217	29,505	230,281	83,598	50,842	876,935	4,333,051	8,141
International Transit Co.	4.30	109,052	650	73,404	15,555	20,743	264,101	2,198,167	
Kitchener & Waterloo S.R.	3.28	96,044	171	72,016	7,211	16,988	204,811	2,065,539	
Kingston, Portsmouth & Cataragui E.R.	6.00	72,740	1,555	61,738	5,846	6,711	199,680	1,507,379	
Lake Erie & Northern Ry.	51.00	360,128	2,088	306,421	102,625	—46,829	439,821	581,987	93,291
Lethbridge Municipal Ry.	6.67	63,662		65,501	28,773	—30,611	242,550	1,335,272	
Levis County Ry.	11.50	143,468		148,674	28,563	—33,769	455,213	1,840,253	4,500
London & Port Stanley Ry.	24.50	636,651		451,800	171,374	13,476	1,034,887	1,008,986	420,507
London S.R.	27.48	524,728		454,557	37,421	32,749	1,765,242	13,788,209	
Moncton Tramways, E. & G. Co.	2.72	17,028	153,657	13,703	15,420	141,562	50,817	364,820	
Montreal Tramways Co.	141.08	11,606,098	59,419	8,245,055	2,699,387	721,075	22,741,389	191,294,333	327,210
Montreal & Southern Counties Ry. . .	52.67	476,043	136	506,552	90,521	—120,893	888,820	2,854,415	20,317
Moose Jaw E.R.	9.00	127,633		104,844	3,250	19,538	455,980	2,175,455	
Nelson Municipal Ry.	2.13	20,517		16,688	4,142	—313	59,062	433,193	
New Brunswick Power Co.	14.30	406,951	186,898	375,030	110,389	108,429	1,044,299	6,605,520	
Niagara Falls Park & River Ry.	11.91	208,223	9,872	151,429	35,964	30,702	337,141	1,737,645	
Niagara, St. Catharines & Toronto Ry. . .	75.20	969,265	2,136	884,582	73,284	13,535	1,585,756	7,487,567	327,454
Niagara, Welland & Lake Erie Ry. . .	1.87	30,430	142	17,556	3,007	10,008	91,770	660,590	
Nipissing Central Ry.	15.37	118,116	235	139,716	10,146	—31,511	280,353	1,293,137	
Nova Scotia Tramways & Power Co. . .	12.60	660,147	166,588	636,777	304,854	—114,896	1,933,156	12,430,957	
Oshawa Ry. . .	9.00	290,233	8,513	177,727	16,325	104,692	144,212	681,845	274,263
Ottawa E.R.	24.56	1,786,065		1,257,689	116,125	412,250	5,039,571	36,396,831	
Peterborough Radial Ry.	7.64	90,012		96,851	13,681	—14,520	469,563	1,874,747	
Pictou County Electric Co.	9.20	113,754	116,113	101,520	117,886	10,460	198,442	1,781,522	
Port Arthur Civic Ry.	12.43	192,694	6,050	154,882	68,279	—24,417	704,643	3,584,671	
Quebec Ry., Light & Power Co.: Citadel Division . .	19.09	842,999		640,815		202,183	2,295,185	14,215,361	
Montmorency Division . .	27.50	352,865		273,948	6,667	72,249	484,760	2,146,661	
Regina Municipal Ry.	25.59	349,604		298,486	78,673	—27,555	964,031	6,092,943	39,655
Saskatoon Municipal Ry.	12.63	269,080		260,916	43,768	—35,604	805,797	4,541,523	
Sandwich, Windsor & Amherstburg Ry. . .	35.11	493,818	13,308	352,402	23,631	131,092	1,148,141	9,703,782	1,901
Sarnia, S.R.	8.25	99,593		82,807	8,310	8,475	209,196	1,456,377	11,762
Schomberg & Aurora Ry.	14.44	26,950		25,056	29,026	—27,123	59,585	49,244	23,280
Shawinigan Falls Terminal Ry. . .	3.75	90,251		71,465	15,344	3,441			
Sherbrooke Ry. & Power Co.	9.39	85,500	94,972	103,101	77,687	—306	428,314	1,300,771	
St. Thomas Municipal Ry.	6.25	24,214		28,201	11,193	—15,181	253,530	563,400	
Suburban Rapid Transit Co.	17.26	174,972	45,339	158,311	47,383	14,616	856,658	2,773,574	
Sudbury-Copper Cliff Suburban E.R. . .	7.90	55,299		45,053	6,582	3,662	154,330	725,306	
Three Rivers Traction Co.	7.10	164,993		101,327	28,785	34,880	467,490	3,210,000	
Toronto Ry.	62.04	7,909,891		6,626,508	1,683,414	—400,030	21,816,551	197,346,726	
Toronto Civic Ry.	10.26	547,219		586,819	115,876	—155,475	2,185,709	32,361,864	

(Continued on page 201.)

Electric Railway Operating Statistics for Year Ended Dec. 31, 1920. (Continued from page 200.)

Name of Railway	1st Main track mileage	Gross earnings from operation	Miscellaneous income	Operating expenses	Taxes funded debt, etc.	Net income or loss	Total car mileage	Fare passengers carried	Freight carried tons
Toronto Suburban Ry.	65.90	465,507	611	438,600	124,203	—96,684	872,096	5,269,419	13,002
Toronto & York Radial Ry.	72.32	1,036,442		807,814	235,012	—6,384	1,865,386	11,414,400	41,367
Waterloo-Wellington Ry.	3.45	13,403		12,422	4,723	—3,743	35,800	256,310	
Windsor, Essex & Lake Shore Rapid Ry.	36.17	280,401		216,606	54,673	9,121	465,685	843,048	48,384
Winnipeg E.R.	63.65	3,697,299	593,922	2,545,586	1,033,708	711,926	9,711,161	65,248,840	
Winnipeg, Selkirk & L. Winnipeg Ry.	38.48	201,325	45,110	154,859	58,493	33,083	483,761	838,224	4,868
Woodstock, Thames Valley & Ingersoll Ry.	10.20	25,841		23,597	7,718	—5,454	99,100	86,346	
Yarmouth Light & Power Co.	3.00	60,899	1,244	23,772	23,240	15,131	112,320	256,732	
Total.....	1702.60	\$47,047,245	\$3,316,664	\$37,242,483	\$10,031,069	\$4,561,610 —1,475,252 \$3,086,358	114,481,406	804,711,333	2,691,150

The Ontario Government's Policy Regarding Hydro Electric Radial Railways.

The Ontario Government's position in connection with the Hydro Power Commission of Ontario's proposal for the construction of a number of hydro electric radial railways, centering on Toronto, and for the acquirement of certain electric lines, now owned by the Dominion Government, and by interests, headed by Sir William Mackenzie, has been under discussion for some time, especially since the commission, appointed by the Ontario Government, to enquire into the whole scheme, reported adversely to it. A resume of that report, and comments on it, have been published in previous issues of Canadian Railway and Marine World. In order that the whole matter may be laid before the public, and with the view of forming a public opinion as to the merits, or demerits, of the proposals, the Toronto Board of Trade, with a number of other business associations, invited those who might be considered as the leaders of both sides of the question, viz., the Premier of Ontario, Hon. E. C. Drury, and the Chairman of the Hydro Electric Power Commission of Ontario, Sir Adam Beck, to address separate public meetings, at which no discussions would be permitted. The Premier addressed a public meeting at Toronto, March 16, but Sir Adam Beck's recent illness has, up to the time of writing, March 19, prevented him from deciding on the matter.

The Premier made extensive references to the power development carried out, and projected, by the H.E.P. Commission, at various points in the province, and also to the radial railway proposals, and the report of the royal commission thereon, and announced the Government's final decision not to guarantee the H.E.P. Commission's bonds, for which provision is made in existing legislation, for the construction of hydro electric radial railways, under the Commission's control. He also announced, that, in fulfillment of a promise made last year, he had that day, introduced into the Legislature, a bill to permit municipalities to build and operate radial electric railways, within their own territories, without Government guarantees.

He said that the bill had been framed to prevent the creation of a system of provincial railways which would compete with and increase the difficulties of the nationally owned steam roads.

In explanation of the bill, he said,—"Any number of municipalities may form what would practically be a partnership with regard to a radial railway. These municipalities would appoint five

persons, not members of any of the municipal councils, who would be termed an association. The members of this association, who will hold office for five years, would to a very great extent have the same powers as the directors of a railway company. The method of appointment has been so worked out that both the large and small municipalities will get proper representation. The municipalities must first obtain, at their own expense, a report from the H. E. P. Commission, giving estimates of the cost of construction, equipment, operation, probable revenue, etc. The municipalities will then enter into an agreement, which must be submitted to and receive the approval of the electors qualified to vote on money bylaws in each municipality whereby the proportions in which the cost of construction and equipment to be borne by each municipality will be settled. The agreement must also provide for the construction of the railway either by the association or by the H. E. P. Commission. After the railway has been constructed the association may, if the agreement between the municipalities so provides, enter into an agreement with the H. E. P. Commission for the operation of the railway by the commission as its agent, for not exceeding five years, but such agreement may be renewed for further periods of five years. The financing of the enterprise will be done by the association issuing bonds, which will be secured on a mortgage deed given to a trust company and secured upon the railway. Each municipality will also be required to deposit with the trust company its debentures for the proportion of the cost for which it is liable under the agreement, and these debentures will be deposited with the trust company as collateral security for the bonds issued and charged upon the railway. Such bonds and the debentures issued by the municipality will bear the same rate of interest, and will be repayable in 44 years. The association must fix the tolls and fares so that the revenue derived therefrom will be sufficient to provide for the operation of the railway, the payment of the interest and sinking fund on the bonds, and all other probable charges. If there is a deficit in any year the municipalities must pay such a deficit within one month, in the proportions in which they contributed to the cost of construction. If there is a surplus the association may pay it over to the municipalities in the same proportion, or may use it for im-

provements and additional equipment, or may build up a reserve fund to meet the cost of future operation or contingencies. Where the original agreements so provide, the association, with the consent of each of the municipalities, may enter into an agreement with any adjacent municipality for the extension of the railway into the latter municipality. Such agreement will require to be carried by the electors qualified to vote on money bylaws in such adjacent municipality. Practically all existing legislation relating to radial railways is to be repealed, excluding, however, that relating to the Sandwich, Windsor & Amherstburg Ry. and the Toronto and York Radial Ry."

Toronto Transportation Commission Officials' Inspection Trip.

D. W. Harvey, Assistant Manager, and W. R. McRae, Superintendent of Rolling Stock and Shops, Toronto Transportation Commission, left Toronto on Feb. 19, to visit various U.S. cities for the purpose of examining street railway rolling stock, and to note equipment and operating methods employed, with a view to altering or confirming the tentative programme as to equipment and operation which the Commission's officials have drawn up. The chief points visited were Detroit, Mich.; Milwaukee, Wis.; St. Louis, Mo.; and Baltimore, Md., where thorough study and enquiry were made. Mr. Harvey is reported as having stated that none of these cities visited have large cars superior to those introduced in Toronto in 1921 by the Commission, and that cities looking forward to the purchase of large cars lean to the view that that type is the best yet developed. These cars were described in detail in Canadian Railway and Marine World for Oct. and Nov. 1921. Messrs. Harvey and McRae returned to Toronto March 3.

Winnipeg Electric Ry's. Proposed New Franchise.—For some time past negotiations have been in progress between the company and a special committee of the city council, in connection with a proposal to extend the company's franchise for 20 years. A press report states that the company made certain proposals to the special committee recently, which after being discussed by the committee, formed the basis of a progress report sent on to the city council public service committee, and came up for discussion at a meeting on March 15.

Electric Railways and Bus Transportation.

At the American Electrical Railway Association midyear conference at Indianapolis recently, the relationship between trackless urban transportation and street railway systems was one of the principal topics of discussion. Four papers on this subject were read by C. D. Emmons, President, United Railways and Electric Co., Baltimore; E. B. Whitman, Maryland Public Service Commission; H. Reid, President, Indianapolis & Louisville Traction Ry., and Paul Shoup, President Pacific Electric Ry., Los Angeles, Cal.

Mr. Emmons dealt at length with conditions in England and Scotland, as noted by him on a recent trip, and pointed out that London, Eng., has the greatest development in bus transportation in the world. There are 3,000 buses operated, carrying almost a billion passengers yearly on 150 different routes. While in Scotland he saw Jas. Dalrymple, General Manager, Glasgow Municipal Tramways, who expressed the opinion that municipal operation of city transportation in America is a mistake. Mr. Emmons presented the views of a good many of the leaders in urban transportation in England and Scotland, showing that the majority of them consider the bus a necessity in urban transportation, but that its chief use is to augment the rail system, which must remain the backbone of city transportation.

Mr. Whitman emphasized the fact that urban transportation must be a natural monopoly. If good service is to be rendered, a unified system is essential. He pointed out that the Maryland Commission in Maryland recognized this, and acted accordingly. He and his associates on the Commission are convinced that the bus has a place in urban transportation, but that the problem is one of determining its place and then keeping it there. He considers that every community will be best served by a co-ordinated rail and bus service, in which the street car, the trackless trolley and the bus will each play an important part; that a street railway company is making a big mistake which is not alive to its opportunity of putting in bus transportation service to supplement its car service, and thus keep such operation out of competitors' hands; and that established transportation systems owe this duty to the public, on account of being able to afford the service at a smaller cost to the public than independent operators.

Mr. Reid said that he is an enemy of motor bus lines competing with inter-urban carriers, and is of the opinion that bus lines should be as strictly regulated as rail lines; he stated, however, that bus operation is invaluable in its place, viz., as a connection and feeder to existing rail lines, and as the forerunner of a rail extension when population and industry have sufficiently developed. He described how his road is arranging for joint tariff rates with bus and auto truck lines in the vicinity of Indianapolis, as illustrative of the co-operation between rail and trackless transportation which should obtain.

Mr. Shoup stated that in California the trackless transportation industry has developed in competition with electric railway lines, and not in co-operation with them, and considers the competition very bitter and very unfair for

the electric railways. The buses and trucks have a great advantage in competition with electric railways, having a good roads system on which to operate, while the license for bus operation is very small as compared with taxes on electric railways. The paving, paid for in part by the electric railways, in various cities, is used by buses and trucks free of charge. He considered that the use of trackless trolleys should be looked on only as temporary, and that they should be figured on as being subject to replacement by rail lines as conditions demand. He emphasized that the streets on which trackless trolleys are operated should be paved, or power and maintenance costs would be prohibitive.

Amendments Proposed to Ontario Railway Act.

The Ontario Railway Act, Revised Statutes, 1914, Chap. 185, contains a di-

Canadian Electric Railway Association.

Honorary President, Thomas Ahearn, President, Ottawa Electric Railway.

Honorary Vice President, George Kidd, General Manager, British Columbia Electric Railway.

President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Vice President, Major F. D. Burpee, Manager, Ottawa Electric Railway.

Treasurer, A. Gaboury, Superintendent, Montreal Tramways Company.

Executive Committee, E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electric Co.; W. S. Hart, Managing Director, Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Read, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Auditor, H. E. Weyman, Manager, Levis County Railway.

Secretary, L. E. Moreland, Chief Clerk, Hull Electric Co., Hull, Que.

Official Organ, Canadian Railway and Marine World, Toronto.

vision dealing with municipal street railways. Sec. 232, Sub-section 1, is as follows:—"The corporation of a city or a town may conduct, equip, maintain and operate street railways, in, along and over such highways of the city or town, and subject to or upon such terms as the Ontario Railway and Municipal Board may approve; and may lease the same from time to time on such terms as may be determined on."

A bill was introduced in the Legislature, March 1, by Major A. C. Lewis, one of the Toronto members, to amend this sub-section by striking out the word "conduct," and inserting in place thereof the word "construct." This section has been referred to the Law Clerk, and will, it is held, probably be passed.

The bill also proposed to further amend the Act by adding a new sub-section to sec. 232, providing that a municipally-owned street railway may sue and be sued in its own name. We are advised that this section has been withdrawn from the bill, and that it is intended to insert it in a private bill relating to the Toronto Transportation Commission.

Toronto Transportation Commission Proposes to Expend \$13,542,000 Additional.

H. H. Couzens, General Manager, Toronto Transportation Commission, applied to the City Board of Control, March 15 for sanction no. 3, to authorize the issue of debentures for \$13,542,000 for the Commission's 1922 programme as follows:—Extension and rehabilitation of trackwork and special work, inclusive of materials and labor, and construction equipment. This covers the equivalent of approximately 55 miles of single track. A further instalment of the shops and stores, provision for the commencement of which was included in the city's sanctions 1 and 2. A joint terminal at the city limits on Yonge St., to provide for the interchange of passengers and freight from the radials and the city system as per the agreement between the city and the Hydro-Electric Power Commission of Ontario. The provision of loops for turning back the cars at the end of routes. Additional land and accommodation at car house sites. Two hundred and fifty additional cars, and buses, with snow ploughs and other equipment. Office furniture, service equipment and stores taken over from the former civic lines. Office accommodation at Front and Yonge St.

Mr. Couzens stated that the whole of the funds will not be required immediately, and suggested that they be provided from time to time by arrangement with the Finance Commissioner, with whom the application has been discussed, and added that the Commission would appreciate an opportunity of conferring with the Board at an early date in connection with the matter, as the season is rapidly approaching when construction work can be commenced.

Toronto's Proposed Purchase of Toronto Suburban Railway.

Toronto City Council is asking the Ontario Legislature to approve bylaw 8968, passed Jan. 23, after having been adopted by the voters on Jan. 2, authorizing an agreement between the Hydro-Electric Power Commission of Ontario and the city, for acquiring the Toronto Suburban Ry. Co.'s property and assets under the Hydro-Electric Railway Act, 1914, and amendments thereto.

This bylaw was approved by the ratepayers on Jan. 2, by 16,087 votes to 13,580. The agreement provides for the purchase of the T. S. Ry. Co.'s lines for \$2,628,000, by taking over the outstanding bond issue to that amount. The city will pay \$202,000 cash for the lines in the city, will provide \$150,000 for the betterment of these lines, which will become part of the city system under the control of the Toronto Transportation Commission. The other portions of the system, viz.: the Lambton-Guelph and the Weston-Woodbridge lines, will be operated by the H.E.P. Commission of Ontario, the city to provide for any further capital expenditure, and for any deficits. The Hydro-Electric Railways Act requires that before a bylaw can be submitted to the ratepayers it must be approved by the Ontario Government, which approval was not given in this case. The ownership by one municipality of a railway running through other municipalities was referred to by the Premier of Ontario before the vote was taken, as an objection to the bylaw.

Proposed Equipment of Electric Railway Cars with Jacks.

The Board of Railway Commissioners, on Feb. 8, notified electric railway companies that they would be required to show, at a sitting in Ottawa on March 7, why every car in service should not be equipped with suitable and sufficient jacks, or other mechanical devices, for raising the car in case of accident. At the hearing, G. Gordon Gale, Vice President and General Manager, Hull Electric Co., and President, Canadian Electric Railway Association, presented a statement for the Association's member companies, saying that upon receipt of the Board's notice a circular was issued by the Association's Secretary to all member companies interested, the replies having been compiled as follows:—

"The conditions on electric railways differ to some extent as between city and suburban service and interurban service. In all cases, however, electric railway companies have established the practice of having one or more points at which a wrecking outfit is maintained in charge of a crew trained in the use of the apparatus. The wrecking outfit usually consists of two or more jacks, having a capacity of from 15 to 35 tons, cables, chains, replacers, bars and blocking. This equipment is carried on a special car or locomotive. A derailed car is frequently cut off from the power line and the wrecking car forms a necessary part of the re-railing equipment.

On all city and suburban cars, and most of the interurban cars, there is not sufficient accommodation for even a small part of the required wrecking outfit. On interurban lines, where flagging requirements must be observed, and on city lines where one-man cars are operated, the crew could not properly handle the heavy jacks, and other equipment, even if they were trained to do so. It is quite possible that further and more serious damage might result from the use of wrecking equipment by those unfamiliar with it. The expense of providing each car with an outfit of jacks would be very heavy, and the cost of providing space for and transportation of this equipment would be prohibitory. The arrangements that are now made to take care of derailed cars, and other disabled equipment, have filled practically all the requirements, and there is no real indication of a necessity for individual wrecking outfits. Electric railway companies have stated that over a period of from 10 to 25 years, cases have seldom, if ever, occurred where an outfit on the disabled car would have been of any greater value than the regular wrecking outfit and crew. The following is a summary of the reasons why every car should not be equipped with suitable and sufficient jacks or other mechanical devices for raising the car in case of accident:—1. There has been no real indication of the general usefulness of or necessity for this equipment. 2. No space for this equipment is usually available. The cost of an outfit, together with space and transportation for same, is prohibitory. 3. The limited number of the crew, unfamiliar with the apparatus, untrained in its use, are unable to use the equipment safely. 4. The established wrecking outfits have indicated their suitability, and they have generally filled all the requirements of the service."

The following representatives of electric railway companies, in addition to Mr. Gale, stated their views to the Board:

A. Eastman, Windsor, Essex & Lake Shore Rapid Ry.; R. Gilbert, Toronto Suburban Ry.; M. W. Kirkwood, Grand River Ry., and Lake Erie & Northern Ry.; E. W. Oliver, Niagara, St. Catharines & Toronto Ry.; J. E. Richards, London & Port Stanley Ry.; G. E. Waller, Dominion Power & Transmission Co.; W. C. Chisholm, General Solicitor, G.T.R., for Montreal & Southern Counties Ry.; A. Fraser, General Solicitor, Canadian National Rys., for Niagara, St. Catharines & Toronto Ry., and Toronto Suburban Ry. Chief Commissioner Carvell stated that the Board was pleased to have received such complete information from the electric railway companies and that the matter would be given full consideration.

Electric Railway Freight and Passenger Rates.

Ontario Legislation.—The Ontario Legislature gave a second reading on March 15, to a bill to amend the Ontario Railway Act, introduced by R. Cooper, of Welland. The section of the bill affecting electric railways is as follows:—"Notwithstanding anything to the contrary contained in any agreement with a municipality or other corporation or persons, or in any special act, the fare to be taken by a railway operated by electricity shall be such as shall be approved of by the Ontario Railway and Municipal Board, and no fare shall be charged upon such railway which has not been so approved." It was stated in the House that London and Hamilton are the only two cities that would be affected by the bill. There was considerable opposition to the second reading, and the bill was ultimately referred to the municipal committee. This is the third session that bills dealing with this matter have been introduced in the Legislature.

Hamilton St. Ry.—After a long discussion Hamilton City Council passed a resolution, Feb. 28, granting an increased fare to the company. The increased fare is to be effective to Dec. 31, and the company is to restore the service to what it was in 1921, prior to the defeat of the bylaw on Jan. 2, 1922, and to rebuild tracks on certain streets. Following the passing of the resolution the company issued the following notice: "Taking effect March 10, the rate of fare will be 5c. cash or 5 tickets for 25c. On and after that date the present class of tickets positively will not be accepted for passage. Outstanding tickets may be redeemed at the company's office and at the terminal station. Regulations regarding transfers, night fares, children's fares and school tickets will remain the same as in the past."

Nova Scotia Tramways & Power Co.—Under the Nova Scotia Acts of 1913, chap. 1, sec. 23, as amended, the N.S. Board of Commissioners of Public Utilities began sitting at Halifax, Feb. 23, to enquire into the extent, condition and value of the Nova Scotia Tramways & Power Co.'s physical assets and into the condition and value of the same as a going concern. The section mentioned authorizes the Commission to enquire into the extent, condition and value of the physical assets of any public utility as a going concern, and to make rules and regulations to facilitate enquiries under the section. Under an act of 1920, a

special commission was provided for, to make an investigation and fix fares on the company's electric railway for two years from the passing of the act. The commission was organized in 1921.

St. Thomas Municipal Ry.—A press report states that the street railway committee has recommended the St. Thomas, Ont., City Council to do away with tickets at a reduced fare, and to adopt a straight 5c. fare.

Winnipeg Electric Ry.—The Manitoba Public Utilities Commissioner on March 2 refused the municipality of Assiniboia's application to have the Winnipeg Electric Ry.'s zone system changed to the divisions in force in 1920. E. Anderson, K.C., is reported to have stated that the company was preparing to take action with regard to the general conditions existing in several suburban municipalities, and could not single out Assiniboia for special consideration. The request would be dealt with sympathetically. Under the circumstances the Commissioner refused the application for the present.

The British Columbia Electric Railway and Dominion Jurisdiction.

The committee appointed by Vancouver and surrounding municipalities to oppose the British Columbia Electric Ry. Co.'s application to the Dominion Parliament, for amendments to the Vancouver, Fraser Valley & Southern Ry. Co.'s act of incorporation, which would bring the company's various lines, not now subject to Dominion jurisdiction, under the Board of Railway Commissioners' control, is reported to be raising funds necessary to assist in opposing the measure, and to be collecting the information required to make out its case. A suggestion was made that an outline of the municipalities' case be sent to every member of Parliament, and that application be made for the fixing of a date when the bill will be considered. The Union of Canadian Municipalities advised the committee by telegram that it would render all the assistance it possibly could in opposition to the measure. The Mayor of Quebec is reported to have written to the Mayor of Vancouver protesting against the proposal on the ground that if the charter is granted it will form a dangerous precedent for street railways all over the continent.

The Mayor of Victoria is reported to have said at a recent meeting of the city council:—"If we are going to fight the transfer of the electric railway to Ottawa control, then the three municipalities around Victoria should share the cost equally, because they are interested as we are, perhaps more. I doubt the wisdom of entirely confining public service corporations to the prejudice and whims and fancies of the particular districts they serve. The Board of Railway Commissioners would look at electric railway questions in a broad way and would be more likely to do justice for the whole people."

Electric Overhead Wires in Edinburgh.—Citizens of Edinburgh, Scotland, have been concerned for sometime past about the placing of standards to carry overhead trolley wires on Princes St., claimed to be the finest street in the world. As a result of the controversy the Minister of Transportation has directed the holding of an enquiry into the whole matter.

Electric Railway Wages, Working Conditions, Etc.

Dominion Power and Transmission Co.

—At the end of February the Minister of Labor appointed two boards of conciliation and investigation to deal as follows:—(1) with a dispute between the company and its linemen, groundmen, etc., members of the Canadian Electrical Trades Union, Hamilton Branch; (2) with four separate disputes (a) between the company and its subsidiary companies and their employees who are members of Local 700, International Union of Steam and Operating Engineers, (b) between the company, the Hamilton and Dundas Electric Ry., Hamilton, Grimsby and Beamsville Electric Ry., Hamilton Radial Electric Ry., and Brantford and Hamilton Electric Ry., and their employees who are members of Division 876, Amalgamated Association of Street and Electric Railway Employees of America, (c) between the company and its shop and barn men, members of Division 107, Amalgamated Association of Street and Electric Railway Employees of America, and (d) between the Hamilton St. Ry. Co. and its motormen and conductors, who are members of Division 107, Amalgamated Association of Street and Electric Railway Employees of America. The company having failed to nominate a representative, the Minister of Labor appointed F. H. McGuigan, Toronto, to represent it on each board. The employees' representative on the board named first is J. G. O'Donoghue, Toronto, and on the second board, to deal with four separate disputes, F. Bancroft, Toronto. Messrs. McGuigan, O'Donoghue and Bancroft not having made a joint recommendation, the Minister appointed J. M. Godfrey, K.C., Toronto, chairman of both boards, which commenced sitting at Hamilton, March 3.

Hull Electric Co.—We are officially advised that an agreement has been reached between the company and its conductor and motormen as to wages which were dealt with recently by a board of conciliation. The agreement provides that the rates in effect previous to Dec. 1, 1921, less 2c an hour in each case, shall be effective from Dec. 1, 1921, to July 1, 1922, and that negotiations for a new schedule of wages effective on and after July 1, may be opened at any time. Following are the rates per hour which were put into effect under a majority report of a board of conciliation dated Aug. 26, 1920: First six months, 41c.; second six months, 44c.; second year, 46c.; third year and thereafter, 48c. The company gave notice that these rates would be cut by 10% on Dec. 1, 1921, and in consequence of this proposed reduction another board of conciliation was appointed, the majority report of which recommended the continuance of the old scale to July 1. As a result of recent negotiations a compromise has been brought about under which the wages are reduced by slightly over 4%.

London St. Ry. Co.—We are advised that on Dec. 30, 1921, the company gave its employees 60 days notice, in accordance with the terms of its agreement, that effective March 1, 1922, wages of motormen and conductors would be reduced as follows:—First year, 43c. an hour to 40c.; second year, 46c. to 43c.; third year, 48c. to 45c. Shopmen, trackmen and other employees are not affected. The employees objected to the proposed reduction, and claimed that the company

was violating the Industrial Disputes Act, Sec. 57, by changing wages without the change being dealt with by a board of conciliation. The men had not asked for a board, claiming that the company should do so, which the company did not concur in. On March 2, the employees applied to the Ontario Railway and Municipal Board to restrain the company from putting the reduction into effect, but the Board refused, on the ground that it has no jurisdiction. A second application to the Board was similarly refused.

The employees called a meeting for March 18, to discuss the situation and to decide as to whether to take legal proceedings. The president of the local union is reported to have stated that if it was decided to take legal action, and a court's refusal to grant an injunction restraining the company from putting the reduction of wages into effect, there would be but one recourse, an appeal to the Minister of Labor for a conciliation board.

Ottawa Electric Ry.—Major F. D. Burpee issued the following bulletin Feb. 27, to all employees:—"In April 1920, a board of conciliation, appointed by the Labor Department, recommended that this company's employees' wages should be increased from 20 to 22%, because of the very high cost of living prevailing at that time. The company accepted the board's recommendation with full knowledge that its income could not afford such rates of wages to be permanently established, and in the hope that the high cost of living was only a temporary condition. In April 1921, although the Labor Gazette showed a considerable reduction in the cost of living, the company agreed to continue the rates of wages established in 1920 for another year. Since April 1920 the cost of living, as shown by the Labor Department's family budget, has fallen nearly 20%, and the general tendency is downward. All employees are hereby notified that on May 1 next the rates of wages paid by this company will be reduced in proportion to the drop in the cost of living. The details of this reduction will be announced in April."

The matter was taken up at the meeting of the union employees on Feb. 28, but nothing in the way of negotiations had been reported up to March 15.

Toronto Transportation Commission.—When the Toronto Ry. Co.'s lines were taken over by the city on Sept. 1, 1921, and handed over, together with the Toronto Civic Ry. lines, to the Toronto Transportation Commission for operation, the following wages per hour were being paid the conductors and motormen:—Toronto Ry., 1st 3 months, 55c.; next 9 months, 57½c.; thereafter, 60c. Toronto Civic Ry., 1st 3 months, 60c.; next 9 months, 63c.; thereafter, 66c. On the consolidation of the lines the Toronto Ry. scale of wages was put in force, the Civic Ry. employees being reduced accordingly, the agreement to expire March 31, 1922. Negotiations were started early in March between H. H. Couzens, the Commission's General Manager, and the Toronto Ry. Employees' Union, resulting in a tentative agreement on March 20, the terms of which were given by Mr. Couzens in a letter to the union's secretary as follows:—"Following the conference held with the committee of the men in connection with

wages and conditions after March 31, the following sets out my understanding of what was agreed on between us, to apply for 12 months as from March 31:—1. The present rates of wages to remain in force. 2. Overtime conditions to be amended as per the draft clause enclosed herewith, which is subject to agreement, as to wording. 3. Sunday work to be paid for as at present, but holidays to be paid at regular rates. 4. The rates for trackmen to apply only to certain specially skilled men as at present. 5. The necessary amendments in the other conditions now in force to be made to conform to the above. The Commission, in agreeing to the above, did so in view of the specially difficult year which is ahead, due to the abnormal amount of rehabilitation work which is included in this year's programme; also that the present rates still in effect were not granted to the men as soon as was the case in other lines of industry."

The draft clause mentioned is as follows:—"Overtime rates shall not be paid, except in the case of regular scheduled crews, and then only after 8½ hours work, and provided the cause of the overtime is not due to failure of the power supply, or breakdown of the track, plant or equipment, or to any cause beyond the Commission's control. Overtime when paid as above to be at the rate of time and one half."

The agreement was ratified by the men at a mass night meeting on March 21. The situation therefore is, that the rates of wages in force heretofore, viz., 55c. for first 3 months, 57½c. for next 9 months, and 60c. an hour thereafter will remain in force for one year from March 31, while conditions have been modified to cut out a lot of punitive overtime payments. As before, Sunday work will be paid for at time and a quarter, but holiday service will be paid for at regular rates. In the past, the greater part of the overtime rates paid by the Commission was necessitated by men being used for spare runs after the completion of their scheduled runs. After 8½ hours service, the employee was paid time and a half, and if he was called out on a spare run, in addition to having performed his service on a regular run, he was paid time and a half for the spare run. In future, men will be paid time and a half only when they have completed 8½ hours service, in regular schedule service, and are held for further work by the management at its discretion, or for reasons within the management's control. If necessary for the men to remain on duty for more than 8½ hours for any reason beyond the management's control, they will be paid straight time only. A request by the men that they be given a fortnight's holiday annually, with pay, could not be considered by the Commission.

Ottawa Electric Ry. Franchise.—The special committee appointed to negotiate with the Ottawa Electric Ry. Co. in regard to a new franchise agreement met Feb. 22, to discuss the whole matter. The company has advised the mayor that it is willing to submit to the committee its profit and loss statements for 1920 and 1921; to give access to the plant and equipment mentioned in the inventory, and to help forward the negotiations as far as possible.

Canadian Electric Railway Association's Annual Meeting at Quebec in June.

The Canadian Electric Railway Association's annual meeting, to be held at Quebec, Que., June 1, 2, and 3, promises to be the most largely attended in the Association's history, and for the first time electric railway supply manufacturers will make exhibits. The meetings will be held, and the exhibits will be displayed, in the armouries on Grande Allee. The following is a preliminary draft of the programme, which is subject to alteration:—

June 1, Thursday, 9 a.m.; registration; 9.30 a.m., addresses of welcome by Provincial Premier and Mayor of city; business session, including President's address, reports of Secretary, Treasurer and special committees; appointment of nominating committee; general business, to be followed by inspection of exhibits; 1 p.m., get together luncheon for members and ladies, chair to be taken by an associate member, and a speech to be made by a prominent guest; 2.30 p.m., paper by a member; 2.45 p.m., observation car sight-seeing trip round the city for ladies; 4 p.m., paper by an associate member; 5 p.m., inspection of exhibits; 7.30 p.m., association dinner, chair to be taken by the Honorary President, Thos. Ahearn, and speeches to be made by prominent guests; 10 p.m., dancing, and band concert on Dufferin Terrace.

June 2, Friday, 9 a.m.; inspection of exhibits; 10 a.m., paper by a member; 11.30 a.m., trip to Quebec Bridge, by steamboat, for members and ladies, informal buffet luncheon to be served on board; 2.30 p.m., paper by an associate member; 4 p.m., unfinished business; election of officers; 4.30 p.m., inspection of exhibits; 9 p.m., reception and ball at Chateau Frontenac.

June 3, Saturday, inspection of exhibits, and trip to Ste. Anne de Beaupre, to be followed by a trip to the Saguenay.

R. Mayne-Reade, Superintendent, City Division, Quebec Ry., Light & Power Co., who is chairman of the exhibit committee, has made very complete arrangements for the display of electric railway supplies, etc. Those who will have moving exhibits will be supplied with a.c. current.

Customs Duty on Intersections for Railways.

A special meeting of the Customs Board was held in Ottawa, March 18, to consider an application from Canadian Steel Foundries Ltd., Montreal, in regard to tariff item 390, which provides for the following duties on switches, frogs, crossings and intersections for railways, viz:—British preferential tariff, 20%; intermediate tariff, 30%; general tariff, 32½%. Lt.-Col. A. T. Thompson, solicitor, Ottawa, representing Canadian Steel Foundries, argued that the whole layout constitutes an intersection coming under item 390. A. Hayden, solicitor, Ottawa, for the Toronto Transportation Commission, argued that the track layout on a street intersection is composed of straight and curved rails, coming under tariff item 388, on which the duty is, British preferential, \$4.50 a ton; intermediate, \$6 a ton; and general, \$7 a ton; fish plates and tie plates coming under item 389, on which the tariff is, British preferential, \$5 a ton; interme-

diate, \$7 a ton, and general, \$8 a ton; switches, frogs, crossings and intersections coming under item 390. Tie bars are dutiable under the general tariff at 30% as manufactures of iron or steel, n.o.p.

G. Gordon Gale, Vice President and General Manager, Hull Electric Co., and President, Canadian Electric Railway Association, agreed with Mr. Hayden's contentions, and towards the conclusion of the hearing obtained the Board's permission to file evidence from electric railway companies which are members of the Association, and which were not represented at the hearing and may wish to present their views.

Others present at the hearing in addition to those mentioned above were: W. W. Horwood and O. C. Rehfuß, of Canadian Steel Foundries; I. S. Fairty and A. T. Spencer, of the Toronto Transportation Commission; and Major F. D. Burpee, Manager, Ottawa Electric Ry., and Vice President Canadian Electric Railway Association.

The Board reserved its decision, heretofore it has held that intersections are the individual special pieces to be inserted in the track line where the actual cross or intersection occurs.

Detroit United Railways Agree to Sell Lines to the City.

Detroit United Rys. shareholders at the adjourned annual meeting Feb. 27, agreed, without a dissenting voice, to accept the latest offer from the Detroit, Mich., City Council to purchase the lines in the city for \$19,850,000. The meeting was adjourned to permit an agreement to be entered into with the city, and it was arranged that the purchase would be submitted for the approval of the citizens at a special election, in April.

The property to be taken over by the city under the bargain consists of all the company's lines in the city, outside the 29 miles recently taken over for \$2,400,000, together with the real estate included in the agreement of 1919, which was not ratified by the ratepayers, with the exception of the Highland Park paint shop, and a tract of land at Mackinaw and Grand River Avenues. The price fixed for the property is \$19,850,000, of which \$2,770,000 is to be in cash, and the balance in semi-annual payments of \$500,000 each up to July 1, 1931, the final payment to be made Dec. 31, 1931. The city will pay interest on the deferred payments at 6% a year.

Two propositions will be submitted to the people in April, the first being for the approval of the purchase agreement and the second to authorize the issue of bonds for \$2,770,000, for the initial payment. It is anticipated that the city will be able to provide for the payment of interest on the balance of the purchase money, and for the half yearly instalments on account of principal, out of surplus earnings.

The company Board has been reorganized with Elliot G. Stephenson as acting President until the city vote is taken in April. C. Laurendeau, K.C., of Montreal, has been elected first Vice President and General Manager, with E. J. Burdick of Detroit as Vice President; E. R. Decary, formerly head of the Montreal Administrative Commission, has been added to the Board; A. A. Gingras of Montreal, who was chiefly responsible for the change in the directorate, has been appointed Treasurer and J. Brampton as Assistant Treasurer.

Proposed Abolition of Manitoba Public Utilities Commission.

The Manitoba Legislature had under discussion from the early part of its session the following motion submitted by Mr. Talbot:—"Whereas, the Legislature did, on April 28, 1921, give this mandate to the Executive Council of the province: 'The Public Utilities Commission having outlived its usefulness, should now be dispensed with, and its duties transferred to the Provincial Secretary's Department.' And whereas, ample time was granted to the Government for winding up the business of the Public Utilities Commission and transferring the duties of the Public Utilities Commissioner to the Provincial Secretary's Department; And whereas, the decision arrived at by the majority vote of this Legislature is final and should have been acted upon without further consultation with outside bodies; And whereas, ignoring such mandate the Government has been delinquent in the duties directed by and imposed upon it by the Legislature; And whereas, the Government in defiance of the first principle of constitutional government has seen fit to usurp the prerogatives and sovereign rights of the people as vested in the members of this Legislative Assembly; now therefore be it resolved, that we, the members of the Legislative Assembly, assert our right as the supreme governmental authority in this province, and further, we hereby censure the Government for its arbitrary and autocratic action and express our want of confidence in the Executive Council of this province."

The discussion was concluded March 14 when the resolution was passed by 27 to 23, and a few days later Premier Norris tendered his resignation to the Lieutenant-Governor, but which up to March 23 had not been accepted.

The Public Utilities Commissioner is P. A. Macdonald.

Levis Tramways Co.'s Service. — In reference to the article on this subject, in Canadian Railway and Marine World for March, we are informed that the company's service was closed down on Nov. 20, 1921, owing to the impossibility of arriving at any satisfactory arrangement with the municipalities, since which no local transportation service has been given, except what is furnished by a couple of auto buses belonging to a local garage, which run between Levis ferry and Lauzon intermittently. Until recent no move was made by either company or the public to break the deadlock, but in the middle of February, a delegation waited on the Quebec Prime Minister asking that something be done to secure car operation. We are advised that until satisfactory arrangements can be arrived at between the company and the municipalities, the company cannot raise the capital to refinance its heavy fire loss, and that the only service which it will be possible to furnish in the spring after the snow has gone, will be what the few cars left after the fire will be able to give.

Steel Rails Ordered. — The Toronto Transportation Commission has ordered 8,500 tons of 122 lb. 7 in. grooved girder rail from the United States Steel Products Co., delivery to be made in 1,000 ton lots at intervals as required during the coming summer.

Winnipeg's Electric Railway Situation.

The Winnipeg Electric Service News said in a recent issue:—For some time past negotiations have been proceeding between the civic authorities and representatives of this company with a view to effectually clearing up controversial matters and differences which have developed over a number of years past. These negotiations, we are pleased to say, have been of a harmonious nature, with a broad degree of co-operation shown, resulting to the interests of the car riding public. The point is now reached where consideration must be given to the future, looking to provision for extension of present transportation facilities. The company has intimated that because of the peculiar financial and other conditions arising out of the past few years it is almost impossible to finance extensions and improvements which should be made if the transportation system is to keep pace with the growth of the city. Street railways find it is impossible to sell short term securities. If money is to be obtained, investors must be assured that the investment is one for a reasonable term of years. That is why Victory Bonds are so popular. If the company could be put into a position where it could issue saleable securities there would be but little difficulty about getting the necessary money for capital expenditures. It is an easy matter to assume an indifferent attitude and say "The company is under contract . . ." No one disputes that for a moment. But since the contract was made in 1892 the world has been turned topsy-turvy, and because of new conditions which have arisen, many of the conditions which, in the light of 1892 looked easy to perform, are now impossible of achievement.

The city and the street railway agree that it is proper that a programme of improvements and extensions to service should be put into execution right away. But the position which the street railway finds itself in, owing to the uncertainty of the future, is one which makes impossible the securing of the needed capital to carry out this programme. The next logical step, therefore, is to continue these negotiations and in mutual interests work out a plan that will meet the new conditions as they arise and ensure that the natural development of Winnipeg and district will not in any way be hampered by an inadequate and crippled street car service.

Mainly About Electric Railway People.

Sir Adam Beck, Chairman, Hydro Electric Power Commission of Ontario, returned to Toronto on March 6, after spending a few weeks at Asheville, North Carolina, during a portion of which he was ill with bronchitis, and was seriously threatened with pneumonia.

Edward H. Ives, Second Assistant General Superintendent, Detroit United Rys., Detroit, Mich., with his wife and three of his children, with ages ranging from 18 months to 7 years, together with a girl companion, aged 15, were killed, when an automobile, in which they were travelling, was struck by a D.U.R. train, near Rochester, Mich., March 19. One of his children, aged 14, jumped and escaped without injury.

Sir Augustus M. Nanton, President, Winnipeg Electric Ry., returned to Winnipeg early in March after visiting England and Scotland.

C. U. Peeling, formerly Manager, Cornwall St. Ry. Light and Power Co., Cornwall, Ont., and latterly with the Palmetto Power and Light Co., Florence, S. C., is now with the Carolina Power and Light Co., Raleigh, N. C.

Mrs. Sarah Robert, mother of E. A. Robert, President Montreal Tramways Co., died at Beauharnois, Que., March 20.

Electric Railway Projects, Construction, Betterments, Etc.

Brantford Municipal Ry.—The Ontario Legislature is being asked to ratify a bylaw for the issue of \$80,000 of debentures to pay for the extensions of the railway made in 1921. (Mar., pg. 150.)

Fort William Municipal Ry.—The Fort William City Council is asking the Ontario Legislature to pass a bill which contains a provision authorizing the council to acquire right of way for the proposed extension to Chippewa Park, the right of way to be available as a public highway and to be considered to be within the city limits; to build the extension, and to use for such purpose \$30,000 now on hand for street railway purposes, instead of issuing \$30,000 of debentures as authorized by bylaw 2102. (Feb. pg. 97.)

London and Port Stanley Ry.—Tenders are reported to have been asked for the construction of an amusement building at Port Stanley, Ont., which it is expected to have completed by June 15. (Mar. pg. 150.)

Montreal Tramways Co.—Montreal City Council has been considering a proposal to reopen negotiations with the company for the construction of a line along the Shakespeare Road to the top of Mount Royal.

When this matter was last under consideration in June, 1921, the council was advised by the Montreal Tramways Commission that it had no intention of directing the construction of this line on account of the other construction and reconstruction work necessary. Surveys for the line were made but no decision was reached as to the route to be followed. (Jan., pg. 42.)

Ottawa Electric Ry.—A press report states that the company is planning the construction of an extension of its line on Bronson Ave., from Gladstone Ave., to the Driveway Ottawa.

Residents of Gloucester Tp. are asking for an extension of about a mile and a half of double track so that cars may run out on the Metcalfe Road, from where they now turn at Sunnyside Ave., to about a mile beyond Billings Bridge. The township council on March 2 decided to appear before the management as a body, along with the petitioners. (Oct. 1921, pg. 548.)

Waterloo-Wellington Ry.—The Kitchener, Ont., Board of Trade's Council is reported to have endorsed the company's proposal to extend its line from Kitchener, via Bloomingdale and New Germany, to Guelph, provided action be taken within two years. The company's application to build this line is before the Ontario Legislature.

A press report states that Waterloo Township Council has asked the com-

pany to remove the tracks from Main St., Bridgeport, prior to its being paved. The railway runs for about 250 ft. on Main St., and then switches off on to a private right of way. (Feb., pg. 97.)

Electric Railway Notes.

British Columbia Electric Ry. has received 6 one-man standard safety cars for service in Victoria, from Canadian Brill Co. The balance of the order for 10 was expected to be shipped before the end of March.

The City of Toronto is asking the Ontario Legislature for authority to raise \$1,012,579.30 by debentures to provide for the cost of construction, repair or renewal of pavements in connection with the construction, repair and renewal of the Toronto Transportation Commission's street railway tracks without submitting a bylaw to the ratepayers.

A Saskatoon, Sask., Municipal Ry. car ran off the tracks at the foot of the long hill on the Nutana side of the Saskatchewan River, March 4, turned a somersault at the bridge and landed on the bank 30 ft. below, the momentum of the fall carrying the heavy trucks over the passengers' heads. Three of the 20 passengers sustained more or less serious injuries.

The Nova Scotia Legislature has under consideration a bill providing for the change in the rule of the road so as to bring it into conformity with the rest of Canada. This step will render necessary changes in the electric railways' roadbed and rolling stock by the Nova Scotia Tramways & Power Co. in Halifax; the Cape Breton Electric Co. in Sydney, Louisbourg and vicinity; the Pictou County Electric Co. in New Glasgow and vicinity; the Yarmouth Light & Power Co., and the Calais Street Ry. Co.

The Quebec Ry., Light & Power Co.'s 10 new cars, the bodies of which were described in our last issue, and which are being fitted up complete at its own shops, will have short wheel base 4 ft. 10 in. double trucks for outside hung motors, and inside hung brakes. They will be placed in service on the City Division. In the details of these cars published in Canadian Railway and Marine World for March, pg. 154, the width over all was mentioned as 70 ft. 10 in., instead of 7 ft. 10 in., an obvious error.

New Brunswick Hydro-Electric Power Development.—The N. B. Government is building a hydro-electric power plant at Musquash Falls, near St. John. The St. John Board of Trade is reported to have approved of a report suggesting that the power be distributed by the New Brunswick Power Co., under a contract with the St. John City Council, and that, in the event of such an agreement not being arrived at, an independent commission be appointed.

British Columbia Electric Companies Amalgamations.—A special general meeting of shareholders of the Vancouver, Fraser Valley and Southern Ry. Co. will be held in Vancouver, B.C., April 17, to consider, and, if thought advisable, approve and execute the following leases to the company:—From the British Columbia Electric Ry. Co., Ltd., of its railway system and light and power distributing system on the mainland on Vancouver Island; and from the Vancouver Power Co. of its railway system and light and power distributing system in North Vancouver and district, and between New Westminster and Chilliwack.

Winnipeg Electric Railway Co.'s Annual Report and Meeting.

The directors' report for the calendar year 1921, presented at the annual meeting in Winnipeg on March 10, is published in full on page 222 of this issue. It is very satisfactory to note, that notwithstanding the industrial depression and that the company continued to make extensive improvements in rehabilitation of rolling stock, roadbed and track, the gross earnings increased \$184,323.06 and the net earnings increased \$132,389.41. After paying all fixed charges, and allowing for depreciation, the net profit was \$727,914.64, out of which \$182,367.13 was paid in dividends, and an additional allowance of \$122,605.82 was made for depreciation, leaving \$422,941.69 to be transferred to surplus. The company's preferred stock has all been marketed and the proceeds have been used to retire floating liabilities.

Vice President McLimont's policy of maintaining good relations with the public was continued, and wide publicity has been given to the Company's problems, so that all patrons might be acquainted with the conditions surrounding the property's operation. The management has stressed its desire to provide courteous and efficient service, which the public appears to appreciate.

The following were elected directors:—Sir A. M. Nanton, President; A. W. McLimont, Vice President; F. Morton Morse, Secretary; W. R. Bawlf, W. J. Bulman, D. H. Finnie, C. V. Hastings, A. J. Nesbitt, and Hugh Sutherland. Other officers are:—L. Palk, Assistant Secretary and Assistant to President, and J. S. Mackenzie, Treasurer.

Electric Railway Finance, Meetings, Etc.

Hamilton St. Ry.—The Hamilton, Ont., City Treasurer received \$21,732.10 from the Hamilton St. Ry. on March 4, being percentage for the quarter ended Dec. 31, 1921, \$19,521.57, and mileage \$2,210.53. This makes the total received from the company for 1921 \$87,396.84, against \$96,395.10 for 1920.

Moncton Tramways, Electricity & Gas Co.—The following were elected directors at the annual meeting at Moncton, N.B., March 1:—E. B. Reeser, R. Low, Jr., E. O. Bartlett, F. H. Minhard, J. A. L. Henderson and E. A. Cummings. Some matters connected with the company's power franchise are under consideration by the city council, and a special meeting called to consider the matter March 6 was adjourned owing to the inability of E. B. Reeser to attend.

Montreal Tramways Co.—A London, Eng., cable of March 3, stated that the Stock Exchange had accepted the Montreal Tramways Co.'s application to have the recent issue of its 1914 bonds listed. This makes an aggregate of slightly over \$18,000,000 of the company's bonds now listed on the London exchange.

A dividend of \$2.50 a share for the quarter ended Sept. 30, 1919, has been declared on the paid up capital of the company to shareholders of record Mar. 20, payable Mar. 28. This is the last payment on account of arrears of dividends amounting to 17½%. During the last two years the company has paid regular dividends at the rate of 10% a year, and has wiped out the accumulation of arrears.

New Brunswick Power Co.—The St. John St. Ry. receipts for February, in-

creased \$786.16, or 2½%, over those for Feb., 1921. The number of passengers carried was 532,716, compared with 391,347 during Feb., 1921. This is an illustration of the effect of a decreased rate of fare put into effect during the year, that while the number of passengers carried has increased by approximately 30%, the receipts have only increased 2½%.

Oshawa Ry.—The annual meeting of shareholders was held at Gananoque, Ont., March 15, when the following directors were elected for the current year:—J. E. Dalrymple, President; H. W. Cooper, General Manager; J. H. Valteau, Secretary-Treasurer; J. M. Sparling and J. Yates. J. M. Rosevear is General Auditor.

Quebec Ry., Light & Power Co. is asking the Dominion Parliament to authorize it to borrow money and to issue bonds to retire or replace its outstanding bonds. W. J. Lynch, General Manager, has issued a statement saying that the application is being made for the purpose of confirming the company's power to issue bonds. In connection with the rounding out of the Quebec Ry., Light, Heat & Power Co.'s financial plans, it may be necessary for the subsidiary company to issue new bonds to replace those which are outstanding, and the proposed legislation is for the purpose of giving it the required power.

St. Thomas Municipal Ry.—The St. Thomas City Council is applying to the Ontario Legislature for power to issue debentures for \$32,666.21 to pay an overdraft of \$18,296.88 on street railway account, and accounts for \$14,369.33 for remodelling the street car barns for other uses.

Winnipeg Electric Ry. has within the past 14 months paid to the city \$709,589 in taxes, percentages of earnings, and car license fees, an average amount of about \$50,000 a month. This, of course, does not all represent one year's taxes, etc. The yearly amounts charged against the company aggregate about \$400,000. The company's last cheque to the city was for \$182,869.70, being the city percentage and car license fees for 1921.

The Yarmouth Light and Power Co. which operates the Yarmouth St. Ry., is applying to the Nova Scotia Public Utilities Commission for authority to issue an additional \$150,000 in bonds.

Motor Omnibus Notes.

A bus service, in which the Owen Sound Board of Trade is stated to be interested, is being operated between Owen Sound and Durham, Ont., 28 miles.

The International Harvester Co. is reported to be operating a motor bus in St. Thomas, Ont., for demonstration purposes, and will report the results to the city council.

Owen Sound, Ont., interests are reported to be arranging for motor bus routes to be opened up on the highways radiating therefrom during the summer. A press report states that busses will be run to Meaford and Collingwood, to Southampton and Goderich, to Wiarton.

The Canadian Highways Transit Co., Hamilton, Ont., is reported to have in operation several motor bus services which together give a service between Toronto and London, via Hamilton, Brantford, Woodstock, Ingersoll and Thamesford. It is expected that the company will during this year add further routes which will enable a trip to

be taken by motor bus from Toronto to Sarnia.

The Ontario Minister of Public Works introduced in the Legislature on March 20 a bill to authorize the Department's highways section to regulate motor bus traffic in the province. The bill provides for the inspection of buses; the regulation of the number to be used on the highways; their operation on fixed schedules, and generally gives the Department power to make regulations of all kinds for the traffic.

The Ontario Legislature passed through the committee stage, on March 6, a bill to authorize the Hydro-Electric Power Commission of Ontario, to operate, in connection with and as part of the Sandwich, Windsor and Amherstburg Ry. a service to meet the requirements of any particular district by motor bus or cars, operated by trackless trolleys, and that it may, for such purpose purchase, maintain and operate motor buses, cars and trackless trolleys.

The St. Thomas, Ont., City Council is applying to the Ontario Legislature for authority to operate on the streets and in the parks, vehicles driven by electricity, gasoline or other power; to substitute, if and when expedient, such vehicles in place of the St. Thomas Municipal Ry. cars, to vary routes of the railway's cars, to fix fares; to include any deficit for operation in the annual estimates and, with the assent of the voters, to pass bylaws to pay for the purchase of buses.

Arbitration of Value of Toronto Railway Co.'s Property.

After an adjournment of over six weeks, the proceedings to determine the value of the Toronto Railway Co.'s property transferred to the city on Sept. 1, 1921, before the arbitrators, Hume Cronyn of London, Ont., chairman; Sir Thomas White, nominated by the company; and Sir Adam Beck, nominated by the city, were resumed on March 14, when Pearce Butler, of the Minnesota bar, appeared as additional counsel for the company. It was expected that the proceedings would open with the presentation of the city's case, but N. W. Rowell, K.C., and Senator Beaubien tendered further witnesses for the company, who testified as follows:—L. A. Herdt, D.Sc., Professor of Electrical Engineering, McGill University, and Vice Chairman Montreal Tramways Commission, as to the efficacy of reserve steam plants; F. G. Clarke, Chief Engineer, Toronto Ry., as to interruption of electric power service between Niagara Falls and Toronto on Feb. 22 and 23; F. L. Hubbard, Assistant to Manager, Toronto Ry., as to equipment of cars which the company considered should be taken over by the city; J. E. Allison, consulting engineer, St. Louis, Mo., as to the railway's extra value as a going concern. The hearings were adjourned from March 15 to 21 owing to the chairman's illness, and on their resumption, F. G. Clarke gave further evidence as to storm interruptions and the necessity for reserve steam plant, and O. A. Matthews, accountant, explained the valuation of the tracks based on consulting engineer's estimates.

The city's case was opened on March 22, when A. J. Richey of Worcester, Mass., testified as to the value of the company's cars and costs of converting them. On March 23 the arbitrators and counsel inspected a lot of the company's old cars.

Uniform Specifications for Crossings of Overhead Wires.

A conference called by the American Engineering Standards Committee at the at the American Electric Railway Association's request was held in New York, Mar. 2, to consider the question of uniform specifications for crossings of overhead wires, and to dispose, if possible, of differences of opinion in regard to the National Electrical Safety Code, part 2, which deals with overhead lines. More than 50 representatives were present from the following bodies:—Connecticut Public Utilities Commission, Iowa Railroad Commission, Minnesota Railroad and Warehouse Commission, New York State Transit Commission, New York State Public Service Commission, Rhode Island Public Utilities Commission, American Electric Railway Association, American Institute of Electrical Engineers, American Railway Association, American Telephone & Telegraph Co., Bureau of Standards, Board of Railway Commissioners for Canada, Canadian Engineering Standards Committee, Electrical Manufacturers Council, Federal Power Commission, Hydro Electric Power Commission of Ontario, National Bureau of Casualty and Surety Underwriters, National Electric Light Association, National Safety Council, Postal Telegraph-Cable Co., U. S. Commerce Department, U. S. Labor Department, U. S. Independent Telephone Association, Western Association of Electrical Inspectors, Western Union Telegraph Co.

M. B. Rosevear, on behalf of the American Electric Railway Association, presented a statement outlining the considerations which had led the Association to request the conference and stating in general terms its position on the various items of the agenda. W. A. Durgin explained the U. S. Commerce Department's motive in promoting simplification in industry and industrial standardization along national lines. M. G. Lloyd, of the U. S. Bureau of Standards, outlined the development of the National Electrical Safety Code and its present position before regulatory bodies and utility companies and associations.

John Murphy, Electrical Engineer, Board of Railway Commissioners, Ottawa, representing the Commission and the Canadian Engineering Standards Association, outlined the status of crossing specifications in Canada, stating that the Board has general jurisdiction over wire lines crossing or passing near railway right of ways, and also over other wire crossings in case either one of the companies concerned is operating under a Dominion charter. The rules which have been followed by the Board are of a very simple character. They work out so satisfactorily from the railways, telephone, telegraph and electric light companies' viewpoint that the Board does not hear from 1% of the cases which arise. The great feature is that the parties concerned must of necessity get together and co-operate before the work is done.

A. E. Davison, of the Hydro Electric Power Commission of Ontario, in discussing crossings generally, said that the Commission has some 1500 crossing and allied agreements, the majority of which come under the Board of Railway Commissioners' jurisdiction. These crossings, wherever carried out in accordance with the sense and intent of the

regulations, have operated without failure. Inasmuch as some of the crossings are 12 or more years old, special attention must be given shortly to inspection for maintenance. As there is developing in Canada a tendency to criticize the rules, with the idea of strengthening the structures and wires crossing under supply conductors, the Commission was pleased to have the opportunity of co-operating in the conference.

The following resolution was passed unanimously:—It is the opinion of this conference that (1) The remaining differences of opinion on the National Electrical Safety Code, part 2, are small, and the different interests are approaching agreement, and it is therefore advisable, (2) that the code should be approved by the American Engineering Standards Committee with the understanding that (3) there should immediately be organized a thoroughly representative sectional committee under the procedure of the American Engineering Standards Committee to consider any revisions of part 2 of the code which may be deemed necessary by any of the interested parties, and (4) that there should be a set of national specifications for crossings between overhead electrical wire lines and railways, and between different wire lines, because there is disagreement among existing specifications, and that (5) such specifications should be prepared by thoroughly representative sub committees so as to make them in agreement with the code, with such revisions as may be made under the provisions of paragraph 3 above

The Ontario Liberals' Hydro Electric Railway Policy.

Ontario Liberals, at their convention in Toronto, on March 1, passed the following resolution unanimously: "Whereas provincial assistance in the construction and operation of hydro electric railways is a matter of serious moment, involving, as it would, the pledging of the credit of the province to the extent of many millions of dollars; and whereas such railways and such benefit as might accrue therefrom would be sectional or local, rather than provincial; and whereas, nevertheless, the Liberal party stands emphatically for the principle that every opportunity and privilege should be afforded to the municipalities to undertake on their own responsibility, the construction and operation of such railways; and whereas the construction and operation of such railways is an undertaking absolutely and entirely distinct from the generation and transmission of electric energy, now and heretofore under the control and management of the Hydro Electric Power Commission, appointed by and responsible to the Ontario Government; be it resolved, that the Liberal party adopts the principle that municipalities should be enabled on their own responsibility, but with the approval and consent of the municipal electors in such municipalities, as required under the Municipal Act, in cases of voting upon money bylaws, to undertake the construction and operation of such radial railways whenever and wherever such municipalities may desire; and that, in view of the large amount of power the Chippawa scheme is likely to develop over and above the requirements for

rural and other extensions, and of the advantages and economies which may be effected by the electrification of steam railways, the province should do everything within its proper constitutional powers to encourage and co-operate with the owners of the same, having in view their electrification wherever practicable and the creation of markets for such surplus power as may be available."

Another Motor Bus Added by Toronto Transportation Commission.

In addition to the motor buses placed in service by the Toronto Transportation Commission and described in Canadian Railway and Marine World's previous issues, the Commission has received a gasoline motor bus from the Eastern Canada Motor Co., Ltd., Hull, Que. This latest acquisition is a double decker, arranged so that the top bands, railing and seats may be removed quickly and the bus operated as a single deck enclosed type. Operated as a double decker, the total seating capacity is 51, there being accommodation for 30 passengers on the top and for 21 inside. The length of the bus overall is 25 ft. 10 in. and the extreme height 10 ft. 8 in. A Buda 4-cylinder 40 h.p. type Y-T-U engine is used, with cylinders $4\frac{1}{2}$ in. diam. by 6 in. stroke. Inside seats, arranged transversely, are finished in rattan. The bus exterior is painted the Commission's standard color, red with cream trim and stripe. It was placed in service in West Toronto March 2.

Mexican Power Development.—G. R. C. Conway, formerly chief engineer, British Columbia Electric Ry., now managing director, Mexican Light and Power Co., is carrying out an important hydro-electric development. The Mexican company's load has been creeping up enormously during the past three years, and is now about 420 million kilowatt hours per year. This enormous growth of load has seriously handicapped the company and some time ago it was decided to proceed with the development of a new plant below the existing Nacaxa plant, capable of generating about 40,000 additional h.p. This work is in progress and involves the construction of a tunnel about $4\frac{1}{2}$ kilometers long, destined to carry about 27 cubic meters a second. The work is being forced rapidly ahead, and it is hoped to have the power available by March, 1923. The company is also developing a smaller plant to the south of Mexico in the State of Morelos, which will give about 25,000 h.p. additional. Half of this will probably be available for use about next July.

Toronto Transportation Commission Offices.—The Commission, which some time ago bought the old Board of Trade building, at the corner of Front and Yonge Sts. and some adjoining properties on Yonge and Front Sts., is having the interior of the Board of Trade building overhauled and rearranged, and will probably remove its offices there, from 229 Yonge St., early in April, when it will occupy the building temporarily until the adjoining buildings are rearranged and added to, after which it will probably move into one of them, and the Toronto Hydro Electric System will then probably use the Board of Trade building. Tenders for the construction of an east wing, to adjoin the Board of Trade building on Front St., have been invited by the Toronto Hydro Electric System.

London Street Railway Co.'s Annual Report and Meeting.

The directors presented the following report for the calendar year 1921 at the annual meeting held in London, Ont., recently:—

Earnings—	
From passengers	\$559,838.57
Other sources	8,027.69
Gross earnings	\$567,866.26
Operating expenses—	
Maintenance, way and structures	\$ 56,177.96
Maintenance, equipment	69,673.69
Power	37,014.84
Operation of cars	272,895.83
General and miscellaneous	51,581.81
Total operating expenses	\$487,344.13
Net earnings from operation	\$ 80,522.13
Interest on bonds	\$ 25,105.94
Interest on loans	1,006.74
Taxes	8,401.50
	34,514.18
Net income, before providing for depreciation	\$ 46,007.95
Deduct depreciation	34,495.05
Net income	\$ 11,512.90

The gross earnings were \$567,866.26, an increase of \$43,137.96 over 1920, or 8.22%. The operating expenses were \$487,344.13, an increase of \$32,786.78 over 1920, or 7.23%. Wages included in operating expenses for 1921 were \$351,476.24, an increase over 1920 of \$22,542.92. The net earnings from operation were \$80,522.13, and after deducting fixed charges and depreciation, the net income was \$11,512.90.

Your company experienced considerable difficulty in operating the railway, on account of the increased cost of labor and materials and, in view of the fact that the company is still required to carry passengers at the extremely low rate of fare of seven regular tickets for 25c., and nine limited tickets for 25c., during certain hours of the day. The Ontario Railway and Municipal Board operated the railway until April 30, 1921, and published a report covering its operation to Dec. 31, 1920, a copy of which was mailed to shareholders. A letter from D. M. McIntyre, Chairman, Ontario Railway and Municipal Board, to the Mayor of London, dated Feb. 8, 1921, was embodied in the report. The Chairman emphasized the need of prompt action looking to some workable solution of the transportation difficulties in this city, which would meet the then present and future requirements. No action, however, has been taken by the city council toward this end. The matter of providing adequate transportation for the increasing passenger traffic is a matter for serious consideration. That the problem cannot be consistently left unsettled until the expiration of the company's franchise, on March 8, 1925, is indicated by this and previous reports, which show an increase each year in the number of passengers being carried. During 1921, the passengers carried numbered 14,866,566, compared with 13,788,209 in 1920. As the company is now operating all its available equipment during rush hours, no further improvement in the service can be made, except by additional new equipment. The company, however, admits its inability to finance the purchase of the necessary new equipment under existing conditions. Your directors are of the opinion that the matter should be again presented to the city council, in an endeavor to secure a permanent solution of the difficulties now existing and under which the company is operating. It would not only be fair to

the company but of a decided advantage to the city to have the matter considered at once, so that the company can make its arrangements to meet the capital expenditures which will be involved in the work required to place the railway in a position to furnish adequate service to the public. Action in this connection will be commenced in the near future.

Statistical Statement.—Passengers carried, 14,866,566; car earnings per revenue passenger, 3.76c.; transfer passengers, 1,611,801; total passengers, 16,478,367; car mileage, 1,783,275; gross earnings per car mile, 31.84c.; operating expenses per car mile, 27.33c.; net earnings per car mile, 4.51c.; number of miles of track, 36.10; gross earnings per mile of track, \$15,730.37.

J. C. Elliott, of Ivey, Elliott & Ivey, solicitors, London, was elected a director to succeed C. H. Ivey, deceased, and H. H. Allyn of Cleveland, Ohio, was elected a director to succeed R. R. Alexander, of Cleveland, resigned. The other directors were re-elected. The board of directors is now constituted as follows:—Charles Currie, Cleveland, Ohio, President; R. G. Ivey, London, Vice President; C. B. King, London, Manager; J. C. Elliott, London; W. M. Spencer, London; P. W. D. Brodbeck, Toronto; H. A. Allyn, Cleveland. The Secretary-Treasurer is L. Tate.

Safety Cars, International Transit Co.

The International Transit Co., Sault Ste. Marie, Ont., is adding five safety cars to its equipment. Their dimensions will be as follows:—

Length over all	28 ft. 0 1/4 in.
Length over dashers	26 ft. 9 1/2 in.
Length of platforms over dashers	4 ft. 6 in.
Length over body corner posts	17 ft. 9 1/2 in.
Width over sheathing	7 ft. 8 in.
Width overall	7 ft. 10 3/8 in.
From rail to top of roof boards	9 ft. 9 3/8 in.
From rail to top of floor (with 2 in. wheels)	2 ft. 3 15/16 in.
Seat spacing	2 ft. 4 1/2 in.
Post spacing	2 ft. 4 1/2 in.
From floor to top of window rest	2 ft. 0 3/4 in.
From floor to bottom of top sash	4 ft. 2 1/4 in.
From floor to underside of arch in bulkhead	6 ft. 9 3/8 in.
Width of exit and entrance doors in the clear	2 ft. 5 1/2 in.
From rail to top of trolley boards	10 ft. 7 in.

The underframing will include side sill angles 3 x 3 x 3/16 in. in one continuous piece from body corner posts to vestibule corner posts; cross sills, consisting of 3 in. 4 lb. and 4 in. 5.25 lb. channels, joined to the side sill angles, and reinforced at the truck bearings with 3 x 2 x 5/16 in. angle brackets and 1/2 and 3/16 in. steel gusset plates, securely riveted; platform knees of 6 in. 8 lb. channels, and center platform sills at ends of 3 in. 4 lb. channels, and crown pieces of oak, 1 1/2 x 14 in., bolted to the sills.

Side framing and roof construction, and interior finish, will conform closely to the usual specifications for the standard safety car, the only variation being that the International Transit Co.'s cars will have longitudinal seats throughout, with hand hole brackets, instead of hand straps. Wheels are to be 26 in. rolled steel, and the equipment will be Canadian General Electric type 264, with 25 h.p. motors.

The cars are being built by Canadian Brill Co. and are to be delivered early in May.

Bill Respecting the Toronto Clean-Up Deal.

The bill which has been introduced in the Ontario Legislature at the Government's instance, respecting the filing of claims against certain companies or their properties, to which reference was made in Canadian Railway and Marine World for March, pg. 152, is to facilitate the "clean up" of the so-called Mackenzie electric power, lighting and railway properties in Toronto and the surrounding district. Sec. 1 provides that the Hydro-Electric Power Commission of Ontario and the Toronto Ry. Co. shall advertise in newspapers in Toronto, Montreal, Winnipeg, London, Eng., and New York, N.Y., calling upon all persons having causes of action against any of the companies to file particulars of the same with the H.E.P. Commission by April 1, 1923; bondholders are not required to file particulars of claims in respect of bonds or notes. Sec. 2 will bar all claims if not filed within the time specified; Sec. 3 excludes the bondholders from those required to file claims; Sec. 4 states that actions in connection with unsatisfied claims, notice of which had been filed by April 1, 1923, shall be indicated before Oct., 1923, and if not then commenced shall be barred. Sec. 5 provides that nothing in the Act shall revive any claims or right already barred by any statute, or to extend the period fixed by statute within which action to enforce any claim might be taken in respect of any such claim. Sec. 6 states that the act shall go into force the day it is attested to.

The London and Port Stanley Ry. and the Michigan Central Rd.—The Michigan Central Rd. has an agreement with the London Railway Commission for hauling of its cars over the London and Port Stanley Ry. For some time past negotiations have been going on with regard to the charge for this service, and the matter has been before the Board of Railway Commissioners, which suggested that an agreement be reached between the parties, but it is reported that the Michigan Central Rd.'s latest offer was refused by the London Railway Commission on March 12. The Board of Railway Commissioners will now be asked to fix the rate.

Niagara, St. Catharines and Toronto Ry. Purchase Proposals.—A meeting of representatives of the various municipalities, through which the Niagara, St. Catharines and Toronto Ry. runs, is reported to have been called by Alderman J. E. Riffer, chairman of St. Catharines civic railway committee, to consider the position of the proposed purchase of the line by the municipalities under the act relating to hydro electric railways. It is felt locally that the proposed purchase is shelved for the present, following the defeat of the bylaws in Humberstone, Thorold and Grantham townships. The company's franchises in St. Catharines and in Niagara Falls have expired.

Canadian Shipping Brokers Ltd. has been incorporated under the Dominion Companies Act, with \$100,000 authorized capital and office at Toronto, to carry on business as shipping broker, forwarding agent, ship agent, booking agent for transportation companies, etc., with power to own and operate ships of every description. The incorporators are, W. B. Milliken, K.C., W. P. Mulock, J. L. Grogan, H. A. Bruels and W. A. Murray, Toronto.

Marine Department

General Shipbuilding Matters Throughout Canada.

Alberta Motor Boat Works, Edmonton, Alta., has completed and shipped a number of canoes and small boats of different types for the Hudson's Bay Co., and other organizations on the northern Mackenzie River. A recent shipment included 68 boats, and further consignments of 21 for the Mackenzie River country, and 50 for the Hudson's Bay Co.'s service on the northern lakes will be made early in the spring.

Davie Shipbuilding and Repair Co., Levis, Que., has received a contract for repairs and renewals for the Dominion Public Works Department's dredge 116 and steam tug Witherbee.

Fletcher Ship Repairing Co., Levis, Que., which, as stated in our last issue, is operating the shipbuilding and repairing plant at Hadlow, near Levis, which was operated formerly by the National Shipbuilding Co., carried out repair work during the past 12 months on the Canadian Government Merchant Marine's steamships, Canadian Recruit, Canadian Sapper, Canadian Settler, Canadian Signaller, Canadian Squatter, Canadian Warrior, J. A. McKee and T. J. Drummond; Dominion Government steamships Bellechasse, Eureka and Rouville; the s.s. Lady Evelyn for Dinahan-Thomson Co., and on a floating crane for Quebec Harbor Commissioners. This work comprised general hull, engine and boiler repairs, and in the case of the s.s. Canadian Settler, there was an extensive overhauling in drydock, as well as large repairs to boilers, engines and hull. The plant includes a patent slipway which will accommodate a ship of 3,000 tons, and which will draw a ship up clear of the water within two hours. The driving power has steam engines, geared with heavy tackle and blocking, the top cradle moves on greased skids and the friction is comparatively small, considering the great weight carried. There is a wooden floating dock which will accommodate a ship 145 ft. long. There is also a fully equipped machine shop, blacksmith forge and carpenter plate and angle shops. Electricity is used for motive power, except for the compressors, which are driven by steam. Neil Baker is Manager.

Fraser, Brace Co., Three Rivers, Que., has, as mentioned in our last issue, received an order from the George Hall Coal Co. of Canada, for 4 Welland Canal size bulk freight steamships, each of approximately 3,500 tons gross. They are being built at the Three Rivers yard, operated formerly by National Shipbuilding Corporation Three Rivers Shipyards Ltd. Division, now in bankruptcy. They will be steel, single screw, lake freighters, classed with the British Corporation of Shipping B.S.*, and their principal dimensions will be: length over all 258 ft., length b.p. 250 ft., breadth 43 ft., depth, moulded, 20½ ft., with full topgallant forecandle and long raised quarter-deck aft. The design has been planned so that every modern improvement has been taken advantage of to make for economy in operating the ships, rapidity in handling cargo, etc. The hulls will be built on the Isherwood system, with water ballast in the cellular double bottom, which will be divided longitudinally for about two-thirds of

the ship's length, for turning purposes in working the cargo, and water ballast will be provided in the fore and after peaks. There will be two cargo holds, with 6 large hatches, 2 of which will be especially large, for handling beams and billets of 60 ft. length, and generally the design has been arranged to carry heavy pulp wood cargoes, in the holds and on decks. Under the forecandle, accommodation will be provided for passengers, and spacious quarters for the officers and pilot, all in separate rooms with baths, w.c.s., etc., complete. The captain's rooms on the forecandle deck, will consist of sleeping room, office, bath room, etc. The navigating bridge will be placed over the captain's rooms, extending the full width of the

peak, and controlled from the wheel house forward, and top of deck house aft. Three steam winches for rapid handling of cargo will be provided, and 2 specially designed steam winches for warping purposes. A steam and hand combined windlass will be placed on the forecandle deck, with one of the warping winches placed alongside for warping purposes. A patent snubbing wire compressor and the George Hall Coal Co.'s special fairleads and bollards will be supplied for the quick and efficient working of the ships in and out of docks and through canals. Each ship will have 2 pole masts and 3 heavy derricks for working the cargo. A complete system of electric lighting will be provided, with large cluster lights for working the cargo, regulation signal lamps, etc. There will be refrigerating plant for making ice, and for keeping the refrigerating chamber cool and providing cold water for the ships' use. The plumbing system will include water purifiers, baths, w.c.s., lavatories, constant supply of running water, and hot water when necessary. There will be two lifeboats to each ship, with patent davits and disengaging gear, and these will be placed aft on top of the deckhouse. The ships are designed for a deadweight carrying capacity of 2,500 tons, on canal draft of 14 ft., with grain capacity of about 120,000 bush. Work is proceeding rapidly, and it is expected that they will be ready for operation in the spring.

Georgian Bay Shipbuilding & Wrecking Co., Midland, Ont., is building a wooden tug, 70 ft. long by 15 ft. beam, for Sauble Spanish River Boom Co. She will be equipped with a Steeple compound engine, with cylinders 10 and 20 in. diam. by 14 in. stroke. The company is also reported to be converting the hull of the s.s. Major, which it has acquired from the Great Lakes Transportation Co., into a floating drydock. The bow is being cut off, gates fitted, and the necessary valves, etc., placed for filling and emptying the dock. When completed she will accommodate ships up to 200 ft. long with 33 ft. beam.

Grand Trunk Pacific Drydock, Prince Rupert, B.C., during February, repaired the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert, overhauling her extensively and putting her in shape for Lloyd's reclassification. The same company's ocean going steam tug Lorne was cleaned and copper painted on the bottom and a new keel shoe fitted, and 2 of the company's barges were docked, cleaned and copper painted. Work is proceeding on the 55 ft. steel ferry for the British Columbia Public Works Department's Francois Lake service, and a 30 ft. ferry pontoon for use at Terrace, B.C., was built for the same department. Considerable repairs were done on halibut fishing boats operating out of Prince Rupert.

Hoffar Motorboat Co., Vancouver, B.C., is reported to be building a 41 ft. schooner for Major A. H. Buck, of the Royal Victoria Yacht Club. The keel was laid Feb. 1, and it is expected, that she will be ready for delivery by May 1. She will be 30 ft. long on the water line, and have a beam of 11¼ ft. She will be

Dominion Marine Association.

Honorary President, A. A. Wright, President, Tidewater Shipbuilders, and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

President, T. R. Enderby, Operating Manager, Canada Steamship Lines, Montreal.

First Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Second Vice President, G. J. Madden, George Hall Coal Co. of Canada, Ogdensburg, N.Y.

Executive Committee, The President, First and Second Vice Presidents, and W. E. Burke, Canada Steamship Lines, Montreal; Yvon Dupre, Sincennes-McNaughton Line, Montreal; M. J. Haney, Canada Steamship Lines, Toronto; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transports, Montreal; Honorary members, L. L. Henderson and A. A. Wright, Montreal.

Counsel, Francis King, K.C., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

ship, with a wheel house, containing the steering wheel, compass, docking telegraph, telephone, speaking tube, engine room indicators, etc., with the standard steering compass on top. The dining room, engineers, stewards, pantry, refrigerator room, galley and engine room staff, including deck hands, will be accommodated in a 60 ft. house aft on the quarter-deck. The propelling machinery will consist of triple expansion engines, with cylinders 19, 32 and 56 in. diameter by 36 in. stroke, supplied with steam by 2 Scotch multitubular marine boilers, each 14 ft. 7 in. diameter, by 10 ft. 8 in. long, at 180 lb. working pressure. The boilers will be equipped for coal burning, and there will be bunker accommodation for 150 tons, and an ash ejector will be provided in the stokehold for discharging ashes. There will be the usual ballast pumps and auxiliaries, and extra large pipes will be fitted to the ballast tanks for rapid filling and emptying. Powerful steam and hand steering gear will be placed aft over the after

equipped with auxiliary power, consisting of a 20 h.p. high speed motor.

A. McMillan & Heighton, New Glasgow, N.S., have a contract from the Dominion Public Works Department for repairs, renewals, etc., to the steel hopper scow 107, of the Department's dredging fleet, for \$4,950.

R. J. Morrill, Collingwood, Ont., is building the hull of a motor tow boat for the Abitibi Pulp & Paper Co., for towing logs from Couchiching Falls to Twin Falls, on the Abitibi River. The principal dimensions are,—length over all 83 ft., length on water line 77 ft. 4 in., breadth 20 ft., draft extreme 9½ ft., power 300 shaft h.p. The design follows the usual type for tow boats suitable for harbor work, and as the tug will make the round trip each 24 hours, accommodation is provided for two crews and extra raft men and officers. The draft will be sufficient to immerse a bronze wheel propeller 6½ ft. The machinery will consist of a direct reversible 6 cylinder 12, 15-16 x 18 in. Winton Diesel engine developing 300 brake h.p. at 210 r.p.m., an auxiliary air compressor with 12 h.p. motor, bronze fuel oil transfer and service pump with 1 h.p. motor, fire, bilge and general service pump with 5 h.p. motor, 1 10 k.w. electric generator driven by 15 h.p. engine, and a 25 cell, 32 volt Edison storage battery, etc. The hull scantlings will be in excess of Lloyd's requirements, the keel, frames, stem, stern, etc., being of white oak, plankings, etc., of yellow pine, and ceilings and decks of Oregon pine. There will be 3 watertight bulkheads, and the fuel tanks will hold 4,200 gall. Accommodation will be provided for 12 men, 6 in the forecabin, 2 in the engineer's stateroom, 2 in the captain's room, and the usual galley, mess room, store rooms, etc.

Sydney Foundry & Machine Works Ltd., Sydney, N.S., has a contract from the Dominion Public Works Department for repairs, renewals, chipping, scraping and painting steel hopper scow 157 of the Department's dredging fleet for \$6,900.

Three Rivers Shipyards Ltd. — The Quebec Court of Appeal has decided that the City of Three Rivers must pay what is still owing on a bond issue of \$100,000 put out by Three Rivers Shipyards, Ltd., now insolvent, as the city guaranteed the bonds. The trust in this case was exe-

cuted in favor of the Sun Trust Co. as trustee for the bond holders. The bonds were made redeemable and payable in annual instalments on Sept. 1 of each year from 1919 to 1927, the first annual instalment to be \$12,000 with \$11,000 each succeeding year, and 6% interest payable half yearly. After Sept. 1, 1920, the Shipyards Company defaulted in interest after having paid the second instalment of the principal. The company is insolvent and in liquidation and according to the trust deed the balance of the bond issues with interest coupons has become due and the trust company took action against the city to collect the full amount unpaid, with interest. The Superior Court upheld the trust company and the city's appeal against this decision has been refused by the Quebec Court of Appeal.

Vancouver Shipyards Ltd., Vancouver, B.C., has delivered the motor boat Atkinson to the Vancouver Harbor Commissioners, and she has been placed in service on harbor work. Her dimensions are,—length 34.2 ft., breadth 9 ft., depth 3.5 ft.; tonnage, 9 gross, 6 net. She is equipped with a 30 h.p. oil engine. She will be used chiefly for night patrol work, in keeping the harbor clear of drifting logs, etc., and for yarding booms.

Vancouver Shipyards Ltd., Vancouver, B.C., has done the following repairs recently:—Celtic and Coaster, for Coast Steamship Co.; Joyful, for Canadian Tugboat Co.; Autolycus, for Hastings Shingle Manufacturing Co.; Gipsy, Glenboro, Vigilant and Niluht. In addition, the West Vancouver Ferry No. 5, and two other gasoline boats were overhauled.

Yarrows Ltd., Victoria, B.C., did the following repair work during February: s.s. Canadian Scottish, 5,460 tons, docked, cleaned, painted and sundry small repairs; s.s. Canadian Inventor, 5,497 tons, docked, cleaned, painted and sundry small repairs, for Canadian Government Merchant Marine; s.s. Princess Ena, 1,368 tons, docked, cleaned, painted and overhauled; s.s. Princess Beatrice, 1,290 tons, docked, cleaned, painted and fitted with new foremast, for C.P.R. British Columbia Coast Service; s.s. Bessie Dollar, 4,329 tons, contract received to repair damage to bridge and deckhouses, etc., and new mainmast and lifeboat, for Canadian Robert Dollar Steamship Co.; s.s.

Newington, 193 tons, docked, cleaned, painted, new tail shaft and propeller installed, and sundry repairs, for Dominion Government; steam tugs Olive M. and Hope, docked, cleaned, painted and sundry underwater repairs for Vancouver Island Tug Co.

The Canadian Government Merchant Marine s.s. Canadian Observer was docked at this company's plant, March 6, for survey, overhaul and minor repairs. The Union Steamship Co. of British Columbia's s.s. Cowichan was also taken in hand March 6, for some alterations and repairs.

The work on the s.s. Bessie Dollar was completed March 9, in 10 working days, or 2 days less than the time specified in the contract. It included the restoration of the superstructure and a number of comparatively minor repairs, made necessary by damage received in a severe storm, shortly after leaving Vancouver on her usual trans-Pacific voyage. After taking on a supply of oil fuel, she loaded an additional quantity of lumber, and proceeded on her interrupted voyage, March 11.

A British Columbia Suggestion about Pacific Steamship Service.

A Victoria, B.C., press dispatch of March 10 states that the Provincial Premier has telegraphed the Dominion Premier, suggesting that the Minister of Railways take up the question of entering into a contract for preferential rates between the Canadian National Rys. and Japanese steamships plying across the Pacific to the Orient. The B.C. Premier contends that this would place all through freight for Eastern Canada, United States or Western Europe carried across the Pacific by Japanese liners with the Canadian National Rys. It would also enable the C.N.R. to compete in the handling of Oriental business with the C.P.R., which owns its own steamships on the Pacific, and is thus in the position to grant advantageous through rates. He also contends that if such an arrangement could be made, it would mean that the fleet of Japanese steamships making Seattle its port on this side of the ocean, would also go to Vancouver, and through business which now goes to United States railways, would go through Canadian cities and on a Canadian railway.

Ships Registered in Canada During December, 1921.

In compiling the following lists of ships registered, steamboats and motorboats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, n.h.p. etc.	Owner or Managing Owner
150465	Canadian Constructor*	Halifax, N.S.	Halifax, N.S. ....1921	430.0	56.2	26.8	7178	4413	326 Sc.	Minister of Marine, Ottawa, Ont.
150593	Canadian Freighter*	Vancouver, B.C.	Vancouver, B.C. ....1921	400.0	52.4	28.7	5466	3357	267 Sc.	Minister of Marine, Ottawa, Ont.
150597	Colombia	Vancouver, B.C.	Nakusp, B.C. ....1920	72.0	15.4	7.4	90	44	16 Sc.	C.P.R. Co., Montreal.
131384	Kamouraska	Halifax, N.S.	Low Walker, Eng. ....1911	375.0	52.0	28.1	4903	2673	488 Sc.	Kamouraska Shipping Co., Halifax, N.S.
121771	Majestic	Winnipeg	Bad Throat, Man. ....1904 Winnipeg, Man. ....1915	84.6	17.5	6.0	91	62	17 Sc.	Lake Bar Sand & Gravel Co., Winnipeg.
141080	Otis Wack	Windsor, N.S.	Parrsboro, N.S. ....1921	105.7	25.7	12.3	226	36	66 Sc.	Gypsum Packet Co., Windsor, N.S.

*Equipped with wireless.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owner or Managing Owner
150496	E.C.E. XIX	Vancouver, B.C.	Scow	Vancouver, B.C. ....1911	66.0	22.0	6.1	74	74	Evans, Coleman & Evans Ltd., Vancouver, B.C.
150491	Orozimbo	Parrsboro, N.S.	Schr.	Gouldsboro, Me. ....1854	87.2	26.0	8.6	143	128	G. E. Merriam, Parrsboro, N.S.

Ocean, Coast, Lake and River Steamship Officers for 1922.

The following appointments made by Canadian navigation companies for their various steamships and tugs, have been reported to Canadian Railway and Marine World. The first column contains the names of the ships, the second, those of the captains, and the third, those of the chief engineers:—

Algoma Central Steamship Line, Sault Ste. Marie, Agawa M. A. Livingstone J. Smith
Home Smith A. McIntyre D. McLeod
J. Frater Taylor J. D. Montgomery A. H. Chalmers
W. C. Franz W. C. Jordan A. H. MacInnes

American Yukon Navigation Co., Skagway, Alaska, Alaska J. S. McCann R. Kern
Hermion C. W. Adams T. Hyde

Bear River Steamship Co., Bear River, N.S. Bear River J. W. Woodworth S. Stevens

Bridgetown Steamship Co., Bridgetown, N.S. Valinda F. R. Merriem C. Mills

British Yukon Navigation Co., White Horse, Yukon. Casca J. O. Williams P. Larsen
Dawson M. Campbell W. C. Vey
Nasutlin W. Cowley J. Scotland
Neecheah J. E. Hoggan C. Marcil
Tarahne J. C. Garvie F. Vey
Tutshi C. McDonald J. Lauderdale
White Horse C. Coghlan J. P. Bourne

Burnham Morill & Co., Halifax, N.S. Robie M. R. Hines B. Smith

Canada Atlantic Transit Co., Montreal. Arthur Orr J. Simons D. E. Mance
Kearsarge H. Jaenke J. W. Greiner

Canada Steamship Lines, Montreal. A. E. McKinstry A. N. Hogue G. Fleming
Advance N. Legault T. Nicholls
Arabian E. F. Raeburn H. Paus
Beaverton O. Wing F. A. McAuley
Canadian H. A. Patterson A. E. Kennedy
Cape Diamond W. Gagne G. Gagnon Jr.
Cape Eternity W. Cornett N. Crepeau
Cape Trinity J. P. Stephenson A. Chayer
Cataract J. J. Lawrence C. Gray
Cayuga C. J. Smith W. Taylor
Chippewa W. Malcolm E. A. Prince
City of Hamilton O. Patenaude W. Dungan
City of Ottawa J. A. Lepine G. N. Clark
Collingwood G. W. Pearson H. J. Jack
Corona A. B. Bongard J. W. Kennedy
E. B. Osler J. H. Hudson R. R. Foote
Edmonton H. A. Leaney J. A. MacDonald
Emperor D. W. Burke G. N. Smith
Glenellah J. L. Baxter W. Keith
Glenmount W. J. Brown Jas. Kirk
India D. H. Porter J. J. Dove
J. H. G. Hagarty P. McKay I. J. Boynton
Joyland J. Francis F. Patterson
Kenora W. Brian Jas. Douglas
Kingston A. E. Stinson G. W. MacDonald
Longueuil H. Mandeville H. Noel
Macassa G. J. Corson J. A. Gunn
Mapleboro K. LaRush M. J. Sherman
Maplebranch A. Wilson J. H. Loudon
Maplebrook T. McLeod J. A. C. Hawman
Mapleheath T. Walkinshaw C. A. Stillson
Maplehill E. J. Shannon M. O'Brien
Maplehurst N. G. Menard A. Dunn
Mapleton M. Heffernan D. S. Simons
Martian R. McIntyre H. Myler
Midland Prince A. B. McIntyre J. A. Pickard
Midland King R. F. Pyette C. Leriche
Modjeska Jas. Henderson C. Kniffen
Montreal J. R. Pyette N. Peloquin
Oatland S. Ashie
Quebec N. McGlennon O. Bonin
Rapids Prince S. Putnam G. M. Hazlett
Rapids King G. Batten W. Hazlett
Saguenay J. A. Simard G. Gagnon
Sarnian T. H. Johnston J. G. McHattie
Simla C. E. Coons

Thunder Bay W. A. Blackwell A. E. Crosthwaite
Toronto E. A. Booth A. Baillie
Valcartier Jas. Reoch W. C. Spencer
Vinnmount J. A. Ferguson F. Moyle
W. D. Matthews A. F. MacLennan W. Reid
W. Grant Morden C. E. Robinson Jas. McGregor
Westmount J. F. Davis J. E. Readman

Canadian Pacific Car & Passenger Transfer Co., Prescott, Ont. Charles Lyon W. Henry L. Black

C.P.R. British Columbia Lake & River Service, Nelson, B.C. Bonnington A. Forslund T. C. l'Anson
Columbia W. H. Wright T. S. Hopkins
Hosmer M. P. Reid P. H. Pearce
Kokanee L. McKinnon J. G. Cameron
Moyle F. L. Orr J. Donaldson
Naramata J. B. Weeks J. Sutherland
Nasookin W. Seaman W. H. Ahier
Sicamous G. Robertson D. H. Biggam
Slocan W. Kirby W. McLeod
Valhalla J. Ferguson D. Macewen

Canadian Pacific Ry. Great Lakes Steamship Service, Alberta J. McIntyre W. S. Struthers

Assiniboia J. McCannel A. A. Cameron
Athabasca M. McKay G. S. Rae
Keewatin M. McPhee G. Butterworth
Manitoba F. J. Davis G. D. Adam

Canadian Towing & Wrecking Co., Port Arthur, Ont. A. F. Bowman B. Burke H. McElroy

Hugh Cann & Sons, Yarmouth, N.S. Bruce Cann I. A. Banks H. Goodwin
Keith Cann A. L. McKinnon J. B. Greig
La Tour F. E. Smith J. Nixon
Mary H. Cann E. F. Peters E. Wyman
Percy Cann Isaac A. Banks F. Hitchens
Robert G. Cann W. E. Morris B. Lumsden
Wanda W. Brush H. Goodwin

Cape Breton Electric Co., Sydney, N.S. Electronic I. H. Lewis C. H. Hanson
Hygeia A. McLeod
Peerless G. Dicks

Chicago, Duluth & Georgian Bay Transit Co., Chicago, Ill. North American A. C. Anderson H. Hankans
South American A. L. Myers J. F. Buritz

Clarke Steamship Co., Quebec, Que. Labrador J. A. Brie H. Mercier
North Shore J. Boucher E. Boldin

Crystal Stream Steamship Co., St. John, N.B. D. J. Purdy J. Gilchrist W. Hurder
Majestic H. Crabb J. W. Gorman

Donnelly Salvage & Wrecking Co., Kingston, Ont. Cornwall J. W. Phelix W. Kennedy
Frontenac T. J. Murphy T. Comeau
Mary P. Hall E. Sparling

Farquhar & Co., Halifax, N.S. Sable I G. A. Murley A. Tulk
Stella Maris W. A. Poole S. Hertling

Gaspe Coast Co., Quebec, Que. Brumath A. Dube J. Ruel

Grand Manan Steamship Co., Grand Manan, N.B. Grand Manan W. W. Hersey J. Cowie

Grand Trunk Ry. Detroit River Car Ferries, Windsor, Ont. Great Western O. Lalonde W. Belson Jr.
Huron A. Baillargeon A. Cook
Lansdowne M. Bausette W. Belson

Halifax & Canse Steamship Co., Halifax, N.S. Chedabucto P. Cooper A. Innes

Halifax & Inverness Steamship Co., Halifax, N.S. Strathlorne J. Cooper D. Patterson

Halifax & Sheet Harbor Steamship Co., Halifax, N.S. Margaret R. Munroe W. Latham

George Hall Coal Co. of Canada, Montreal. Brignogan W. J. Mills G. Udall
Ignifer E. Groulx A. Carrier
James W. Follette C. A. Mahoney M. J. McFaul
Joe S. Morrow R. Chatel H. Lamoureux
John B. Ketchum

Imperial Oil Ltd., Toronto. John Rugee B. A. Sullivan O. D. Thurston
Lehigh A. Barrett A. Brown
Rockferry C. Ross A. E. House
Rohan W. H. Ransom M. Parry
Senator Derbyshire J. B. Gamache T. Aussant
O. Croteau

Imperial Oil Ltd., Toronto. Albertolite C. R. Treweek N. R. Gebbie
Calgarolite W. R. Smeltzer A. R. Fleming
Icolite R. Laing H. R. Welch
Icolite F. A. McMann F. Pringle
Imperial C. R. Dyon
Imperial A. Geddes S. E. Brisbin
Mina Brea H. C. Mims A. McArthur
Royalite A. G. Cameron C. S. Walsh
Sarnolite F. F. Foote G. Vollick
Talarolite D. H. Larson D. J. Dow
Torontolite T. R. Owen C. Duggan
Vancolite D. Sutherland L. Hartje
Victolite J. E. Langdon

W. Hanna & Co., Port Carling, Ont. Mink W. H. McCulley
Newminko J. J. McCulley S. W. Lambert

International Transit Co., Sault Ste. Marie, Ont. Algoma M. Griffith S. Burgess

Kingsley Navigation Co., Vancouver, B.C. E. D. Kingsley M. Uldall J. Price

Keenan Towing Co., Owen Sound, Ont. Keenan G. Hindman A. Glendillen

Lachine Ferry Co., Lachine, Que. Fort Rolland M. Grottier B. Sauvageau
Sault St. Louis J. B. Louillard T. Fugere

Lake Erie Navigation Co., Walkerville, Ont. Marquette and Bessemer Dock & Navigation Co., Walkerville, Ont. Marquette and Bessemer No. 2 J. Vanbuskirk J. J. Stevens
Anthenis J. McEwen A. B. Murray

Memphramagog Navigation Co., Georgeville, Que. Dalhousie City J. W. Maddick Jas. Brown
Northumberland H. J. Hickey A. Mains

North Bay Steamship Co., Port Hood, N.S. Kinburn C. Bourgeois P. R. Glavin

Northern Navigation Co., Sarnia, Ont. Hamonic H. J. Aitken J. W. McLeod
Huron W. H. Montgomery H. H. Moore
Noronic A. M. Wright S. Brisbin
Thousand Islander F. G. Moles

Nova Scotia Steel & Coal Co., New Glasgow, N.S. Watuka — Ritcey A. D. Cameron

Owen Sound Transportation Co., Owen Sound, Ont. Michipicoten J. W. Rutherford J. Bellmore

Pembroke Navigation Co., Pembroke, Ont. Oiseau J. Tessier J. Trotter

Peninsula Tug & Towing Co., Wiarton, Ont. Crawford F. Wood W. C. Fox

Port Huron & Sarnia Ferry Co., Port Huron, Mich. City of Cheboygan G. Waugh D. B. Smith
Hiawatha E. M. Thomas H. Myers
Lawrence F. H. Bond
Omar D. Conger W. S. Major R. A. Campbell

Prescott & Ogdensburg Ferry Co., Prescott, Ont. Ferdinand M. Marry W. J. Jento
Miss Vandenberg S. J. Delaney F. Lavery

Quadra Steamship Co., Britannia Beach, B.C. Quadra M. F. Cutler

Quebec Salvage & Wrecking Co., Quebec, Que. Lord Stratheona A. Sherrer R. Casey

River Lievre Navigation Co., Buckingham, Que. George Bothwell G. M. Bothwell G. Bothwell

Royal Mail Steam Packet Co., Halifax, N.S. Caraque G. E. Warner C. Hull
Chaleur T. A. Hill W. J. Mitchell
Chaudiere B. Shillito E. Nichols
Chignecto W. H. Parker A. E. Calver

J. F. Sowards, Kingston, Ont. Jeska M. Shaw W. McCabe
Shanly J. F. Sowards P. Clark

Sparrow Lake Steamer Line, Sparrow Lake, Ont. Glympse F. Stanton

John Taackaberry, Lionshead, Ont. Henry Pedwell D. Pender G. Webster

City of Three Rivers, Que. Le Progres D. Lemay A. Frenette

Toronto, Hamilton & Buffalo Navigation Co., Hamilton, Ont. Maitland No. 1 J. W. Keeley C. E. Sylvester

Valley Steamship Co., Annapolis Royal, N.S. Granville III B. S. Collins H. Logan

Ville Marie Navigation Co., Ville Marie, Que. Meteor M. Burns J. E. Sauvageau
Temiskaming J. Burns J. B. Sauvageau

Walkerville & Detroit Ferry Co., Walkerville, Ont. Ariel W. Corr J. Roach
Essex J. E. Rathbun P. McLaren

Webster Steamship Co., Quebec, Que. Richard W. J. B. Haymond P. Brunelle
Stuart W. E. Tremblay E. Cantin

R. G. Weddell, Trenton, Ont. Aurelia W. Mitchell F. Rupert
M. Sicken B. Bowen W. B. Clark

Western Transport Co., Nanaimo, B.C. We Two D. Martin D. D. Mackie

Windsor & Pelee Island Steamship Co., Pelee Island, Ont. Pelee J. N. Sheats J. R. Ferguson

Marine Public Works Contracts.—The Dominion Public Works Department has awarded contracts as follows:—Construction of wharf at Ganges, B.C., Jan. 6, to Vancouver Pile Driving & Contracting Co., Vancouver, B.C., at unit prices; repairs to wharf at Port Washington, North Pender Island, B.C., Jan. 6, to Vancouver Pile Driving & Contracting Co., Vancouver, B.C., at unit prices; repairs to groins 1 and 3, Annie Bar, Fraser River, B.C., Jan. 30, to Fraser River Pile Driving Co., at unit prices; reconstruction of south breakwater at Cobourg, Ont., Jan. 31, to H. A. Croft, Cobourg, Ont., at unit prices; repairs to wharf at St. Michel de Bellechasse, Que., Feb. 10, to J. R. Boulanger, Montmagny, Que., at unit prices.

The United States Merchant Marine's Position.

The U.S. President's plans regarding the future of the U.S. Merchant Marine, presented to both houses of Congress recently, appear to mark the ending of a costly experiment in Government ownership and operation of steamships. The President's principal proposals have been embodied in bills and introduced into each house. They provide that 10% of all customs duties be used as a revolving fund, to raise about \$30,000,000 annually in aid of the merchant marine; to provide tonnage taxes amounting to about \$2,000,000 a year, to be paid into the same fund; to provide that not more than 50% of all immigrants into the U. S. may be transported in foreign ships; to provide for the sale of the ships now held by the U.S. Shipping Board, and for the use of the funds realized, for construction loan purposes; to authorize the induction of U.S. merchantmen officers and sailors into the naval reserve, with extra allowance in pay; to provide reduction of income taxes on shipping corporations equal to 5% of the value of goods shipped under the U.S. flag; and to provide that direct Government aid be withheld when companies are earning more than 10%, or when Government aid has been extended, all profits over 10% are to be turned over to the Government. Other aids of an indirect nature, out-which he suggested might be employed, lined by the President in an address, and include a possible amendment to the Interstate Commerce Act to permit railway companies to own and operate steamship lines engaged in other than the coastwise trade, and also the making effective of the section of the Merchant Marine Act providing for preferential rail and steamship rate on through shipments in U.S. ships, and making marine insurance available at no greater cost than is afforded to ships under foreign flags. He concluded his address by saying "we are now operating 400 ships, and there are 400 more available for service."

Various newspaper reports from the U.S. state that the whole of the Shipping Board's ships have been offered for sale, the list covering 1,470 ships, aggregating 10,000,000 tons, built at an initial cost of approximately \$3,000,000,000, and now valued at \$250,000,000. Half of this tonnage is stated to be unfit for operation, and it is said it will be scrapped. These ships were built, or contracted for during the war period, and its consequent excitement, but after making the allowance for this, it is admitted that little discretion was used, the chief aim being to have the greatest merchant marine on earth. The mere building of ships will not create a merchant marine, for unless they are capable of economical operation, efficiently, but not over manned, and able to compete with all and any other ships in any trade, in any part of the world, no merchant marine can be built up on a strong foundation. U.S. shipping legislation, has, for many years past, tended rather to strangle shipping, by undue interference, and by what has been termed "grandmotherly" legislation, and this has had the effect of restricting shipping in what may be termed legitimate channels for U.S. shipping enterprise, and of driving many U.S. shipping companies to transfer their ships to foreign flags, where they may be operated more freely and without the disadvantages imposed

on them by faddist laws.

During 1921 most of the Shipping Board's ships were laid up, and one report states that there was a loss at the annual rate of \$300,000,000 a year, approximately the value of the whole fleet, which loss, it is stated, had been reduced to about \$100,000,000. The loss for the current fiscal year, as estimated by the Shipping Board, will be \$56,000,000, of which \$31,000,000 is stated to have been lost during the first six months. It is also stated that the 280 wooden ships owned by the board, all of which have been laid up for some time, cost the board \$52,000 a year as an idle fleet.

Shortly after the signing of the armistice, a number of the ships built during the latter months of the war were sold to private owners at approximately \$200 a ton, the subsequent fall in values to \$50 a ton and less placing many of the purchasers in an unenviable financial position. Several schemes were considered for the relief of the new owners, as it was realized that the ships would form the basis of a U.S. mercantile marine under private ownership and operation, but no efficient scheme has been evolved.

An attempt was made in 1921 to clear up the chaotic condition into which shipping matters had drifted, by the disbanding of the then Shipping Board, and the appointment of a new one, and appropriations totalling \$61,852,000 were made which it was expected would carry the new board to the end of 1921. Of this, \$25,000,000 was for the completion of ships then building. Later an addition of \$50,000,000 was made to the appropriation for the deficiency fund, and the Shipping Board and Emergency Fleet Corporation were authorized to expend not more than \$55,000,000 during this fiscal year, the amount to be derived from the sale of ships and surplus property, and also from profits of operations, if any.

Under the reorganization of the Shipping Board, its duties, and those of the Emergency Fleet Corporation, which had become entangled, were separated, the Board acting as a regulatory body, and the Corporation handling exclusively the Government tonnage, and devoting itself to the liquidation of the war investment and the operation of the ships. Amongst the work to be cleared up, arising out of the building, operation and sale of ships, were 500 lawsuits with claims amounting to \$50,000,000; 1,700 admiralty cases, \$50,000,000; and 900 claims against the Construction Claims Board for \$100,000,000, as well as other cases, the total claims against the Board on various accounts being stated as being between \$400,000,000 and \$500,000,000.

Towards the latter part of 1921, it was announced that a maximum of 750 ships were withdrawn from operation, but the tendency later was to show allocations of ships in excess of withdrawals. At that time, the cost of upkeep, including damages, drydock charges, repairs to decks and engine rooms, and betterments, averaged 5 9/10c. a d.w.t. a week, a reduction from 8c., which prevailed in May 1921. The cost of maintenance on the Shipping Board's ships was quoted at slightly over \$3 a ton a year, which was stated to be considerably below the rate on privately owned ships.

In the autumn of 1921, the Board received an offer of \$2,100 each for 205 wood steamships, from the Ship Construction and Trading Corporation, New York, with the object of operating the greater proportion of them in the Mediterranean trade, but this offer was not acted upon.

In the latter months of 1921, A. D. Lasker, Chairman of the Shipping Board, stated that the operating losses had been reduced from over \$10,000,000 a month to approximately \$5,000,000, chiefly through a reduction of about 25% in the pay rolls, and of nearly 50% of the ships in operation, it having been decided to withdraw from operation all Government ships except those necessary to maintain strategic services, as directed by the Jones Act. The Board's aim was to have not more than 350 ships, out of 1,400 in active service, all services being eliminated except those considered essential in maintaining adequate lines from each port. A scheme was also worked out for a bareboat charter system for as many of the ships as possible, and where charters were not made, the Board was to assume the loss on operations of such of the ships as were operated by private companies, until such companies were able to show promise of profitable operation.

An inventory of surplus property covered material of a present market value of \$44,000,000, compared with cost values of \$220,000,000.

The position of the pioneer purchasers of ships is still under consideration. There are 42 of these companies, which bought 426 ships for \$293,000,000. On an average they have paid about a quarter of the amounts due, but in practically all instances they are in arrears. Under the terms of the sales, the Board has the right to foreclose and seize the ships, and it has been advised that it has no power to revise the contracts to relieve the buyers. Several of these companies have gone into bankruptcy.

All matters relating to the upbuilding of a U.S. mercantile marine, except those of a purely domestic nature, were kept in suspense during the sittings of the Disarmament Conference at Washington, D.C., during the past few months, but they are now brought to the front, and in most cases are showing signs of being pressed by those interested.

Among the various schemes propounded for the upbuilding of the mercantile marine, are preferential through rail and water rates for merchandise exported from, and imported into, the U.S. in U.S. bottoms, the limiting of immigration by foreign ships, favorable classification and registration of ships, reduced insurance rates, and the elimination of Panama Canal tolls on U.S. ships trading between the Atlantic and Pacific coasts.

Judging from the proposals made to Congress by the President, it is the Government's intention to rid itself of the ownership of ships, and the responsibility of their operation, and for this purpose, it is offering the whole of its shipping for sale, for private operation, and will absorb the losses occasioned by the difference in prices per ton obtaining at the time the ships were built, and under present conditions.

Press reports of March 20 state that all the tenders received by the U.S. Shipping Board called for up to March 14, have been rejected.

Canadian Pacific Railway Ocean Steamship Services.

The C.P.R. steamships sailing from Glasgow, Scotland, for Canada, will call at Belfast, Ireland. The service was opened by the s.s. *Tunisian*, which sailed from Glasgow, March 25, for St. John, N.B., and it is announced that, should local conditions warrant it, the steamships *Corsican* and *Metagama* will also make regular calls there.

Capt. E. Beetham, Marine Superintendent, Vancouver, B.C., who returned from Montreal, March 7, is reported to have stated, that the company's steamships to the Orient, will make a call, when outbound, at Honolulu, commencing with the sailing of the s.s. *Empress of Australia* from Vancouver, Nov. 15. No call will be made there on the homeward trip.

The s.s. *Montezuma*, which arrived at St. John, N.B., March 5, from London, Eng., has been placed in service between St. John, N.B., Boston, Mass., Havana, Cuba, and Kingston, Jamaica, and commenced this service March 7, supplementing the s.s. *Sicilian*. The chief cargo on the southbound trip consisted of potatoes, fish, newsprint, iron and steel manufactured articles, butter and cheese, while on the northbound trip the cargo space will be fully occupied with sugar, cocoa beans, coffee and fruit.

The C.P.R. has placed two additional steamships in regular freight service between Canadian and European ports. The s.s. *Holbrook* is running between St. John, N.B., and Antwerp, Belgium, and the s.s. *Batsford* between St. John, N.B., London, Eng., and Hamburg, Germany. The s.s. *Mottisfont* is running between St. John, N.B., Halifax, N.S., and Avonmouth, Eng., the steamships *Bothwell* and *Dunbridge* between St. John, N.B., and London, and the s.s. *Bolingbroke* between St. John, N.B., London, Eng., and Hamburg, Germany.

The s.s. *Empress of Australia* will be placed in service early next summer, her first trans-Pacific sailing being scheduled to start from Hong Kong, China, June 29, for Vancouver, and her return trip from Vancouver, July 27. She is practically a new ship, having been in the builders' hands at the outbreak of war. She is one of the German steamships bought from the Reparations Commission by the C.P.R., and was originally named *Tirpitz*, her name first being changed to *Empress of China*, and finally at *Empress of Australia*. She has recently been changed to burn oil fuel, and is similar in equipment to the company's s.s. *Empress of Scotland*, also a former German ship. Her dimensions are,—length 590 ft., breadth 75.2 ft., depth 41.5 ft.; tonnage 21,400 gross. She is twin screw driven, and is expected to maintain a speed of 22 knots. She has accommodation for 410 first class, 130 second class, 330 third class, and 1,000 Asiatic steerage passengers.

The *Empress of Canada*, the C.P.R.'s new 22,000 ton ship, the trial trip of which took place early in March, has, according to a London, Eng., copyright cablegram of March 15 to the *Montreal Gazette*, been returned to the builders, for alterations, due to her alleged failure to comply with the specifications. It is said that her speed proved disappointing. The ship, which would have been the largest liner crossing the Pacific this season, has been dogged by bad luck from the start. Her completion was delayed a year by

the joiners' strike, some 300 passengers who had booked accommodation far in advance having to be disappointed. She was to cost £1,700,000 when completed by the *Fairfield Co.*, which also built the *Empress of Britain* and *Empress of Ireland*. The failure of a ship to reach its contract speed is not an altogether unusual occurrence; a celebrated instance being that of the *City of Berlin*, of the *Inman Line*, which proved to be three knots slower than other ships of the line, with which it was supposed to achieve a record speed. We have been officially advised that during the *Empress of Canada's* speed trials, some minor defects were found, which necessitated readjustment, and this will delay her sailing by about a month. It is expected that she will sail from Hong Kong, June 1.

The s.s. *Monteagle*, which arrived at Vancouver, March 12, was the first trans-Pacific steamship to reach Canada after the seamen's strike at Hong Kong, China. The strike, which seriously affected trans-Pacific shipping for several weeks, has now been settled. On the outbreak of the strike, the s.s. *Empress of Japan* was detailed to recruit crews for the company's other ships and convey them to Hong Kong, and as a result of this, the steamships *Monteagle* and *Empress of Russia* were able to secure regular crews and continue their voyages with little delay. In Nov., 1921, the Chinese Seamen's Union, under the leadership of P. S. Cham, said to have been a waiter on one of the trans-Pacific steamships, requested an increase of 30% in wages for all men earning over \$30, and 40% increase for those earning under that sum. The request was made on the statement that the cost of living had increased to \$30 a month for an average family, while the average wages for men engaged in deep sea, coastwise and river service, were \$22. The C.P.R., and other lines plying to Vancouver have been paying over \$30. The strike, which lasted about two months, had a material effect in delaying ships and reducing cargoes to North America and Europe. The strike notice served on the companies read as follows,—“To the Captain, Dear Sir, we, seamen, serving on board various steamers, in view of the high cost of living have respectfully written to our boss requesting them to favor us with an increment. Not having been able to arrive at satisfactory result we have at last turned our tendency to seeking of some other profession within 24 hours from above date.”

The British and Foreign Sailors' Society of Canada has been incorporated by Dominion letters patent, with office at Toronto, the incorporators being James Craig, ex-judge of the Yukon Territorial Court; Dr. A. A. McDonald, Dr. H. A. Beatty, B. L. Smith, Manager, Royal Trust Co., and Sir Frederick Stupart, all of Toronto. Its aims are to assist naval and merchant marine veterans' associations and to aid shipwrecked mariners, needy sailors and the relatives of needy seafaring men applying for relief; to give expression to Canada's practical interest in all who serve her on the sea; and to co-operate as a self governing and self sustaining organization with the British and Foreign Sailors' Society of London, Eng.

Ice Conditions on the Great Lakes.

The U.S. Agriculture Department Weather Bureau office at Detroit, Mich., issued the following March 14:—Reports from the regular and display stations of the U.S. Weather Bureau and Canadian Meteorological Service furnish the data for the following summary of the several lakes.

Lake Superior.—The ice in Duluth-Superior harbor ranges about 24.5 in. thick and is covered with slush; the field in the lake extends out five miles beyond Two Harbors; moving fields of ice extend beyond vision from Portage Canal; the field ice at Eagle Harbor extends out about one fourth mile, beyond which is open water; the ice is breaking up in Keeweenaw Bay; the ice fields from Grand Marais, Mich., to Whitefish Point are moving with the wind; Whitefish Bay continues solid with snow covering, which is fast melting; at Sault Ste. Marie, the ice is 14 in. thick and wearing away; snow covering is melting rapidly; the harbors in Chequamegon Bay and Thunder Bay are solid.

Lake Michigan.—The ice in Green Bay at Escanaba is about 26 in. thick, 24 in. at Menominee and 15 in. at Green Bay; ice is covered with melted snow slush. In Lake Michigan, no ice is reported along the west or south shore nor up the east shore to North Manitou Island; from Charlevoix northward to the Straits the ice remains solid and reported not moving except off Charlevoix and Beaver Island. At the Straits, the ice averages 12 to 20 in. thick and is firm; over the shoal places, the ice is much thicker.

Lake Huron.—There are a few fields of moving ice over the northern portion; in Thunder Bay the ice extends out half a mile; in Saginaw Bay the ice continues firm; no fields reported over the southern portion; those along the east shore are breaking up and disappearing; St. Clair River reported open.

Lake St. Clair and Detroit River.—The ice is breaking up and moving out of Lake St. Clair and much open water was visible March 12; the ice has been running freely in the river during the week and will soon be out of the lake.

Lake Erie.—The fields are broken up and moving with the wind and are small over the west portion east of the Islands; from Erie east to Buffalo along the east shore the fields are extensive and moving slowly with the wind. No ice is reported along south shore from Huron to east of Fairport.

Lake Ontario.—There is but little ice reported in the lake and that is confined to the extreme east portion; the ice in the harbors is breaking up except at the extreme east end. The ice continues solid at Ogdensburg.

North Vancouver Floating Drydock.—There has been no change in the position of affairs in regard to this projected drydock, since Canadian Railway and Marine World for March, which contained very full information in regard to the matter, was issued. In response to a request for information as to the present position, the Dominion Minister of Public Works, Hon. J. H. King, wrote Canadian Railway and Marine World, March 20, as follows:—“The Burrard Drydock Co., Ltd., was notified by the Department on Dec. 30, 1921, not to proceed with, or incur any liability in connection with, the new floating dock until further advised, and the matter remains in that position today”

The First St. Lawrence River Pilot.

For over 300 years the St. Lawrence River has been the great waterway into the interior of the American continent. It was the route by which La Salle, Marquette, Joliette, Hennepin and Dul'hut penetrated to Lake Michigan, although a round about passage had to be taken up the Ottawa and Mattawa Rivers and over Lake Nipissing into Lake Huron, to avoid the hostile Indians below Lake Erie. For ocean going travel today the chief ports are Montreal and Quebec, and they show an ever increasing volume of traffic. The 1921 shipping season was a record for Montreal, a total of 807 trans-Atlantic steamships, registering a tonnage of 2,598,494, arrived at and steamed out of the port. This was 105 ships, or 556,856 tons, over the highest previous record, made in 1919. Last year also showed a large increase in the number of ships trading from Montreal to the Maritime Provinces and Newfoundland, a total of 157, registering 293,462 net tons. The trans-Atlantic ships came under many flags, British, Norwegian, American, Italian, Dutch, French, Swedish, Greek, Jugo-Slav, Spanish, Finnish and Icelandic, as well as Canadian.

The position of pilot on the St. Lawrence is therefore very important, as it is to the pilots that the route, with its rapidly increasing traffic, depends for its reputation as to safety. There are 50 licensed pilots between Montreal and Quebec and 62 between Quebec and Father Point. The taking on of the pilot is always a picturesque incident to the ocean traveler and takes an interested crowd to the ship's side. The first known pilot on the St. Lawrence was Abraham Martin, after whom the Plains of Abraham at Quebec are named. In the Jesuit Relations, he is referred to as "dit l'Ecossais" or "called the Scot," so that in addition to being the first pilot of the King of France, he was also the first known Canadian of Scotch descent. Although married to a Frenchwoman, and very possibly born in France, Abraham Martin was no doubt descended from one of the numerous soldiers of fortune who fought in the French King's army, and perhaps formed one of the Scots Guards which became famous in the days of Louis the Eleventh and plays an important part in Sir Walter Scott's romance Quentin Durward. The Plains of Abraham are named from the grant of land which Abraham Martin received from Samuel de Champlain in 1617, at the time of the settlement of Quebec. Louis Hebert, a famous first colonist of Canada, received a grant alongside at the same time. Abraham Martin undoubtedly cultivated his own farm, but apparently was also a carpenter, and took sufficient interest in shipping to get the appointment of King's Pilot.

The C.P.R., in view of its great steamship interests, has decided to erect a simple but artistic Memorial to Abraham Martin, which has been designed by Henri Hebert, the French-Canadian sculptor, who is connected with the original Louis Hebert. It is to be made of granite with a plinth crowned by a globe of the world, supported by thistles. The Lily of France, rising out of the sea, will be carved in low relief. The inscription will in both English and French, the former reading:—"This Monument recalls to the passer-by Abraham Martin, called the 'Scot,' first King's pilot on the St. Lawrence, who tilled the land on the illustrious plains which bear his name."

Mainly About Marine People.

Sir John Biles, of J. H. Biles and Co., consulting naval architects, C.P.R., London, Eng., visited Canada early in March and returned to England March 10, on the s.s. Montcalm.

W. L. McDougald, President, Montreal Harbor Commission, left Montreal, Feb. 27, for New York, whence he sailed on the s.s. Aquitania, accompanied by his wife and family, for a month's holiday in Europe.

G. M. Bosworth, Chairman, Canadian Pacific Steamships Ltd., accompanied by Mrs. Bosworth, was a passenger on the s.s. Montcalm, which sailed from St. John, N.B., March 10, for Liverpool, England.

Capt. R. C. Brown, O.B.E., heretofore Deputy Port Warden, and since the death of Capt. J. Bales, acting Port Warden, has been appointed Port Warden, Montreal. He was appointed Deputy Port

for a short business trip. They returned to England by the s.s. Montcalm, March 10.

Capt. Ralph Forrest, who died at Winnipeg at the end of February, aged 38, was a well known navigator on Lake Winnipeg, and was first officer of the s.s. Premier, which was burnt at Warrens Landing in 1908. He had also sailed ships on the Peace River, from Hudson Hope to Fort Vermilion, and for some time after, served on steamships on the Great Lakes between Fort William, Ont., and Cleveland, Ohio. He returned to Winnipeg recently after five years service on inland water transportation in Mesopotamia and India.

E. Hawken, Assistant Deputy Minister of Marine and Fisheries, and Frank McDonnell, Chairman, Board of Steamship Inspection, left Ottawa, March 9, for England, on official business.

Alex Johnston, Deputy Minister of Marine and Fisheries, is stated in a press report as likely to resign and to re-enter the British Empire Steel Corporation's service, but Canadian Rail and Marine World has been unable to obtain either confirmation or denial of the report. Mr. Johnston resigned his position as Deputy Minister in Oct. 1920, to enter the British Empire Steel Corporation's service, presumably as Assistant to the President, but returned to the Department on March 1, 1921, when he was reinstated in his former position.

Francis King, M.A., K.C., of Kingston, Ont., Counsel, Dominion Marine Association, has been elected President of the Ontario Bar Association.

Capt. J. F. Lindsay, who has been appointed Deputy Port Warden, Montreal, has been engaged in seafaring life for about 30 years, and settled in Halifax, N.S., in 1913. He served with the Royal Naval Reserve on special duties during the war and retired with the rank of Commander. Latterly, he has been in business in Halifax.

S. J. Lister, Manager, Cunard Line, Liverpool, Eng., who is visiting points in North America reached by his line, was in Montreal, March 11, and made an inspection trip over the harbor.

C. H. Nicholson, Manager, Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C., has been elected Honorary President, Vancouver Golf and Country Club.

J. W. Norcross, President, Canada Steamship Lines, Montreal, sailed on the White Star Line s.s. Olympic, from New York, March 11, for Southampton, Eng.

Sir Thomas Royden, Deputy Chairman, has been elected Chairman, Cunard Steamship Co., vice Sir Alfred Booth, who has resigned on account of continued ill health. Sir Percy Bates has been elected Deputy Chairman.

Capt. C. Troop, who died in London, Eng., recently was on old time captain, having entered C.P.R. service in 1903, and served at different times on that company's steamships Montezuma, Assiniboia, Mount Royal and Princess Charlotte, and later as Superintendent at Millwall Dock, London, Eng., before retiring on pension.

Senator L. C. Webster, President, Webster Steamship Co., has resigned from the Mount Royal Hotel Co's. directorate at Montreal.



Tom Ranger Enderby,
Operating Manager, Canada Steamship Lines, and
President, Dominion Marine Association.

Warden Apr. 12, 1920, after having been for 7 years captain of the Anchor-Donaldson Line's s.s. Cassandra. He commenced his seafaring life in 1888 on a sailing ship out of Glasgow, Scotland, qualified as second officer in 1893, and as master in 1896. He entered Donaldson Line's service in 1897 and in 1904 was in charge of that company's s.s. Solacia. He afterwards had command of the same company's steamships Concordia and Orthia, and in 1913 was transferred to the Anchor-Donaldson Line's s.s. Cassandra. He commanded this ship throughout the war and was engaged in conveying troops and war materials, for which he was given the Order of the British Empire.

Sir Thomas Fisher, K.B.E., General Manager, Canadian Pacific Steamships, Ltd., London, Eng., arrived at St. John, N.B., by the C.P.R. s.s. Minnedosa, on Feb. 27, accompanied by Lady Fisher,

Atlantic and Pacific Oceans.

The Canadian-Australian Line's s.s. Makuro, which arrived at Vancouver recently, had, as part of her cargo, 14,200 sheep carcasses and 5,000 tons of butter.

The Jamaican Government is reported to be considering making Kingston a free port of call, to attract ships passing between the Atlantic and the Pacific Oceans, via the Panama Canal.

The Holland-America Line announces that the s.s. Soestdyk, which sailed from Rotterdam, Holland, March 14, for Newport News, Baltimore, Philadelphia and Boston, will call at St. John, N.B.

The Anchor-Donaldson Line's s.s. Orithia arrived at Halifax, N.S., March 12 in a damaged condition, having burst a steam pipe. The extent of the damage was not stated, but as she is to be dry-docked it was probably extensive.

The s.s. Cathay, the first of the four ships bought by Canadian Robert Dollar Steamship Co., from the U.S. Shipping Board, as mentioned in our last issue, sailed from Vancouver, B.C., for the Orient, Feb. 28. It is stated that on her return to Vancouver, she will be renamed Diana Dollar.

The Admiral Line's trans-Pacific sailings for the summer from Seattle, Wash., and Victoria, B.C., for Japan, China and Manila, commenced March 4, and are arranged fortnightly, the steamships Wenatchee, Bay State, Keystone State, Silver State and Pine Tree State being used.

The Royal Mail Steam Packet Co.'s motorship Loch Katrine arrived at Vancouver, B.C., from England, during March, and the second ship of the same type, named Loch Gail, is expected to be on the route early in the summer. They have each about 13,500 d.w. tons capacity, and are a little over 500 ft. long.

The Norwegian s.s. Grontoft is believed to have foundered at sea with all hands. Wireless messages were received at the Naval Service Department's Cape Race station, to the effect that the s.s. Estonia had responded to the Grontoft's call for help, and it transpired later, that when the Estonia arrived at the point indicated by the wireless messages, there was no trace of either the ship or the crew.

The Anchor-Donaldson Line's s.s. Athenia, which has been built at Glasgow, Scotland, for service between Glasgow and Montreal, is of the shelter deck type, with straight stem and cruiser stern. Her principal dimensions are,—length 520 ft., breadth 66 ft., depth 42 ft., loaded draft 27 ft. 8 in., tonnage, 12,000 gross. The propelling machinery consists of two sets of Brown-Curtis double reduction geared turbines, with all the latest appliances to ensure steady running and freedom from vibration. Steam is supplied at 210 lb. working pressure, by 3 double ended and 2 single ended boilers, equipped to burn oil fuel. Accommodation is provided on the bridge deck amidships for 354 cabin passengers, arranged in 1, 2 and 4 berth rooms, and on the shelter deck amidships there is accommodation for 162 cabin passengers. The third class passengers will be accommodated on the upper and main decks in 2 and 4 berth rooms. The dining room is on the upper deck, the full width of the ship, and has seating accommodation for 264 persons. Lounges, nursery, drawing room, smoke room and verandah cafe are arranged on the promenade deck.

Maritime Provinces and Newfoundland.

The St. John, N.B., harbor revenue for February, was \$26,400, compared with \$19,200 for Feb. 1921. Top wharfage contributed largely to the revenue, and grain was the chief outward cargo. We have been officially advised that there is no truth in the report.

A Fredericton, N.B., report states that the C.P.R. is planning to place a steamboat service on the St. John River. Canadian Railway and Marine World is officially advised that there is no foundation for the report.

The Reid Newfoundland Co.'s s.s. Portia was drydocked at the company's yards, St. John's, Nfld., early in March for a complete overhauling, cleaning and painting. While this was being done, her place on the route between St. John's and Argentia was taken by the s.s. Malakoff.

The Newfoundland sealing fleet of nine ships, viz., Terra Nova, Eagle, Ranger, Viking, Neptune, Thetis, Diana, Seal and Sagona, sailed from St. John's early in March with 1,300 men, for the north, on the annual sealing expedition. An effort is being made to have an aeroplane conduct observations for the fleet.

The three survivors of the crew of the Newfoundland schooner J. N. Rafuse, which was abandoned at sea Feb. 20, arrived at St. John, N.B., on the C.P.R. s.s. Melita, March 14, on their way to Newfoundland. Three members of the crew lost their lives, and the remaining three were picked up by the s.s. Terrier, and taken to Liverpool, Eng., where they shipped for home.

Province of Quebec.

The Lachine Canal was drained March 18 for the usual annual repairs prior to the reopening of navigation.

The depth of water reported in the ship channel at Montreal, March 15, was 41 ft. 3 in., compared with 45 ft. 8 in. on the same date in 1921.

Gaspe Coast Co.'s representatives appeared before the Quebec Board of Trade council recently, asking that the Government be urged to grant a subsidy for steamship services by the s.s. Brumath.

The Quebec premier stated in the Legislative Assembly recently, that a subsidy of \$25,000 had been granted to the Clarke Steamship Co. for carrying fish on the north and south shores, under a written contract, which had been fulfilled. Other requests had been made for

similar grants, but the Government decided that it could not give grants to all, and therefore gave it to the company which seemed to give the best service.

The Montreal harbor sheds have all been allocated to the various shipping companies using the port, for this year. The Cunard, Anchor-Donaldson and Donaldson-Thomson Lines have leased shed 24, used last year by Canadian Government Merchant Marine, in addition to the 4 they used last year. The C.P.R. in addition to the 4 used last year, have leased shed 19, used formerly by Canada Steamship Lines, and which has transferred to shed 18. The White Star-Dominion Line will use sheds 4 and 6, Canadian Government Marine, sheds 12, 14 and 25, and Furness Withy and Co., sheds 16 and 17. Other companies which will use their previous locations are: Hudson's Bay Co., Elder Dempster and Co., New Zealand Shipping Co., Head Line, Houston Line. The Ellerman-Bucknall Steamship Co. will use shed 47 for its service to Java and India.

The Admiralty Court decided at Quebec, Que., March 6, that the s.s. Bella, then in drydock at Levis, should be returned to A. Johnson, New York, who claims ownership. It appears that he bought the ship in New York in 1919, and placed her in drydock, while he went to Europe. On his return he found that she had disappeared, and it transpired subsequently that she had been sold by auction for wharfage dues alleged to have been a charge against her before he assumed ownership. The new purchaser was W. J. Thomson, Quebec, Que., who paid \$1,560 for her and took her to Levis, where repairs and alterations were made at an approximate cost of \$10,000. Application was made to have the sale by auction nullified, and a writ of seizure was served on W. J. Thomson, with the result stated, no allowance being made for the amount spent on repairs and alterations.

Ontario and the Great Lakes.

The Pere Marquette Rd. car ferry Bessemer arrived at Port Stanley, March 15 from Conneaut, Ohio, loaded with coal, this being her first trip this year. Lake Erie was reported to be comparatively free of ice.

The Howe Fish Co.'s s.s. Glen Erie was considerably damaged by fire at Port Stanley, March 14. She was built there in 1918, and is screw driven by engine of 20 h.p. Her dimensions are,—length 68.5 ft., breadth 17.2 ft., depth 7.4 ft., tonnage 37 gross 18 net.

The U.S. lighthouse service has announced that the light on the St. Clair

Ships Added to and Deducted From the Canadian Register During December, 1921.

Added.	Steam.—Tonnage—			Sailing.—Tonnage—		
	No.	Gross	Net	No.	Gross	Net
Built in British Possessions	9	13,117	7,987	2	109	109
Purchased from foreigners	1	20	13	1	143	128
Transferred from U.K. ports	1	4,903	2,673	.....	.....	.....
Registered anew	2	147	103	.....	.....	.....
Totals.....	13	18,187	10,776	3	252	237
Deducted.						
Wrecked or otherwise lost	6	1,970	1,182	11	2,201	1,968
Broken up or unfit for use	5	168	108	5	391	373
Sold to foreigners .....	.....	.....	.....	1	430	382
Transferred to U.K. ports	2	3,996	2,469	.....	.....	.....
Transferred to British Possessions .....	.....	.....	.....	2	250	235
Registered anew	1	110	75	2	55	55
Totals.....	14	6,244	3,834	21	3,327	3,013

lightship is to be changed on the re-opening of navigation to a 230 c.p. light, 35 ft. above the water line, and visible for 13 miles. There will be a flash of 9.3 sec., every 3 sec. As a daymark, there will be a new lantern deck gallery railing.

Chicago Steamship Lines, Inc., has written the Montreal Chamber of Commerce that it proposes to inaugurate a steamship service between Chicago and New York, calling at Montreal, utilizing four or five steamships in the service, and requesting the views of the members as to the prospects for such a service.

The Niagara, St. Catharines and Toronto Navigation Co.'s steamships Dalhousie City and Northumberland have been having a thorough overhauling during the winter, and it is expected, at the time of writing (March 18), that the Dalhousie City will be able, owing to the favorable weather, to make her first trip to Toronto, before the end of March. E. W. Oliver, General Superintendent, is reported to have stated that conditions for a good season are favorable.

A deputation of residents of Belleville, Picton and Kingston, waited on the Minister of Public Works and Highways at Toronto, March 14, requesting that the ferry between Adolphustown and Glenora be taken over by the Government and operated as part of the provincial highways system. It was pointed out to the deputation that the Department has no powers to operate ferries, the provincial highways system, as at present constituted, being concerned only with highways and bridges.

British Columbia and Pacific Coast.

The Neptune Association, of the U.S., has given notice that the pilot ship King and Winge, stationed off Cape Flattery, has been withdrawn, and the pilot service heretofore rendered by it, discontinued.

The C.P.R. British Columbia Coast Service resumed service on the route from Vancouver to Ocean Falls and Prince Rupert, March 1, with the s.s. Princess Beatrice. The service is weekly, and calls are made at Campbell River, Alert Bay, Namu, Ocean Falls, East Bella Bella, Swanson Bay, Butedale and Prince Rupert.

The Imperial Oil s.s. Talaralite, which has been laid up at Ioco, B.C., for some months, was scheduled to go into drydock at Esquimalt recently, after a trip to Victoria, thence to Prince Rupert, and return to Esquimalt. It is stated that after examination and overhaul in drydock, she will be towed to the Atlantic coast, via the Panama Canal, by the company's s.s. Calgarolite.

Owing to an accident to the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince John, towards the end of February, the balance of her trip from Vancouver to Prince Rupert was cancelled, and the balance of her schedule was taken up by the company's s.s. Prince Albert, completing the Prince John's unfinished trip, and sailing from Vancouver, March 10, for Prince Rupert.

The gasoline tug M.T. No. 3, owned in Victoria, B.C., was completely burned at the Great Northern docks there, at the end of February. The loss is estimated at \$10,000 with no insurance. She was built at Tacoma, Wash., 1908, and originally named Vixen. Her dimensions were: length 46.4 ft., breadth 12.6

ft., depth 4 ft., tonnage 15 gross, 10 net, and she was screw driven by engine of 3 h.p.

The Admiral Line's s.s. Admiral Farragut was libelled recently on behalf of Capt. C. H. Cates, on a claim of \$26,000 for services rendered the ship when she broke from the ways at the Wallace Shipbuilding and Drydock Co.'s plant at North Vancouver, and floated down the inlet with her seacocks open. The Admiral Farragut, at the time of the mishap, was being docked at the Wallace Co.'s plant, for overhaul and repair, the contract having been awarded to the company in January, for \$63,500.

The steam tug Dauntless, owned by E. J. Coyle Towing Co., Vancouver, which ran ashore at Broughton Island, and sank in 28 fathoms, Jan. 24, was raised, March 7, by Vancouver Dredging and Salvaging Co., and taken to Wallace Shipbuilding and Drydock Co.'s plant, for examination.

The old Japanese s.s. Togo Maru's wooden hull was sold recently, to L. G. Marpole, Vancouver. The boat was built at Berven Island by Japanese in 1904, her dimensions being: length 48 ft., breadth 12 ft., tonnage, 30 gross, 24 net. She was originally a sailing ship, and had a gasoline engine installed later, but this was removed some time ago. It is said to be the new owner's intention to install a gasoline engine of about 50 h.p., and to operate her out of Prince Rupert.

Vancouver Pilots Ltd., the incorporation of which was announced in our last issue, has bought the motor boat Andante, for operation between Vancouver and William Head, in connection with its pilotage service. The Andante was built at Vancouver in 1911, her dimensions being: length 31.6 ft., breadth 9.1 ft., depth 4.2 ft.; tonnage, 10 gross, 7 net. She is screw driven by engine of 1 1/5 h.p. Capt. B. L. Johnston, D.S.O., is Secretary of the company, which is operating a complete pilotage service from Vancouver.

A ferry service will, it is stated, be established between Sidney, B.C., and Anacortes, Wash., early in May, chiefly to handle the automobile traffic. The Harvester King is reported to have been bought in Anacortes, for the service, and it is said to be the intention to run one round trip a day for 5 days, and 2 round trips on Saturday and Sunday, each week. The single trip between the two points will take about 3 hours, and the charge for an automobile and five passengers will be \$16 for the round trip.

The Mexican State Steamship Line is reported to be enquiring as to the prospects for the establishment of a steamship line between Vancouver and Mexican ports. The company has been operating steamships from Salina Cruz to San Francisco for some time, and it wishes to extend the service, if the statistics asked for from the Vancouver Board of Trade, indicate prospects of sufficient business. Several years ago a service was given by the Canadian-Mexican Steamship Line, between Vancouver and Salina Cruz, in connection with the Tehuantepec Ry., which crosses the Tehuantepec Isthmus to Puerto Mexico, where transshipment was made to trans-Atlantic steamships. General conditions in Mexico, and the opening of the Panama Canal, however, tended to decrease the amount of business by this route, and the service was subsequently given up.

Canada—British West Indies Steamship Service.

In connection with the renewal for two years of the subsidy of \$340,666.66 to the Royal Mail Steam Packet Co. for a fortnightly service from St. John, N.B., and Halifax, N.S., to Bermuda, St. Kitts, Antigua, Montserrat, Dominica, St. Lucia, Barbadoes, St. Vincent, Grenada, Trinidad and Demerara, full particulars of which were given in Canadian Railway and Marine World for March, a correspondent writes:—"Possibly to the uninitiated, the subsidy may sound a large one, but the West Indian trade is subject to considerable fluctuation and calls have to be made at a number of small places, which are, from shipowners' point of view, unremunerative. Four combined passenger and freight steamships are engaged in the business, three of which are about 5,000 tons gross, the fourth being 4,000 tons. The passenger and freight rates are controlled by the Trade and Commerce Department. At not less than eight of the 11 ports touched at in the West Indies, it is necessary to lighter the cargo ashore, as there are no dock facilities, and in any case large steamships cannot approach very near the land. The cost of lighterage on south-bound cargo has to be borne by the shipowner. There has been a marked development in the export business from Canada, and the Royal Mail Steam Packet Co.'s tonnage is now supplemented by the Canadian Government Merchant Marine, to the presence of which in the trade the Royal Mail Steam Packet Co. objects."

In reference to the Dominion Government's order in council authorizing an agreement with the Royal Mail Steam Packet Co., for renewal of its previous contract for two years, from March 31, 1922, to March 31, 1924, we were officially advised from Ottawa on March 2 that all the West Indian islands had been notified in regard to the matter, as well as the Royal Mail Steam Packet Co., that nothing had then been heard from any of the islands and that the company's Canadian representative had transmitted the proposal to London, England, but that the contract had not been signed.

British Columbia—Jamaica—United Kingdom Steamship Services.

Canadian Trade Commissioner G. R. Stevens has written from Kingston, Jamaica, as follows:—"The Royal Mail Steam Packet Co., at present operating a service between British Columbia and the United Kingdom, are considering Kingston as a port of call upon this service. This colony is almost directly upon the trade route to the Panama Canal, and if sufficient cargo offers, it is possible that British Columbia will shortly enjoy this direct connection with the Eastern Caribbean. In this event, Jamaica will be enabled to enter Vancouver as a competitor of Fiji with her raw sugar, and British Columbia exporters of flour, fish and lumber will be granted access to a market which has long been a monopoly for the eastern exporters. The Canadian commodities which would be most largely affected by such an innovation would be Douglas fir timber, canned fish, and flour."

World Shipbuilding in 1921.

Lloyd's Register of Shipping reports during 1921, the total output of shipping throughout the world, aggregated 4,341,679 tons, a decrease of 1,520,000 tons from 1920, but over 1,000,000 tons greater than for 1913, when the pre-war record output was reached. The percentage of this output pertaining to the United Kingdom was practically the same as in 1920, viz., 35%, compared with 58% in 1913. Steam turbines were applied to 167 ships, having a total of 1,195,000 tons, and internal combustion engines were applied to 306,000 tons of shipping, compared with 156,000 in 1919. The total tonnage launched during the four years, 1918-1921, was nearly 23,000,000 tons, considerably higher than the total output for the nine years, 1905-1913.

During 1921, the United Kingdom launched 371 steamships, with a total of 1,429,757 tons, 28 motorships, with a total of 102,356 tons, and 27 barges with a total of 5,939 tons. All of these ships were of steel, with the exception of 3 forced concrete of 300 tons. No sailing wood ships of 1,273 tons, and 1 of reinships were launched in the U.K. during the year. The 1921 figures were 517,512 tons lower than for 1920, which constituted a record, and were about 35.5% of the world's output for 1921, compared with 58% for 1913.

Of the U.K. output, 946,182 tons were for registration in the U.K., and 591,870 tons were for owners abroad, this representing about 38.5%, which, while lower than for 1920, compared with 22.3% for the five years immediately preceding the war. Of the U.K. foreign tonnage, 134,551 tons were for Norwegian owners, 127,854 for French owners, 123,811 for Dutch owners and 66,373 tons for owners in the British Dominions. Twenty-four ships of 10,000 tons and over were launched, among which was the C.P.R. s.s. Montclare, 16,400 tons, which was one of the 10 largest launched.

The total tonnage launched in British Dominions during 1921 was 129,675 tons, about 74,000 less than in 1920. Of this total, 78,420 tons were launched in Canada, less than half the output of the previous year.

The U.S. launched 1,008,413 tons, or 1,469,840 tons less than in 1920, and over 3,000,000 tons less than in 1919.

H.M.S. Shearwater is being offered for sale by tender to Apr. 10, by the Naval Service Department, as she lies at Halifax, N.S., for breaking up only. She is built of steel, wood sheathed, and equipped with a single screw, two bladed propeller, triple expansion, inverted, surface condensing, reciprocating engines of 260 lb. a sq. in., electric light, evaporators, distilling plant, Weir's feed pumps, etc. Her dimensions are,—length 200 ft., beam 33 ft., draft 12 ft. 5 in. She has a displacement of 980 tons.

C.P.R. Great Lakes Steamship Service.—Reference was made in Canadian Railway and Marine World for March, to a Port Arthur, Ont., newspaper dispatch, which stated that the C.P.R. proposed building a new steamship for its upper lakes service, and though we had no official advice on the matter, we indicated the unlikelihood of the report. We have since been officially advised that the press dispatch was absolutely without foundation, and the management cannot understand how such a report became current.

Canadian Government Merchant Marine, Operation, Etc.

Officers of Steamships. The following captains have been appointed in addition to those mentioned in previous issues.—Canadian Coaster, Captain W. E. Baker, formerly on s.s. Canadian Warrior, vice Capt. J. H. Hubley transferred to Canadian Warrior; Canadian Mariner, Captain J. E. Faulkner, vice Capt. G. B. Leonard; Canadian Warrior, Captain J. H. Hubley, formerly on s.s. Canadian Coaster, vice Capt. W. A. Baker transferred to s.s. Canadian Coaster.

The s.s. Canadian Navigator, which arrived at St. John, N.B., from London, Eng., Feb. 24, sailed again from St. John, Feb. 28, for Halifax, N.S., for inspection. She was reported the same day to have become disabled about 10 miles n 77 w, off Boar's Head Light. She returned, partly under her own steam and with the assistance of the tug Gopher to St. John, where temporary repairs were made, and she then proceeded to Halifax, where arrangements had been made for her to drydock. The accident was only an ordinary one, the h.p. cylinder cover being fractured.

Mediterranean Service. In connection with the information on this subject given in Canadian Railway and Marine World for March on pg. 166, we are officially advised that E. G. Laing, who has been sent as special representative, with headquarters at Naples, was for nine years on the G.T.R. staff in London, Eng., and latterly has been chief clerk to the European Manager in London. St. John, N.B., Sailings.

For Liverpool Canadian Seigneur, April 8; Canadian Commander, April 22.

For London Canadian Rancher, April 4; Canadian Trapper, April 18.

For Glasgow Canadian Runner, April 12; Canadian Carrier, April 26.

For Cardiff and Swansea, Canadian Aviator, April 19. Halifax, N.S., Sailings.

For Australia and New Zealand, Canadian Mariner, April 27.

For Barbados, Trinidad and Demerara, Canadian Harvester, April 7; Canadian Coaster, April 21.

For Nassau, Kingston and Belize, Canadian Forester, April 19.

For Newfoundland Canadian Sapper, March 30, and each 12 days thereafter.

Nautical Assessors Recommended.—The Dominion Marine Association has recommended the following captains as qualified to act as nautical assessors in investigations by the Dominion Wreck Commissioner:—A. E. Mathews, Mathews Steamship Co., Toronto; W. J. Bassett, Toronto; W. J. Mole, Toronto; Jas. Foote, Toronto; Jno. Williams, Toronto; H. King, examiner, etc., Toronto; Geo. Batten, Kingston, Ont.; Chas. Martin, Kingston, Ont.; Arthur Lefebvre, Valleyfield, Que.; R. D. Foote, Point Edward, Que.; Ben Garvey, Point Edward, Que.; J. McNab, Sarnia, Ont.; L. Morrison, Corunna, Ont.; G. T. Cross, Superintendent, Imperial Oil Ltd., Sarnia, Ont.; R. Alexander, real estate agent, Sarnia, Ont.; and Jno. Burney, Courtright, Ont.

Hospital Dues on Ships.—The Dominion Marine Association is urging amendment of the Canada Shipping Act, with reference to the imposition of hospital taxes upon ships entering Quebec ports,

and it is at least hoped to obtain partial relief by the exemption from these taxes, of ships from the U. S. side of the Great Lakes, so that they, as well as the ships from Ontario, which are already exempt, would enter Quebec free. The result would be freedom of Quebec ships when they enter U. S. ports on the southern side of the Great Lakes, where they are now subject to a heavy tonnage tax which is imposed on ships of any country in the ports of which U. S. tonnage suffers taxation. Ontario ships entering U. S. ports, and U. S. ships entering Ontario ports are free of this tax.

The largest floating drydock in the world is said to be now owned by the London & South Western Ry. of England, having been bought from the British Government. It was stationed formerly at Blohm and Voss' shipbuilding yards, Hamburg, Germany, and was handed over to the British Government, under the reparations agreement, in connection with the sinking of German warships, by Germans, at Scapa Flow, Scotland, after surrender. The dock is in three parts, and is equipped with some unique machinery. She will be stationed at Southampton, Eng., where she will be utilized for repair work on the largest British steamships.

Ice Conditions in St. Lawrence River.—Reports on ice conditions in the St. Lawrence, March 15, indicated that there was little prospect of any navigation in Montreal harbor before April 15. It was reported that the river was frozen across for about 100 miles between Quebec and Montreal, while in normal seasons it is not frozen across for more than 65 miles. This will cause considerably more work for the icebreakers than usual, and the opening of the channel is not expected for less than a fortnight after last year's date, which was March 31.

The icebreaking steamship J. D. Hazen, the purchase of which is being considered by the Dominion Government, for operation in the St. Lawrence River, as mentioned in our last issue, is still at Cherbourg, France, and no information is available from the Marine Department as to the conclusion of the negotiations. We are informed, however, that the ship has been offered to the Government for \$400,000 at Cherbourg, and that this offer has been made by both the Anderson Co. of Canada, and the Hudson's Bay Co. We were officially advised, March 24, that no decision had been reached as to the purchase of the ship by the Dominion Government.

C.P.R. Transportation Agreement with Italy.—An agreement is stated to have been made between the C.P.R., the Italian State Rys., the Navigazione Generale Italiana, the Societa Italiana di Servizi Marittimi and the Lloyd Triestino. The last named company, it is stated, will place its ships at the C.P.R.'s disposal for a fortnightly service between Trieste and Montreal, calling at Naples, Messina, and Palermo, the agreement providing for direct booking between C.P.R. and Italian State Rys. stations.

Clyde Shipbuilding.—Eight steamships were launched at Clyde yards, Glasgow, Scotland, during January, aggregating 52,500 tons, which is stated as constituting a record. Nearly all of them are oil burners. During 1921, 249 ships, of 511,000 tons total, were completed on the Clyde. This was a decrease of 81 ships, and 161,000 tons from the 1920 figures.

Canada Steamship Lines' Finances.

J. W. Norcross, President, Canada Steamship Lines Ltd., who sailed for England recently, is reported to have stated in Montreal, just before leaving, that the situation in respect of the company's new financing was developing favorably, a Canadian and U.S. banking syndicate being in negotiation for the company's bonds. He is also reported to have stated that Coverdale & Colpitts, consulting engineers, New York, were conducting an investigation into the company affairs, operations and prospects, from its inception.

In connection with the recent objections on the part of certain shareholders to the continuance of the common stock voting trust vested in the advisory committee, in London, Eng., G. A. Barnard, K.C., the company's counsel, is reported to have written a shareholder as follows:—"The voting trust is a matter entirely outside of the company, and no bylaws or resolutions were ever passed or could be passed by the company in connection therewith, as the matter is in a way a company matter, but one, as already stated, of shareholders between themselves. The company has not, and never has had, any official information in connection with the voting trust, but, it is a matter of public knowledge inasmuch as the voting trust certificates have been listed and quoted on the Montreal Stock Exchange since 1914, that certain holders of ordinary shares of the company in 1914 pooled their shares, transferring them to the Royal Trust Co., which is registered on the Canada Steamship Lines' books as the holder of the shares in question, and consequently as having the right to vote on same. "The voting trust certificates listed on the Stock Exchange show that this transfer to the Royal Trust Co. was made under and in virtue of a voting trust agreement under the terms of which the vote on the shares in question was vested in the Royal Trust Co., to be exercised in such manner as the London Advisory Committee of Canada Steamship Lines would direct. The London advisory committee is named, and has always been named, by the shareholders at the annual general meeting of the company, and the names of the committee are set out in the annual printed report mailed to all the shareholders. The first voting trust expired in 1919, but, before its expiration, a second voting trust agreement was entered into under the terms of which the voting trust was extended till 1929. The matter, as already explained, is one of public knowledge since 1914, as is disclosed by the wording of the voting trust certificate issued by the Royal Trust Co."

During the visit of Mr. Norcross to London, Eng., the matter of the voting trust, it is stated, is being negotiated, with the view of assisting further financing.

A Montreal press dispatch of March 17 states that preliminary figures for 1921 indicate that the net earnings were approximately \$2,300,000, which would provide for all fixed charges and dividend on preferred stock, and leave a balance of approximately \$125,000 for common stock. The report also states that about \$500,000 was lost on the company's ocean traffic during the year, and there was also a loss of business towards the end of the St. Lawrence season on account of grain congestion at Montreal.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

6. Feb. 8.—14, Ontario, western end of Lake Erie and lower end of Detroit River, list of buoys.

7. Feb. 17.—15, British Columbia, Strait of Georgia, Fraser River entrance, Frasersmouth outer range, color of lights.

8. Feb. 23.—16, Ontario, Georgian Bay, Christian Island, light to be discontinued, Campana Shoal, spar buoy to be replaced by gas buoy. 17, Ontario, Lake Erie, Long Point Bay and adjacent coast, new edition of chart.

Reduction of Coal Rates on Lake Ontario.—A press dispatch from Kingston, Ont., March 15, stated that at a meeting of shipowners there, it had been decided to reduce freight rates 25% for the navigation season. We are advised that this reduction relates only to coal carried across Lake Ontario from points in New York State to the area roughly bounded by Cobourg and Gananoque, Ont. This traffic is carried mostly by a few steamships of the smaller sizes, and by sailing craft.

Those interested attending the meeting were Capt. Hinckley, Oswego, N.Y.; Capt. A. G. Waggoner, Alexandria Bay, N.Y.; Capt. Daryaw, Capt. C. Daryaw, Jas. Richardson & Sons, and Capt. J. F. Sowards, Kingston, Ont.

U. S. Shipments from Alaskan Ports by Canadian Lines.—In a case brought by the Territory of Alaska and the Juneau Hardware Co., Juneau, Alaska, against the Customs Collector for Alaska, recently, the U. S. Supreme Court decided at Washington, D.C., Feb. 27, that the Merchant Marine Act of 1920, known as the Jones Law, prohibits the transportation of merchandise between Alaskan and U.S. continental ports, by Canadian rail and water lines.

United States Shipbuilding.—The U.S. Bureau of Navigation reports that 69 ships, totalling 46,108 tons gross, were built in the U.S. in Dec. 1921. Of these, 10, with a total of 43,438 tons gross, were of steel, exclusive of 3 of 12,444 tons gross for foreign owners. Nine, of 43,247 tons gross, were built on the Atlantic coast; one, of 191 tons, was built on western rivers, and one, of 14,187 tons gross, was built for the U.S. Shipping Board.

Steamship North Pacific Ltd. has been incorporated under the Dominion Companies Act, with office at Montreal, and with 700 shares of no nominal or par value, provided however that it shall carry on business with a capital of \$3,500 as shipowner, carrier by land and water and general trader. The incorporators are: G. S. Stairs, J. W. P. Ritchie, L. G. Bell, B. I. Brandt, and K. M. Gladish, Montreal.

Sale of German Ships.—Lord Inchcape, Chairman, British Shipping Board, has reported to the Reparations Commission, as to the sale of the German ships allotted to Great Britain, stating that 418 ships, totalling 2,500,000 tons, have been sold, realizing over £20,000,000, and that the cost of selling them was 2s. 6d. per £100 realized, or one-eighth of 1%.

Eaton-Nelligan Shipping Co. Ltd. has been incorporated under the Dominion Companies Act, with \$100,000 authorized capital and office at Montreal, to carry on a general shipping business, and to own and operate ships.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities—Canadian Counsel, W. D. Lighthall, K.C., Montreal.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—L. E. Moreland, Hull Electric Co., Hull, Que.

Canadian Freight Association (Eastern lines)—G. C. Ransom, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Passenger Association—Eastern Lines, G. H. Webster, 54 Beaver Hall Hill, Montreal; Western Lines, E. J. Stone, 306 Union Station, Winnipeg.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club—W. A. Booth, 53 Rushbrooke St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Ticket Agents' Association. E. de la Hooke, London, Ont.

Canadian Traffic League—R. J. Fitzgerald, 4 Queen St. West, Toronto.

Dominion Marine Association—F. King, K.C., Counsel, Kingston, Ont.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, Des Moines, Iowa.

Niagara Frontier Summer Rate Committee—James Morrison, Canadian National Rys., Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, General Secretary, 263 St. James Street, Montreal; Western Operating Committee, E. J. Stone, 306 Union Station, Winnipeg.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.

Transportation Club of Toronto—W. J. Hotrum, 595 Runnymede Road, Toronto.

Transportation Club of Vancouver—C. A. Dorfler, 450 Hastings St. West, Vancouver, B.C.

Winnipeg Traffic Club—A. J. Barber, 114 Cadomin Bldg., Winnipeg, Man.

Transportation Conventions in 1922.

May 9 to 12.—Air Brake Association, Washington, D.C.; F. M. Nellis, 165 Broadway, New York, N.Y.

May 10 to 12.—American Railway Development Association, Denver, Col.; J. F. Jackson, Central of Georgia Ry., Savannah, Ga.

May 17 to 19.—Association of Railway Claim Agents, Montreal; H. D. Morris, Northern Pacific Ry., St. Paul, Minn.

May 22 to 25.—International Railway Fuel Association, Chicago, Ill.; J. G. Crawford, 702 East 51st St., Chicago, Ill.

May 23 to 26.—Master Boiler Makers Association, Chicago, Ill.; H. D. Vought, 26 Cortland St., New York.

June 1, 2.—Canadian Electric Railway Association, Quebec, Que.; L. E. Moreland, Hull, Que.

June 14 to 21.—American Railway Association, Mechanical Division, Atlantic City, N.J.; V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

June 18.—American Train Dispatchers' Association, Chicago, Ill.; C. L. Darling, 1310 Mallers Bldg., Chicago, Ill.

June 19 to 21.—American Railway Association, Purchases and Stores Division, Atlantic City, N.J.; J. P. Murphy, General Storekeeper, New York Central Rd., Collinwood, Ohio.

June 26 to 30.—American Society for Testing Materials, Atlantic City, N.J.; C. L. Warwick, University of Pennsylvania, Philadelphia, Pa.

June 28, 29.—American Association of General Baggage Agents, Minneapolis, Minn.; E. L. Duncan, 332 South Michigan Ave., Chicago, Ill.

Aug. 23 to 25.—American Association of Railroad Superintendents, Kansas City, Mo.; J. Rothschild, 400 Union Station, St. Louis, Mo.

October.—American Electric Railway Association, Chicago, Ill.; J. W. Welsh, 8 West 40th St., New York.

Oct. 17 to 19.—American Railway Bridge and Building Association, Cincinnati, Ohio; C. A. Lichty, Chicago & Northwestern Ry., 219 North Waller Ave., Chicago, Ill.

Canadian Pacific Railway—Forty-First Annual Report.

To the Shareholders:

The accounts of the Company for the year ended December 31st, 1921, show the following results:—

Gross Earnings	\$193,021,854.40
Working Expenses (including all taxes)	158,820,114.09
Net Earnings	\$34,201,740.31
Deduct Fixed Charges	11,519,071.97
Surplus	\$22,682,668.34
Contribution to Pension Fund	500,000.00
From this there has been charged a half-yearly dividend on Preference Stock of 2 per cent., paid October 1st, 1921	\$1,613,638.42
And three quarterly dividends on Ordinary Stock of 1¼ per cent. each, paid June 30th, 1921, October 1st, 1921, and December 31st, 1921	13,650,000.00
	15,263,638.42
From this there has been declared a second half-yearly dividend on Preference Stock of 2 per cent. payable April 1st, 1922	\$1,613,638.42
And a fourth quarterly dividend on Ordinary Stock of 1¼ per cent., payable April 1st, 1922	4,550,000.00
	6,163,638.42
Leaving net surplus for the year	\$755,391.50
In addition to the above dividends on Ordinary Stock, three per cent. was paid from Special Income.	
SPECIAL INCOME FOR YEAR ENDED DECEMBER 31st, 1921.	
Balance at December 31st, 1920	\$20,530,292.08
Less: Dividend paid April 1st, 1921	1,950,000.00
	\$18,580,292.08
Net Revenue from Investments and Available Resources, Exhibit "C"	2,307,332.06
Interest on Deposits, and Interest and Dividends on Other Securities less Exchange	1,840,866.51
Net Earnings Ocean and Coastal Steamship Lines	2,785,614.93
Net Earnings Commercial Telegraph and News Department, Hotels, Rentals and Miscellaneous	4,053,385.62
Less Payments to Shareholders in dividends: June 30th, 1921, October 1st, 1921, and December 31st, 1921	\$29,567,491.20
	5,850,000.00
	\$23,717,491.20
From this a dividend has been declared payable April 1st, 1922	\$1,950,000.00

2. The working expenses for the year, including all taxes, amounted to 82.28 per cent. of the gross earnings, and the net earnings to 17.72 per cent., as compared with 84.70 per cent. and 15.30 per cent. respectively in 1920.

3. The gross earnings of your transportation system during the fiscal year under review were less than those of 1920 by \$23,619,494, but the net earnings increased by \$1,048,695. The large decrease in the gross earnings is attributed to the general business depression which set in at the end of 1920 and continued practically without interruption during the fiscal year under review, to the decrease in passenger fares in January and July and in freight rates in December, and to a partial crop failure in some portions of Western Canada in areas served by your lines of railway. Of the expenses of the year, 53.84 per cent. was disbursed on account of labour, 25.92 per cent. for material and miscellaneous supplies, 15.51 per cent. for fuel and other locomotive supplies and 3.49 per cent. for taxes. The balance, 1.24 per cent., was necessary to meet Loss and Damage claims. By the exercise of the strictest economy and the deferring of work which could be postponed, especially during the early part of the year when traffic was particularly light, and by the savings effected through the reduction in wages secured in September, your Officers were able to reduce expenses to an amount in excess of the decrease in gross revenues due to the conditions already mentioned. In the circumstances, the year's operations must be regarded as satisfactory, particularly having regard to the decrease in passenger and freight rates mentioned above. The operating ratio compares most favourably with that of other Systems.

4. The sales of agricultural land in the year were 153,304 acres for \$2,872,909, being an average of \$18.74 per acre. Included in this area were 6,686 acres of irrigated land, which brought \$53.13 per acre, so that the average price for the balance was \$17.17 per acre. The sales of land in Western Canada were naturally very seriously affected by the economic conditions which prevailed during the year, resulting in a very large decrease in the acreage acquired by purchasers either from your Company or other land-owners. Your Directors are satisfied that with the adoption of reasonable immigration laws designed to encourage the entry into Canada of immigrants of the right type, you may look forward to a distinct improvement in the volume of land sales during the next few years.

5. During the year your Directors disposed in London of £4,800,000 (of which \$4,504,428 was delivered prior to December 31st), and in New York of \$25,000,000 of Four per cent. Consolidated Debenture Stock, the issuance and sale of which you had previously authorized, at prices which under the prevailing market conditions were extremely favourable, reflecting the high credit which the Company enjoys. The sale of this Stock in New York was effected in an eminently satisfactory manner, and though the Security was of a character practically unknown among American investors it received widespread and ready distribution. In order to meet the requirements of the United States market the certificates of the Debenture Stock there issued were made in bearer form with interest coupons attached, under conditions which permit of the conversion into registered Stock at the option of the holder, and you will be asked to give your sanction to By-law No. 47, Sub-section D, enacted by the Directors providing for the issue of certificates in this form.

The market for the Company's Consolidated Debenture Stock being so favourable both in the United States and in England, it was not considered desirable or necessary to create and issue bonds, debentures or other securities secured by pledge of Consolidated Debenture Stock, which you authorized at the special general meeting held on the fourth day of May of last year.

6. During the year your Directors consented to the issue of \$2,671,000 Five per cent. Consolidated Bonds of the Minneapolis, St. Paul and Sault Ste. Marie Railway Company for the purpose of making payment for the property of the Wisconsin and Northern Railway Company, the purchase of which had been arranged by the Board of the former Company. They also consented to the issue and sale of \$10,000,000 of the Minneapolis, St. Paul and Sault Ste. Marie 10-year Six and a half per cent. Notes to be secured collaterally by a portion of the \$15,000,000 First Refunding Mortgage Six per cent. Bonds which that Company had power to issue. Both

issues were made after the approval of the Interstate Commerce Commission was obtained.

In common with other American railroads, the revenues of the Minneapolis, St. Paul and Sault Ste. Marie Railway Company and its subsidiaries fell off very materially during the past year and its operations were in particular seriously affected by the United States tariff against Canadian wheat and the practical shutting down of the iron ore mines in Michigan and Minnesota. Their revenues were also adversely affected through the depression in the lumber and livestock business. In these circumstances the Directors of that Company determined upon the reduction of the Preferred and Common Stock dividends to the basis of four per cent. per annum, and in their decision your Directors have concurred. A substantial improvement in traffic conditions on the railways of your United States subsidiaries is confidently looked forward to.

7. The four steamers under construction for the Atlantic and Pacific services will all be in commission for the present season. The S.S. "Montcalm" has already been delivered, and the "Montrose" and "Montclare" and "Empress of Canada" will be delivered in April and May. The S.S. "Princess Louise," constructed for the Pacific Coast Service, has been put into service, and is in every respect satisfactory for the trade in which she is engaged. During the year the Company purchased the steamships "Kaiserin Auguste Victoria," "Prinz Friedrich Wilhelm" and "Tirpitz" for extremely low prices. The "Kaiserin Auguste Victoria" has been renamed the "Empress of Scotland," the "Prinz Friedrich Wilhelm" the "Empress of India," and the "Tirpitz" the "Empress of Australia." The two first named will be added to the Atlantic fleet and the "Empress of Australia" will be added to the Pacific fleet. The cost of the ships under construction will exceed the original estimates by a considerable sum, due to protracted labour troubles, increased cost of materials and difficulties in the ship yards during the construction period. With the addition of the new ships constructed and purchased the total tonnage of your fleet will be 438,604 tons—the largest in the history of the Company, and the fleet, in numbers and in the character of ships in service, is in the opinion of your Directors amply able to maintain the high reputation of the Company on Atlantic, Pacific and coastal routes.

8. In anticipation of your confirmation your Directors authorized capital appropriations, in addition to those approved at the last annual meeting, aggregating for the year 1921, \$1,743,444, and ask your approval to expenditures on capital account during the present year, as and when the conditions warrant such expenditures, of \$10,622,137. Of this amount the principal items are:—

Replacement and enlargement of structures in permanent form	\$1,021,700
Additional stations, round houses, freight sheds and shops, and extensions to existing buildings	1,008,200
Tie plates, rail anchors, ballasting, ditching and miscellaneous roadway betterments	243,200
Replacement of rail in main and branch line tracks with heavier section	1,500,700
Additional terminal and side track accommodation	431,500
New Pier "BC" at Vancouver	1,550,000
Extension work on Chateau Frontenac Hotel, Quebec	1,454,500
Additional lining, Connaught Tunnel	550,000
Mechanical Department, machinery at various points	439,000
Improvements to plant and machinery, Angus Shops	218,400
Improvements in connection with Telegraph service	291,400
Line Diversion at Port McNicoll	355,600
LaSalle Loop Line, South Bank Branch, Montreal	300,000
Line Diversion at Kingston Jct.	100,000

The balance of the amount is required for miscellaneous works to improve facilities and effect economies over the whole system.

Your Directors feel that expenditures, for the first part of the year at all events, should be made with exceptional care in view of the existing traffic conditions and have therefore only authorized expenditures to the amount of \$3,958,770, more than \$3,000,000 of which is for the continuance of the work on the Chateau Frontenac and the new pier at Vancouver which has already been commenced.

9. At the request of the Government of Alberta your Directors have entered into an agreement for the construction and operation of an extension of the Central Canada Railway for twenty-five miles westerly from Peace River Landing to Berwyn. The terms of the agreement for operation are similar to those of the existing agreement between the Government, the stockholders of the Edmonton, Dunvegan and British Columbia and the Central Canada Railway Companies and the Union Bank of Canada, under which the properties of the two companies are operated by your Company. The cost of the construction of the extension is, of course, to be borne by the Province of Alberta.

10. As intimated in the last annual report your Directors entered into an agreement with the Province of Quebec for the construction by your subsidiary, the Interprovincial and James Bay Railway Company, of a railway extending from Kipawa to the Des Quinze River, having a total mileage of approximately seventy-seven miles. The lease of the railways of that Company to your Company on the usual terms will be submitted for your approval.

11. Your Directors have authorized the preparation and erection of a bronze memorial statue to those in the Company's service who lost their lives in the Great War. The statue will be erected in the Windsor Station, Montreal, and replicas placed at Winnipeg and Vancouver. In addition, bronze plaques have been prepared for placing in the principal stations and offices of the Company from London to Hong Kong. Your Directors feel that the heroism, self sacrifice and high sense of duty which the Company's employees showed should be perpetuated in a prominent way throughout the System.

12. The death occurred on the 29th of November last at his home, Brocket Hall, Hatfield, Hertfordshire, of the Right Honourable Lord Mount Stephen, the first President of the Company, in the ninety-third year of his age. Lord Mount Stephen was President from the incorporation of the Company in the year 1881 until August, 1888, and thereafter remained a director until May, 1893, when, finding himself unable to discharge the duties of a director to his own satisfaction owing to his absence from Canada, he retired from the Board. Lord Mount Stephen had been the master spirit of the enterprise from its beginning, and its safe conduct through its earlier perils to the strong and proud position it occupied when he retired from the Presidency was almost entirely due to his great ability, courage, tenacity and inspiring integrity. Your Directors recorded their appreciation of his services by a resolution upon the occasion of his retirement and as a memorial of the lasting benefit to the Company of his invaluable services have also recorded upon their minutes a renewed expression of the Board's appreciation of that service, together with an expression of their profound regret at his removal by death.

13. The undermentioned Directors will retire from office at the approaching Annual Meeting. They are eligible for re-election:—

Right Hon. Lord Shaughnessy, K.C.V.O. Mr. J. K. L. Ross,
Sir Thomas Skinner, Bart.
Montreal, March 13th, 1922. For the Directors, E. W. BEATTY, President.

GENERAL BALANCE SHEET, DECEMBER 31st, 1921.

ASSETS.

Property Investment:	
Railway, Rolling Stock Equipment and Lake and River Steamers	\$597,206,336.77
Ocean and Coastal Steamships, Exhibit "A"	56,470,503.16
Acquired Securities (Cost):	
Exhibit "B"	128,109,814.18
Advances to Controlled Properties and Insurance Premiums	9,762,633.55
Investments and Available Resources:	
(Including amount held in trust for 6% Note Certificates, \$60,155,819.31)	
Deferred Payments on Lands and Townsites	\$69,296,736.90
Imperial and Dominion Government Securities	27,310,674.54
Provincial and Municipal Securities	2,016,721.29
Debt Stock in Treasury	7,000,000.00
Miscellaneous Investments, Exhibit "C,"	
Cost	38,356,459.66
Assets in Lands and Properties, Exhibit "D"	91,962,630.15
Cash	5,322,968.14
	241,266,190.68
Working Assets:	
Material and Supplies on Hand	\$32,997,116.59
Agents' and Conductors' Balances	3,440,114.17
Net Traffic Balances	860,757.79
Imperial, Dominion and United States Governments, Accounts due for Transportation, etc.	1,681,377.24
Miscellaneous Accounts Receivable	7,611,456.73
Cash in Hand	45,318,948.06
	91,909,770.58
	\$1,124,725,248.92

LIABILITIES

Capital Stock:	
Ordinary Stock	\$260,000,000.00
Four Per Cent. Preference Stock	80,681,921.12
	\$340,681,921.12
Four Per Cent. Consolidated Debenture Stock	238,206,431.68
Mortgage Bonds:	
Algoma Branch 1st Mortgage 5 per cent.	3,650,000.00
Note Certificates 6 Per Cent.	52,000,000.00
Current:	
Audited Vouchers	9,406,442.66
Pay Rolls	3,419,137.53
Miscellaneous Accounts Payable	12,589,518.89
	25,415,099.08
Accrued:	
Rentals of Leased Lines and Coupons on Mortgage Bonds	690,882.43
Equipment Obligations	16,610,000.00
Reserves and Appropriations:	
Equipment Replacement	10,780,419.91
Steamship Replacement	19,185,401.96
Reserve Fund for Contingencies and for Contingent Taxes	46,638,047.51
	76,603,869.38
Premium on Ordinary Capital Stock Sold	45,000,000.00
Net Proceeds Lands and Townsites	93,798,267.39
Surplus Revenue From Operation	128,481,119.85
Special Reserve to Meet Taxes Imposed by Dominion Government	2,597,888.76
Surplus in Other Assets	100,989,769.23
	\$1,124,725,248.92

Auditors' Certificate. J. LESLIE, Comptroller.
We have examined the Books and Records of the Canadian Pacific Railway Co. for the year ending December 31st, 1921, and having compared the annexed Balance Sheet and Income Account therewith, we certify that, in our opinion, the Balance Sheet is properly drawn up so as to show the true financial position of the Company at that date, and that the relative Income Account for the year is correct.

PRICE, WATERHOUSE & CO.,
Montreal, March 13th, 1922. Chartered Accountants (England).

STATEMENT OF EARNINGS FOR THE YEAR ENDED DECEMBER 31st, 1921.

From Passengers	\$41,565,884.99
" Freight	128,849,445.63
" Mails	2,939,258.56
" Sleeping Cars, Express and Miscellaneous	19,667,265.22
Total	\$193,021,854.40

STATEMENT OF WORKING EXPENSES FOR THE YEAR ENDED DECEMBER 31st, 1921.

Transportation Expenses	\$73,557,749.11
Maintenance of Way and Structures	29,038,641.43
Maintenance of Equipment	36,746,816.45
Traffic Expenses	6,289,621.86
Parlor and Sleeping Car Expenses	2,271,391.04
Expenses of Lake and River Steamers	1,455,213.13
General Expenses (including all taxes)	9,460,681.07
Total	\$158,820,114.09

TRAIN TRAFFIC STATISTICS—FOR TWELVE MONTHS ENDED DECEMBER 31st, 1921 AND 1920.
Earnings of Lake and River Steamers and of Kettle Valley Railway Not Included in This Statement.

	Year ended Dec. 31st, 1921	Year ended Dec. 31st, 1920	Increase Amount or number	or—Decrease Per cent.
TRAIN MILEAGE.				
Passenger trains	18,931,622	20,538,038	1,606,416	7.82
Freight trains	18,828,421	24,335,581	5,507,160	22.63
Mixed trains	1,647,291	1,846,046	198,755	10.77
Total trains	39,407,334	46,719,665	7,312,331	15.65
CAR MILEAGE.				
Passenger.				
Coaches and P. D. and S. cars	94,803,210	105,591,004	10,787,794	10.22
Combination cars	2,551,439	2,416,844	134,595	5.57
Baggage, Mail and Express cars	45,035,660	48,243,553	3,207,893	6.65
Total Passenger cars	142,390,309	156,251,401	13,861,092	8.87
Freight.				
Loaded	439,278,916	591,151,172	151,872,256	25.69
Empty	198,371,578	209,037,450	10,665,872	5.10
Caboose	20,979,855	27,945,171	6,965,316	24.92
Total Freight cars	658,630,349	828,133,793	169,503,444	24.47
Passenger cars per Traffic Train Mile	6.92	6.98	.06	.86
Freight cars per Traffic Train Mile	32.17	31.63	.54	1.71
PASSENGER TRAFFIC.				
Passengers carried (earning revenue)	15,186,081	16,769,555	1,583,474	9.44
Passengers carried (earning revenue) one mile	1,361,767,543	1,718,084,609	356,317,066	20.74
Passengers carried (earning revenue) one mile per mile of road	104,817	132,223	27,406	20.73
Average journey per passenger	89.67	102.45	12.78	12.47
Average amount received per passenger	2.59	2.89	.30	10.38
Average amount received per passenger mile	2.89	2.82	.07	2.48
Average number of passengers per train mile	66.17	76.75	10.58	13.79
Average number of passengers per car mile	13.99	15.91	1.92	12.07
Revenue from passengers per passenger car mile	40.46	44.88	4.42	9.85
Total passenger train earnings per train mile	2.69	2.81	.12	4.27
Total passenger train earnings per mile of road	4,265.71	4,844.78	579.07	11.95
FREIGHT TRAFFIC.				
Tons of revenue freight carried one mile	10,636,951,521	13,856,607,551	3,219,656,030	23.24
Tons of non-revenue freight carried one mile	1,487,724,058	1,830,407,240	342,683,182	18.72
Total tons (all classes) freight carried one mile	12,124,675,579	15,687,014,791	3,562,339,212	22.71
Tons of revenue freight carried one mile per mile of road	818,743	1,066,401	247,658	23.22
Tons of non-revenue freight carried one mile per mile of road	114,513	140,868	26,355	18.71
Total tons (all classes) freight carried one mile per mile of road	933,256	1,207,269	274,013	22.70
Average amount received per ton per mile of revenue freight	1.196	1.088	.108	15.22
Average No. of tons of revenue freight per train mile	519.49	529.25	9.76	1.84
Average No. of tons of non-revenue freight per train mile	72.66	69.91	2.75	3.93
Average No. of tons of (all classes) freight per train mile	592.15	599.16	7.01	1.17
Average No. of tons of revenue freight per loaded car mile	24.21	23.44	.77	3.28
Average No. of tons of non-revenue freight per loaded car mile	3.39	3.10	.29	9.35
Average No. of tons of (all classes) freight per loaded car mile	27.60	26.54	1.06	3.99
Freight train earnings per loaded car mile	28.95	24.34	4.61	18.94
Freight train earnings per train mile	6.21	5.50	.71	12.91
Freight train earnings per mile of road	9,789.44	11,072.83	1,283.39	11.59

Report of the 29th Annual Meeting of the WINNIPEG ELECTRIC RAILWAY COMPANY

Held March 10th, 1922

At the annual general meeting of the Shareholders of the Winnipeg Electric Railway Company, held in the head offices of the Company on March 10th, 1922, the report of the President and Directors and the financial statements for the year ending December 31st, 1921, were presented and adopted.

The following directors were elected for the ensuing year and until their successors are appointed: Sir Augustus Nanton, A. W. McLimont, Hugh Sutherland, G. V. Hastings, F. Morton Morse, A. J. Nesbitt, W. J. Bulman, W. R. Bawlf, and D. N. Finnie.

The following are the officers of the Company for the ensuing year: Sir Augustus Nanton, President; A. W. McLimont, Vice-President; F. Morton Morse, Secretary; L. Palk, Assistant Secretary; and J. S. Mackenzie, Treasurer.

The report of the President and Directors to the shareholders was as follows:

To the Shareholders:

Your Directors beg to submit a statement of the operations for the year ended the 31st December, 1921, as follows:

Gross earnings from Operations	\$5,418,023.71
Operating Expenses, before charging Depreciation	3,559,380.00

Net Operating Revenue..	1,858,643.71
Miscellaneous Income	161,406.70

Income available to meet fixed charges, etc.....	\$2,020,050.41
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From which the following deductions are made:—

Interest charges on Debenture Stock, Bonds, Gold Notes, etc.	\$633,331.02
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Extinguishment of Discount on Securities	52,526.18
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City Percentage and Car License Taxes	183,069.70
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Taxes	164,314.55
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Miscellaneous Non-Operating Expenses	3,311.99
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Other Income Deductions	54,532.33
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\$1,091,085.77

Net Income as shown on Accounts submitted herewith, excluding depreciation	\$928,964.64
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The gross earnings for the year 1921 show an increase of \$184,323.06 over the previous year, and the net income shows an increase for the year of \$132,389.41.

The year was marked by the industrial depression which prevailed practically throughout the world, and while public utilities in general felt the consequences in a diminished and more frugal use of electricity, gas and traction service, nevertheless, our property passed through the period in a relatively successful manner.

The Company has continued making extensive improvements,

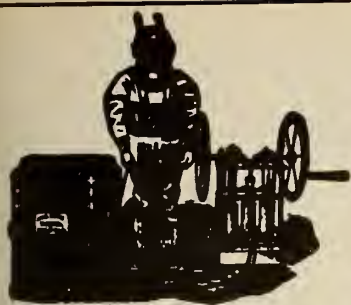
particularly in the rehabilitation of rolling stock, track and road-bed. Substantial extensions were also required to take care of the expansion of the electric utility business and there were also improvements at the gas works.

It will be observed that after payment of all fixed charges and making the usual provision for depreciation that the Company made a net profit of \$727,914.64. From this amount has been deducted the dividends paid on Preference Stock amounting to \$182,367.13, and also an additional allowance for depreciation amounting to \$122,605.83, leaving \$422,941.69 to be transferred to surplus.

The Preferred Stock has all been marketed and the proceeds have been used to retire floating liabilities.

The Company has continued its policy of maintaining good relations with the public and has given wide publicity to the problems confronting it, so that all patrons may be acquainted with the conditions surrounding the operation of the properties. Emphasis has been stressed on the Company's desire to provide courteous and efficient service, and the public appears to appreciate the sincere efforts on the part of the Company to bring this about.

Respectfully submitted,
(Sgd.) A. M. NANTON,
President.



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NOTICE TO SHAREHOLDERS.

The Forty-first Annual General Meeting of the Shareholders of this Company for the election of Directors to take the places of the retiring Directors and for the transaction of business generally, will be held on Wednesday, the third day of May next, at the principal offices of the Company, at Montreal, at Twelve o'clock noon.

The Common Stock Transfer Books will be closed in Montreal, New York and London at 3 p.m. on Tuesday, the fourth day of April. The Preference Stock Books will be closed in London at the same time.

All books will be re-opened on Thursday, the fourth day of May.

By order of the Board,

ERNEST ALEXANDER,

Secretary.

Montreal, March 13th, 1922.

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CHEMICAL ENGINEER
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Business Correspondent
ADVERTISING MAN
SALESMANSHIP
Window Trimmer
Show Card Writer
Outdoor Sign Painter
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Gas Engineer
Civil Engineer
Surveying and Mapping
ILLUSTRATOR
DESIGNER
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Stenographer and
Typist
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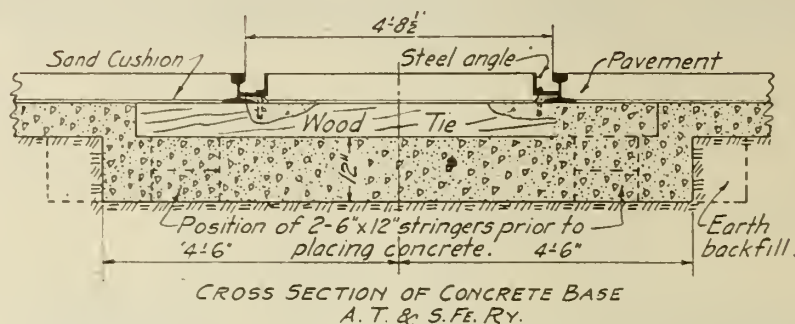
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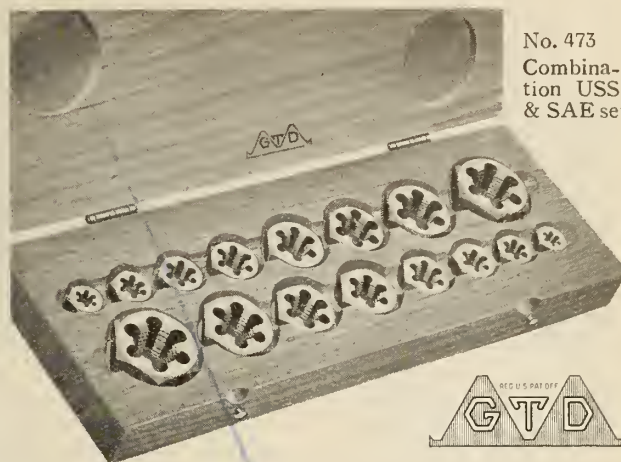
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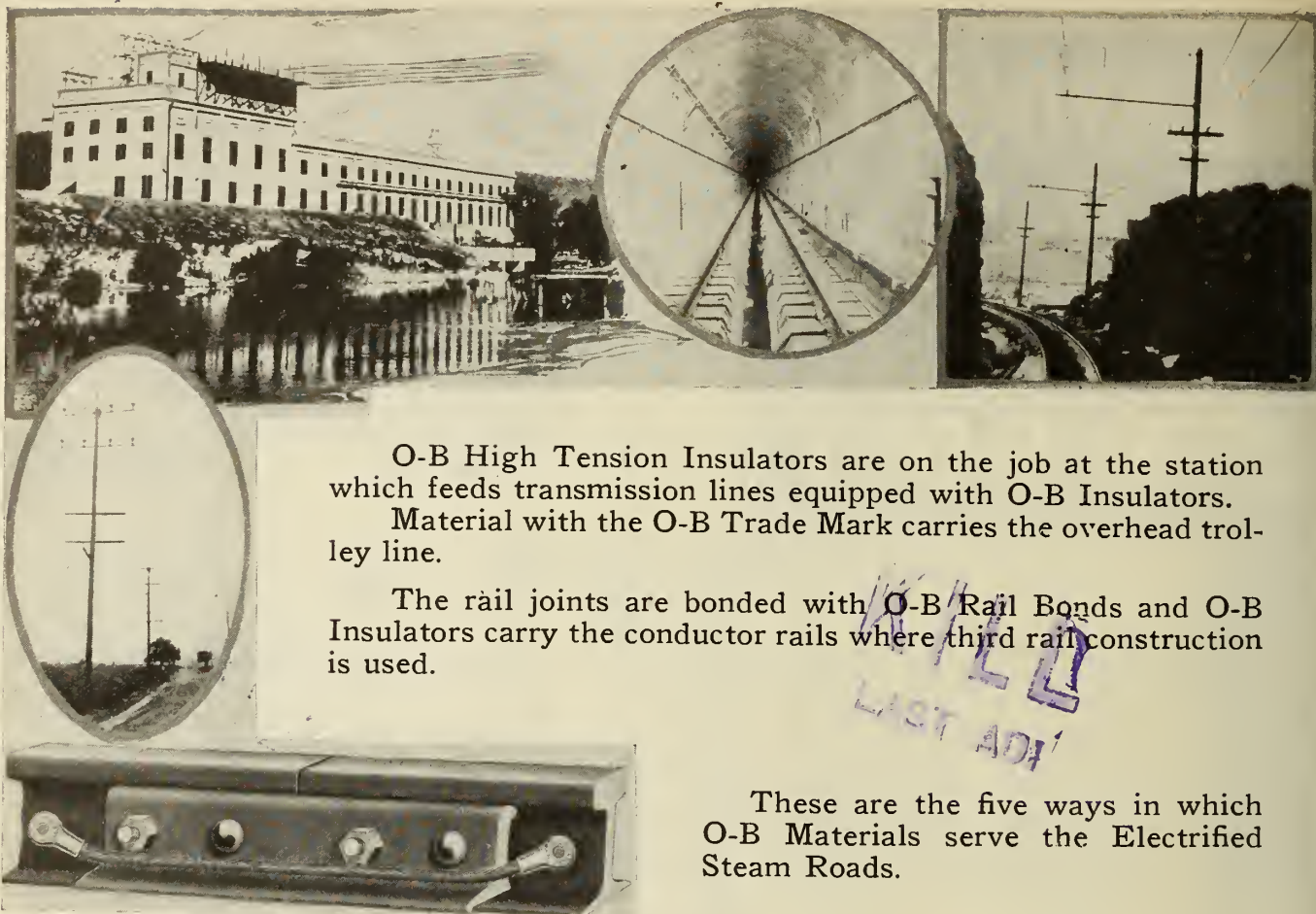
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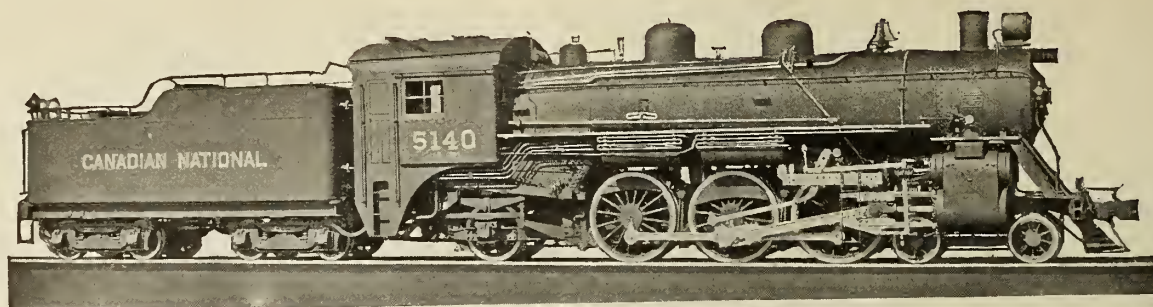


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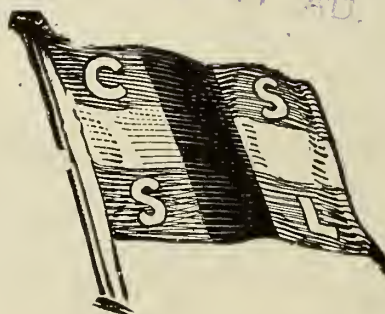
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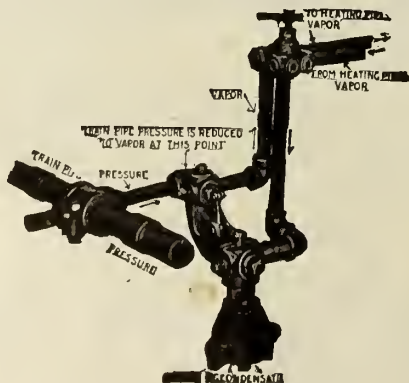


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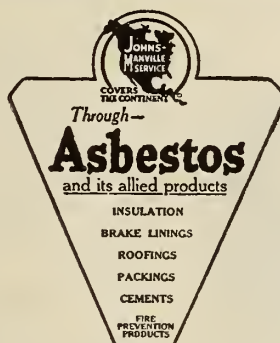
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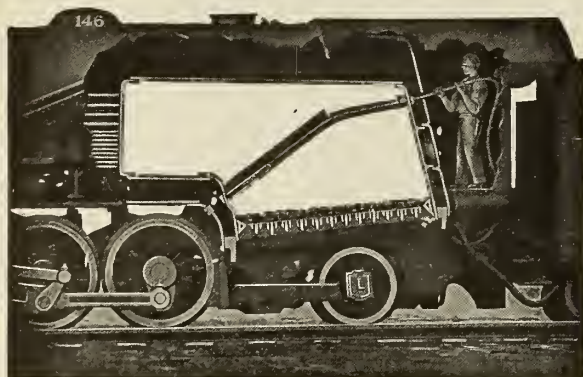
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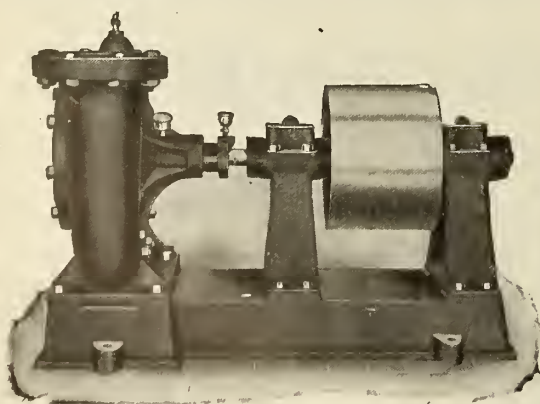
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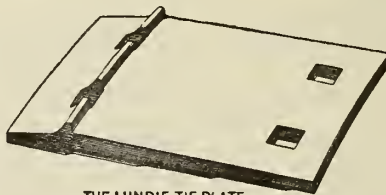
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Association of Manufacturers of

Chilled Car Wheels

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MANUFACTURED IN CANADA

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SAFETY
HAND
BRAKES**

**W. H. MINER
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THESE DEVICES ARE VERY EXTENSIVELY USED



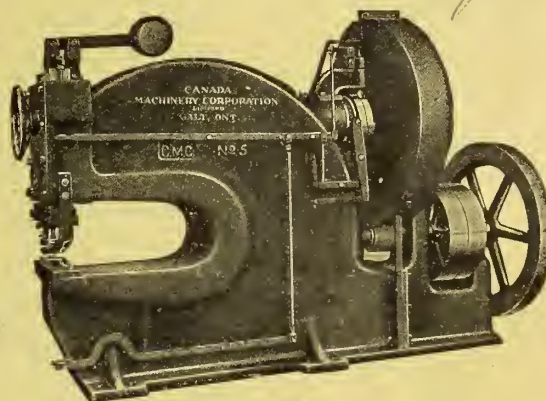
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*Let us talk over your
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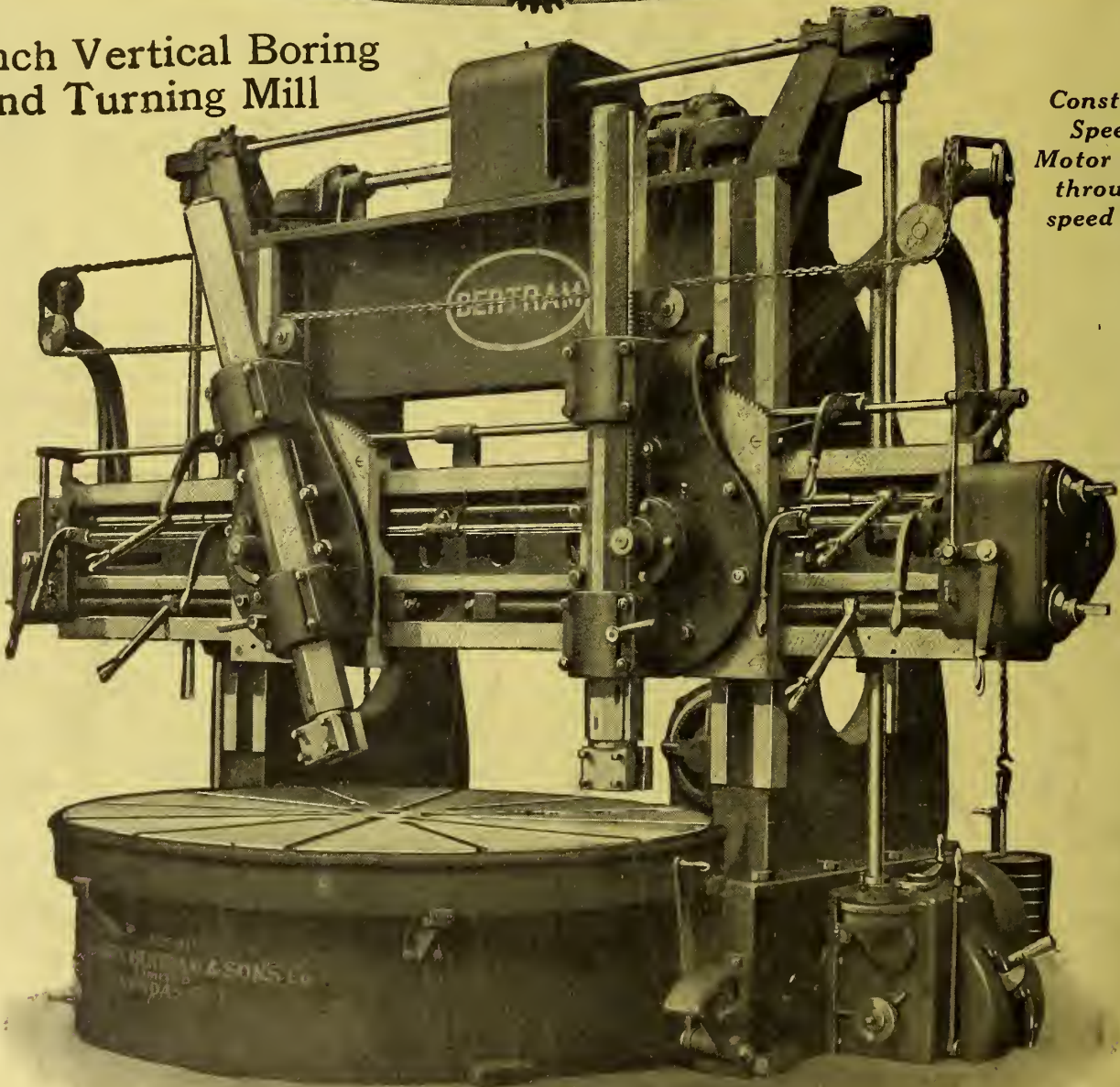
Toronto Sales Office, 721 Bank of Hamilton Bldg.

The BERTRAM MACHINE TOOLS

Page

84-inch Vertical Boring
and Turning Mill

*Constant
Speed
Motor drive
through
speed box*



P 1230

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WINNIPEG
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Canadian Railway AND Marine World

Founded in 1898 by Acton Burrows.

Number 291.
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TORONTO, CANADA, MAY, 1922

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Freight Cars
Steel Rails
and
Track Accessories

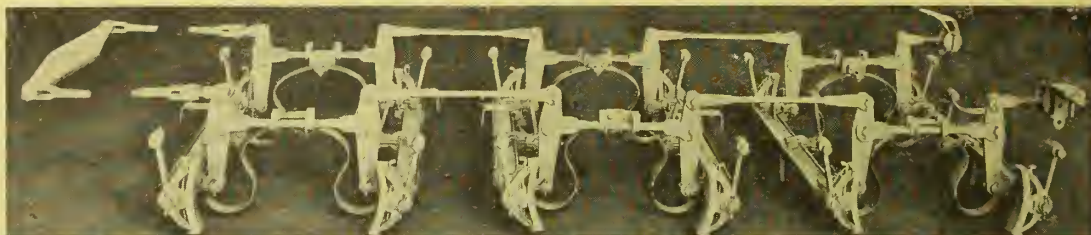
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in Canada whose entire
raw materials are pro-
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Empire."



The British Empire Steel Corporation Limited
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Clasp Brakes permit quick and easy stops, and allow a greater average speed per mile.

Clasp Brakes do not require as great an air reduction as the single shoe brake when stopping trains.

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Cut Shows Propeller 17 Ft. 6 Inches in Diameter, Weight 10 Tons. All Sizes, Sectional or Solid Iron, Semi-Steel or Steel.

Marine Machinery Anchor-Windlasses
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Steel Castings, All Sizes

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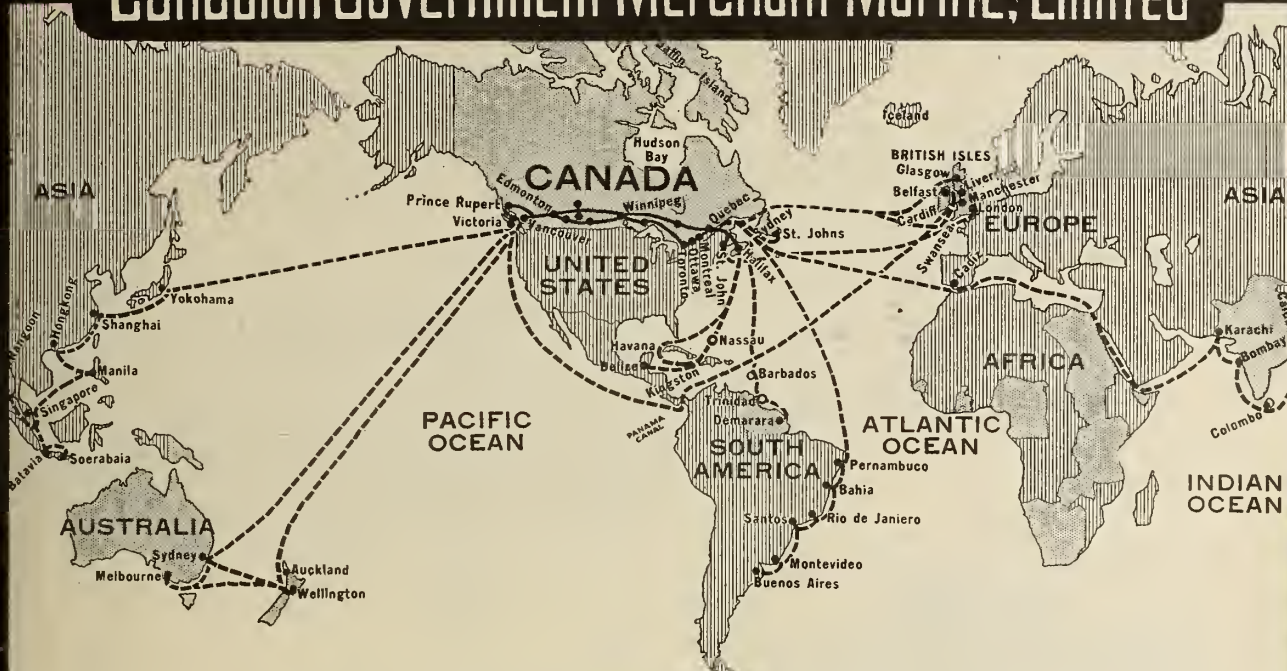
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Total Tonnage 390,000

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To the United Kingdom, Liverpool, London,
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Lyttleton, New Zealand.
To China and Japan.
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Sailings every ten days.

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Superior First Class Accommodation. Excellent Cuisine.

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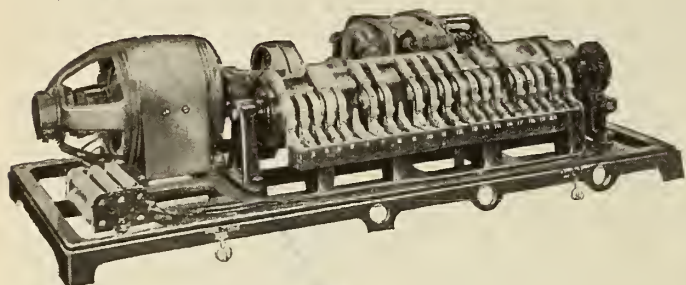
F. G. WOOD, General Ontario Freight Agent, Toronto, Ont.

R. B. TEAKLE, General Manager, W. A. CUNNINGHAM, General Freight Agt.,
230 St. James Street, Montreal, P.Q.



Canadian National Railways

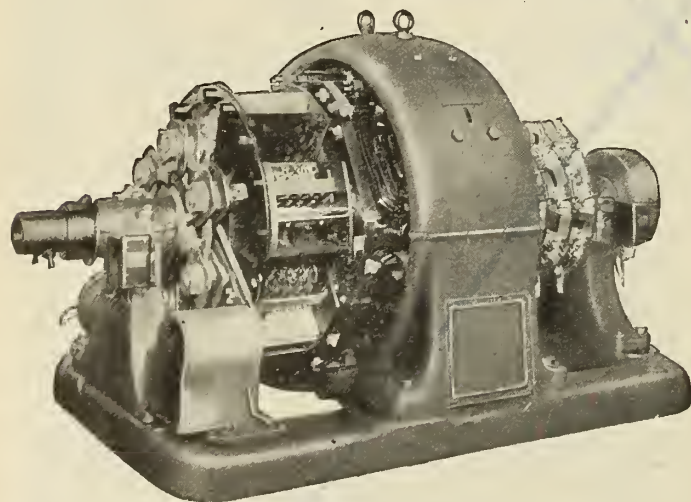
Automatic Means Economic



MOTOR DRIVEN MASTER CONTROLLER

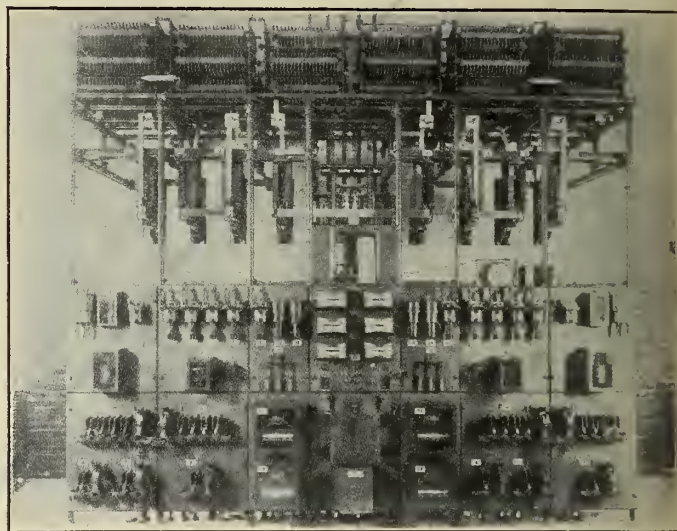
The Motor Driven Master Controller can be considered as the "brains," with the contact-making voltmeter and the underload relay as the "eyes" of an Automatic equipment.

The voltmeter registers the load demand and starts the controller. The controller then fixes the sequence of events and closes or opens the various control devices in the pro-



SYNCHRONOUS CONVERTER—AUTOMATIC OPERATION

IN Electric Railway Operation the Automatic Substation effects a great saving in labor, cuts down transmission losses and raises schedule speeds.



SWITCHBOARD FOR AUTOMATIC CONTROL OF TWO SYNCHRONOUS CONVERTERS

per order and at the proper time during the starting operations. It serves at once electrically and chronologically to interlock the various breakers, contactors, relays, etc.

After the machine has been delivering load and the economical demand ceases, the underload relay acts to shut down the station and advance the controller to its initial position ready for the next start.

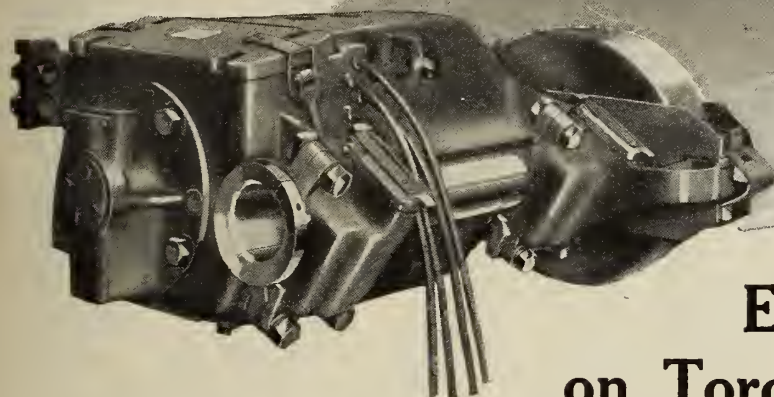
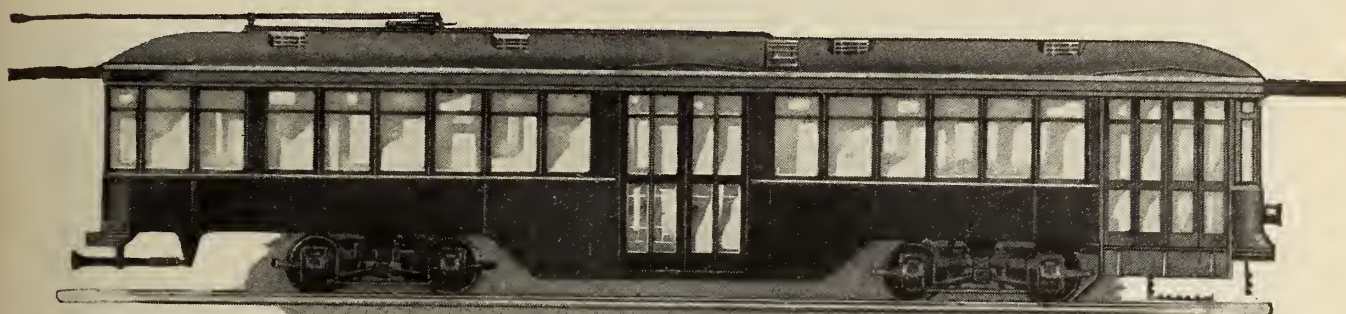
See our exhibit at the Canadian Electric Railway Association Convention, Quebec, June 1, 2 and 3.

Canadian General Electric Co., Limited

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Branch Offices: Halifax, Sydney, St. John, Montreal, Quebec, Sherbrooke, Ottawa, Hamilton, London, Windsor, Cobalt, South Porcupine, Winnipeg, Calgary, Edmonton, Vancouver, Nelson and Victoria.

Health, Housing and Happiness—these three factors in the modern industrial life are dependent upon rapid transportation to counteract the evils of congestion.



C-G-E Electrical Equipment on Toronto Transportation Commission's New Street Cars

ABOVE is the new type of Motor Car ordered by the Toronto Transportation Commission and shown herewith is the CGE-241-B Railway Motor, 55 H.P. rating—built by us in Canada,—4 of which will drive the motor car, this motor capacity providing for trail car operation.

A novel feature in connection with the control equipment we are supplying, is the use of a line breaker.

This new line breaker equipment consists essentially of a ratchet switch in the controller, combined switch and fuse for the protection of the line breaker circuit, and a box (mounted under the car body) containing the line breaker, and overload relay. This equipment eliminates severe arcing in the controller as the line breaker breaks the main circuit, and also does away with the hand operated circuit breaker usually mounted in the motor car vestibule.

The control circuit for operating the line breaker is interlocked with the door opening and closing mechanism.

*See our exhibit at the Canadian Electric Railway Association Convention,
Quebec, June 1, 2 and 3.*

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TRACKWORK

FOR STEAM AND ELECTRIC RAILWAYS



Grand Union Layout for the City of Calgary

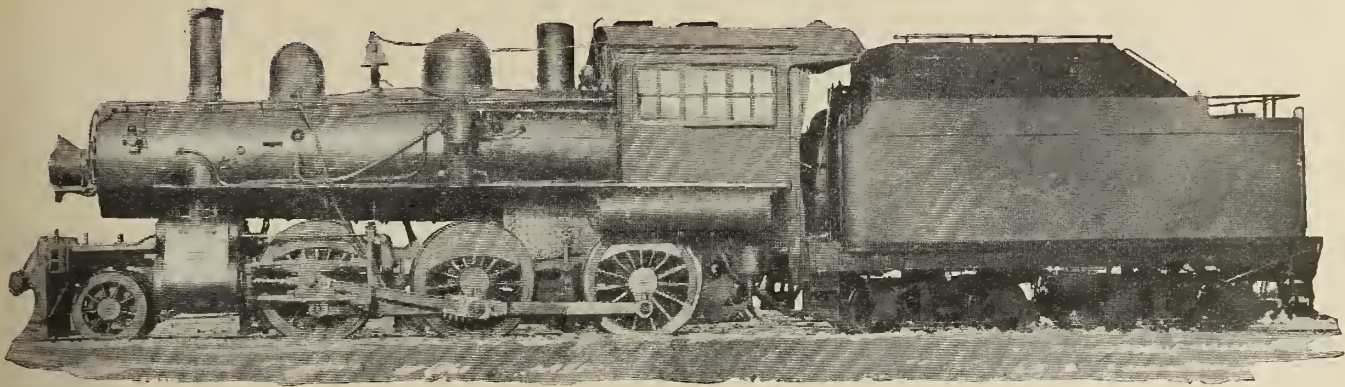
What about those Repairs
That Your Track is needing?
The Busy Season
Is here.
What are You doing about it?
Have You yet
Got into Touch
With us?
If You have not,
May we suggest respectfully
That, in Your own Interest,
You do so
At once?

CANADIAN
STEEL FOUNDRIES
LIMITED

General Offices :

TRANSPORTATION BUILDING

MONTREAL



THERE is not a single railway executive in Canada who would willingly or knowingly purchase or permit the use of inferior cylinders, cylinder packing, pistons, journals or bearing parts, simply because they were lower in price than the tried and tested kinds.

Yet the very life of the best bearing surfaces—their proper functioning and efficient action—depends upon an outside influence—*lubrication*. Evidence of the effects of inferior lubricants are plainly manifest whenever and wherever they are used: hot bearings, worn brasses, carbonization in cylinders, repacking, repairing and replacing of parts—equal in cost to many times the price difference between Galena and lower grade oils.

In addition to reducing these expensive troubles to a minimum, the savings accruing through extra mileage and conservation of fuel makes Galena lubrication by far the lowest in cost, as well as the most efficient, a fact readily ascertained from the cost records of hundreds of railroads.

*"More miles to the pint
Better service to the mile!"*



Galena-Signal Oil Company

of Canada, Limited

Toronto

Montreal



The Men You Don't See

The Dearborn Laboratories showing five steps in Water Analysis.



Filtering to Remove Insoluble Impurities.



Evaporating Filtered Water. Soluble Impurities Remain.



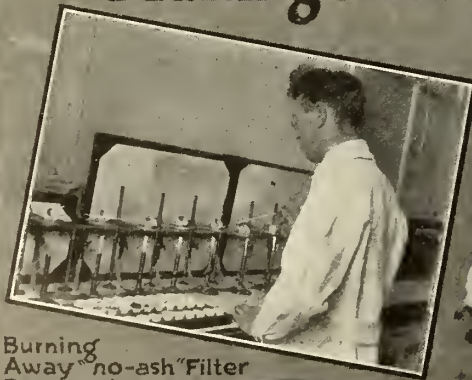
Qualitative Separation of Impurities. Precipitated Individually.

DEARBORN CHEMICAL COMPANY

A SERVICE MAN
AT YOUR CALL

KILL
LAST AD.

- Backing up Our Salesmen Making Dearborn Treatment Individual



Burning Away "no-ash" Filter Papers. Leaves Impurities separated Individually in Solid Form.



Weighing Impurities separately. On this Precise Data each Dearborn Formula is devised.

Dearborn

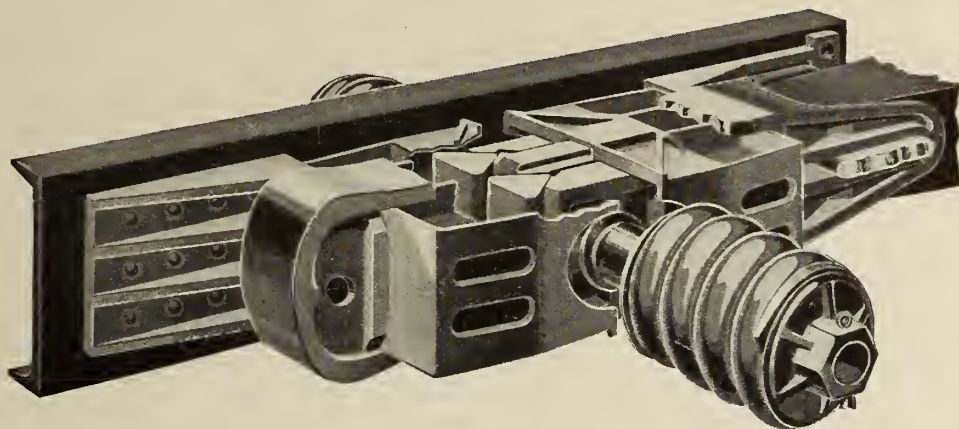
ESTABLISHED ON THE BASIS OF INDIVIDUAL FEED WATER TREATMENT IN 1888

DEARBORN CHEMICAL COMPANY
OF CANADA, LIMITED

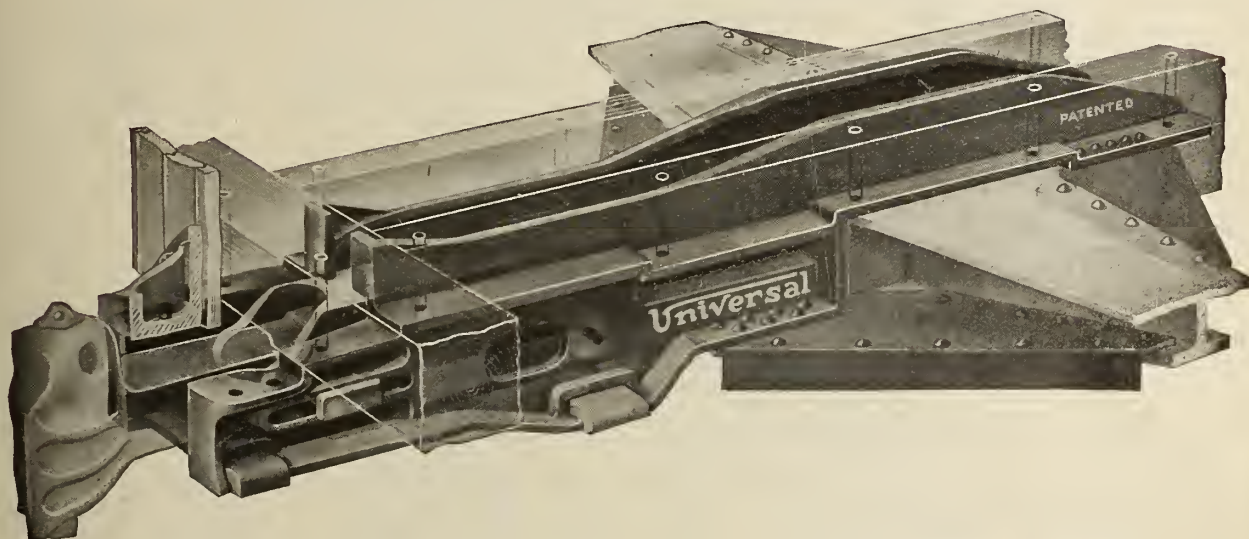
2454-2464 Dundas Street W.

Toronto, Canada

CARDWELL FRICTION DRAFT GEAR MADE IN CANADA



Universal ATTACHMENTS MADE IN CANADA



REENFORCING DRAFT ARMS
TANDEM SPRING DRAFT RIGGING
TWIN SPRING DRAFT RIGGING

CAST STEEL YOKES
DRAFT LUGS or PLATES
FRICTIONLESS SIDE BEARINGS

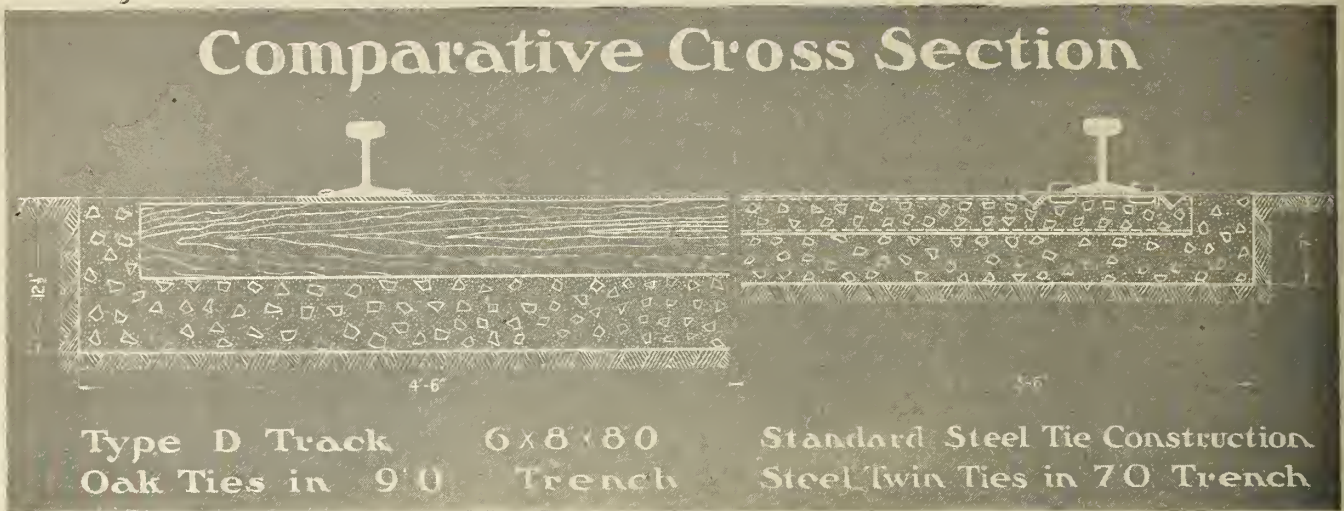
MADE IN CANADA

WEBB. G. KRAUSER

Transportation Building, MONTREAL

International Steel Twin Ties

Comparative Cross Section



Type D Track
Oak Ties in 9'0"

6x8x80
Trench

Standard Steel Tie Construction
Steel Twin Ties in 7'0" Trench

Used by

Brantford Municipal Railway
The Ottawa Electric Railway
St. Thomas Municipal Street Railway

Hydro Electric Railway, Guelph
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The above cross section shows at a glance the large saving and advantages accomplished by the use of STEEL TWIN TIE TRACK.

SIMPLICITY of Construction.

SAVING of Concrete.

SAVING of Excavation.

ELIMINATION of Water Absorbing Material.

ACCURACY of Gauge.

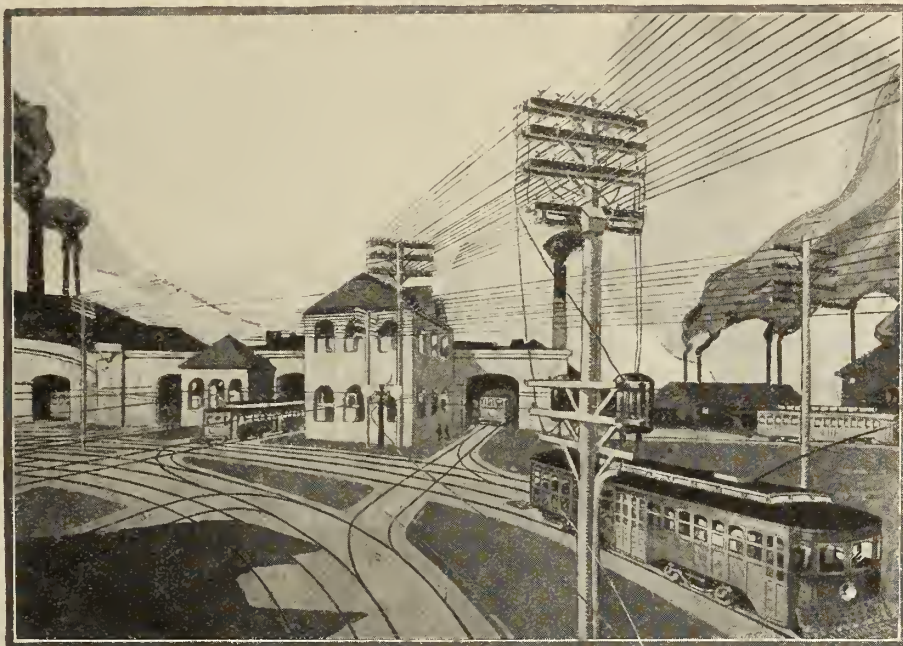
PERMANENCY of Construction.

The above proven facts lead Engineers to use this type of construction.

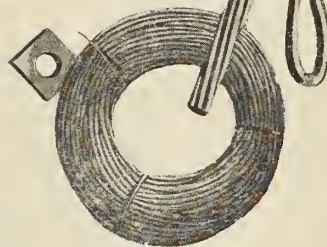
Write today for particulars.

*Please pay us a visit at our booth at the
Canadian Electric Railway Association
Convention at Quebec, June 1, 2 and 3.*

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SARNIA - ONTARIO



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POLE STEPS
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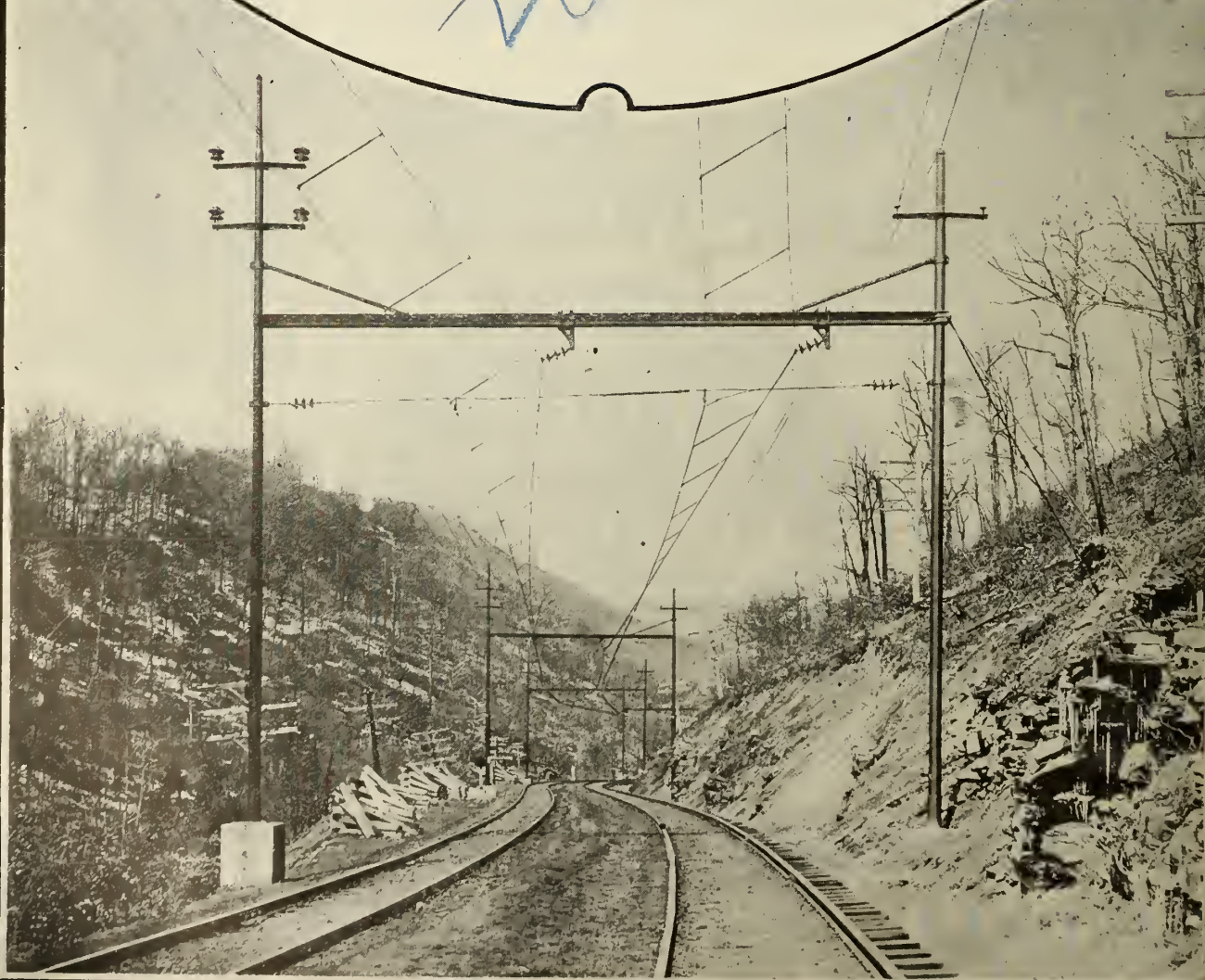
A Specialized Knowledge at Your Service

It has been the good fortune of the O-B Organization to grow up with electric traction—to develop with it and even to lead its development at least so far as trolley construction is concerned.

An electrifying railroad usually discovers, therefore, that O-B Engineers are qualified to plan or to assist in planning the overhead layout. And they also find that the O-B Organization can, and does, put its specialized knowledge and experience in whatever Trolley Materials are needed.

O-B Service to electrified and electrifying roads deals with transmission, distribution and collection of power from generator to motor.

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INSURANCE is the only recognized means of safeguarding against damage and loss of property. Why neglect your track when the premium is negligible compared to cost of purchase, construction and maintenance.

Ineffective Nut Locks are a liability. Nut locks so designed and so made that they effectively and economically function are an asset—*yes we refer to*

HIPOWER NUT LOCKS

Due to their maximum effective pressures Hipower Nut Locks continuously and effectively hold splice bars in proper position, thereby retarding initial looseness of bolts, providing adequate resilience to absorb and diffuse shocks and compensating for wear of bolted parts and thus prolonging the life of the jointed parts and even the rail itself.

THE NATIONAL LOCK WASHER CO.

NEW YORK
NASHVILLE
RICHMOND

Established 1886
NEWARK, N. J.

CHICAGO
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The transportation interests are truly the million dollar customers. What more paying investment can you make than a full page campaign in Canada's transportation paper, Canadian Railway and Marine World?

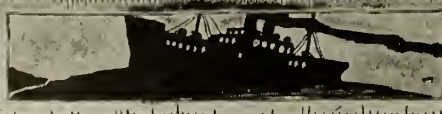
CANADIAN RAILWAY AND MARINE WORLD

Toronto

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Canada

*Audit Bureau of Circulations, Associated Business Papers,
Canadian National Newspapers and Periodicals Association,
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All Constructions—All Sizes—All Lengths

Suitable For

CRANES—DERRICKS—STEAM SHOVELS—DREDGES
COALING TOWERS—TOWING—MOORING ETC.

We know the best rope to recommend for each particular requirement.

Let us advise you

THE DOMINION WIRE ROPE CO., LIMITED

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Branches: TORONTO, WINNIPEG

The Improved Hart Convertible Car

Unloads Clean Without Extra Hand Labor



Old Level Floor Car. Note Ballast Left by Plow.

For
Ballasting
Center
Dump
or
Side Dump

For Coal
or General
Service



Improved Car Unloaded by Top Plow. Has no Ballast to be Shovelled out by Hand.

The Car With Gravity Discharge Pockets

—DESIGNED, PATENTED AND BUILT IN CANADA—

The HART-OTIS CAR CO., Limited, MONTREAL

"Industrial" Crawling Tractor Cranes

This Crane has been developed to meet the need for a full revolving crane which can be operated independently of rails.

Ideal for handling coal, sand, gravel and slag with grab bucket.

Equipped with gasoline engine.

One man operated.



This Crane, with half a century of crane building success behind it, is pre-eminently adapted to the needs of many.

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We can furnish "Industrial" Locomotive and Wrecking Cranes of all Capacities
Pile Drivers—Pillar Cranes—Buckets.

Branch:

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F. H. Hopkins & Co.
Limited

Head Office:

MONTREAL

Buffalo Brake Beam Company

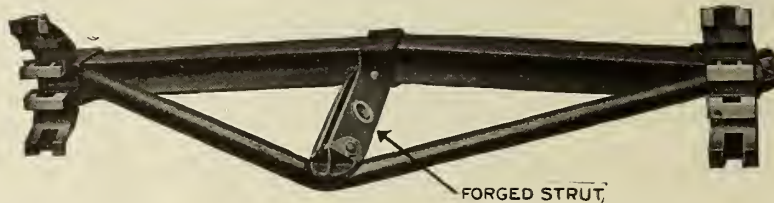
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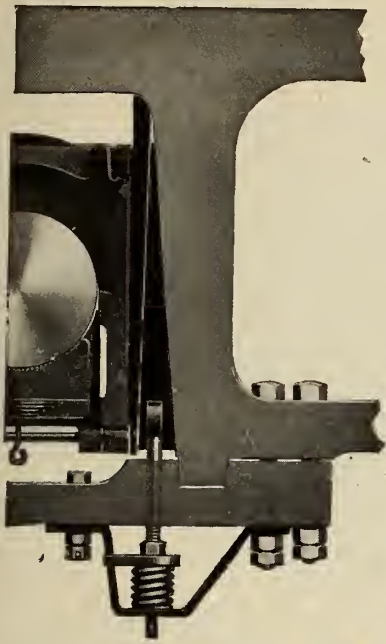
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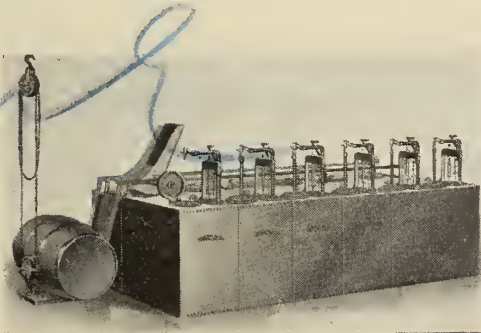
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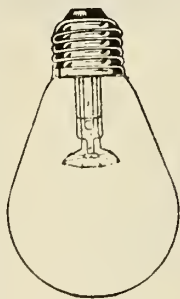
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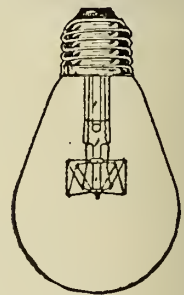


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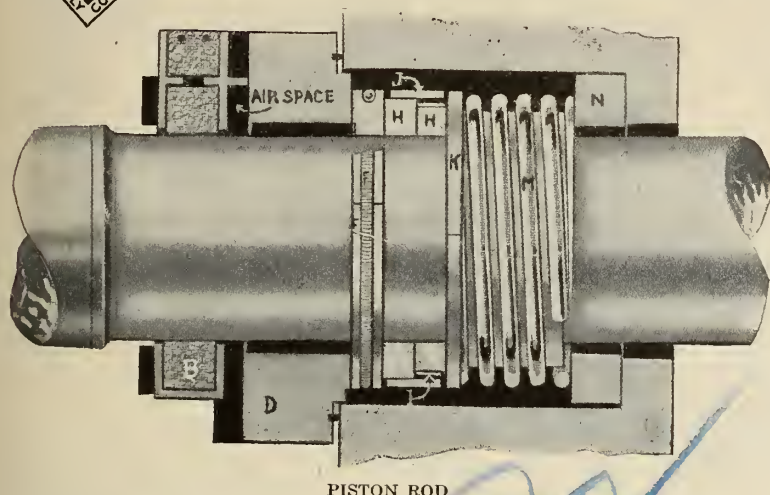
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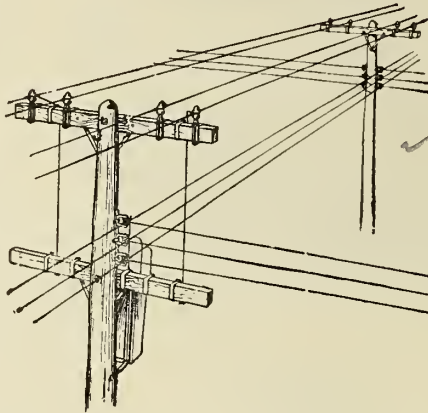
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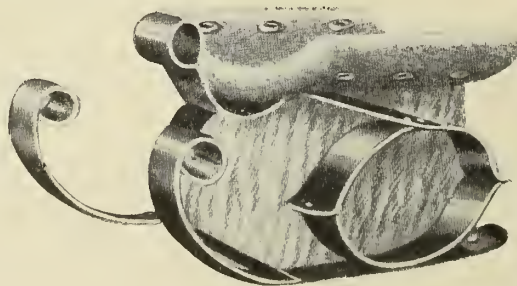
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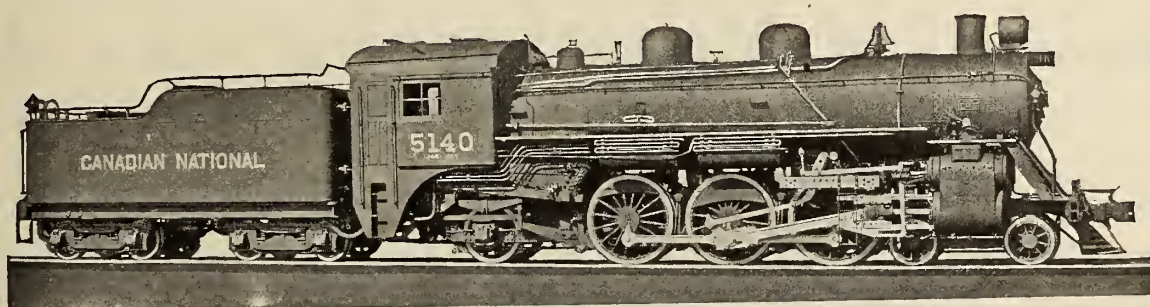
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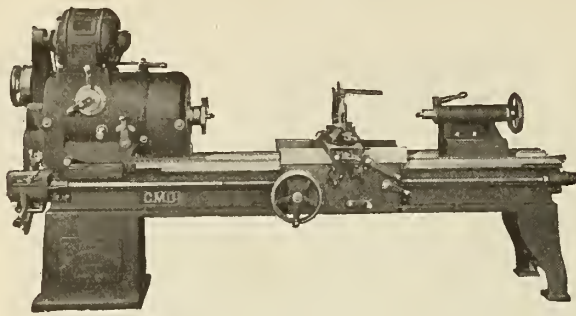
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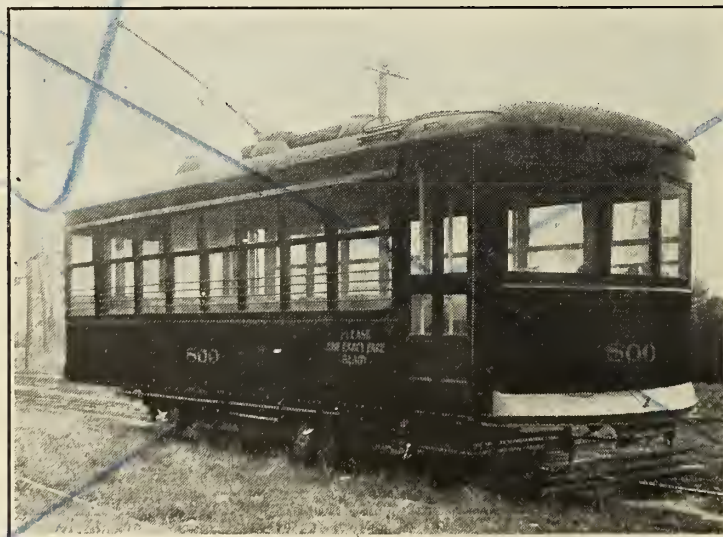
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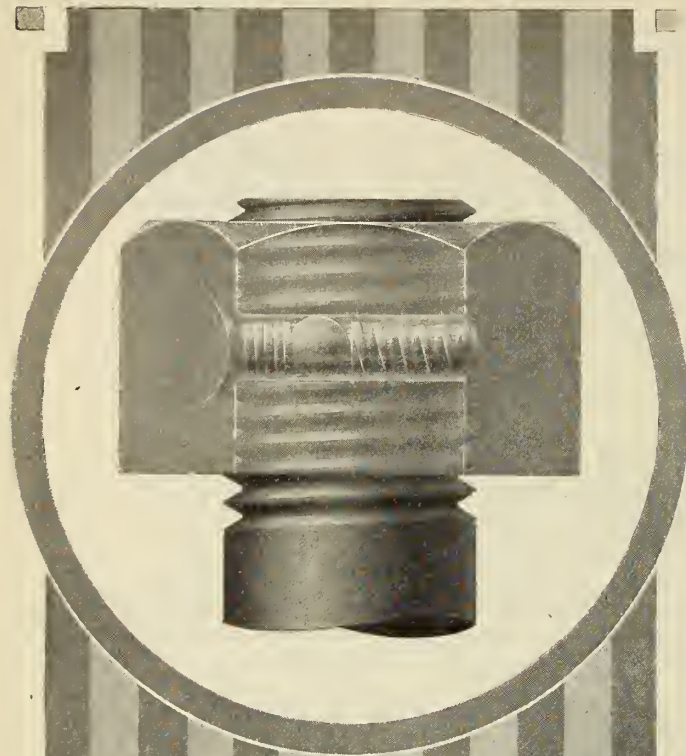
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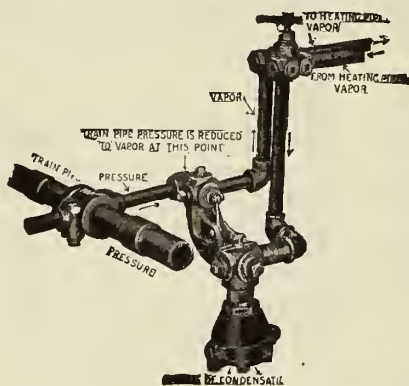


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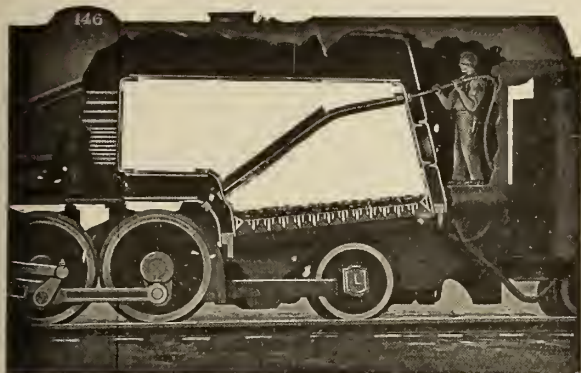
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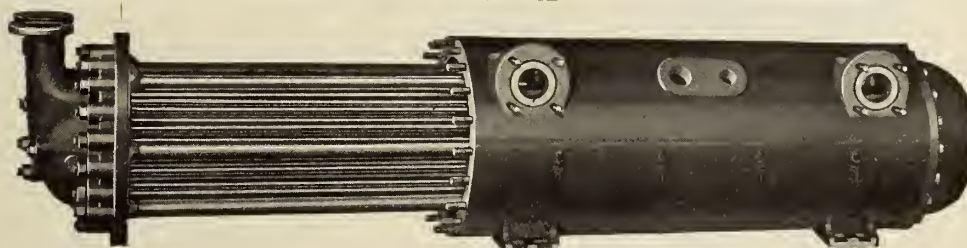
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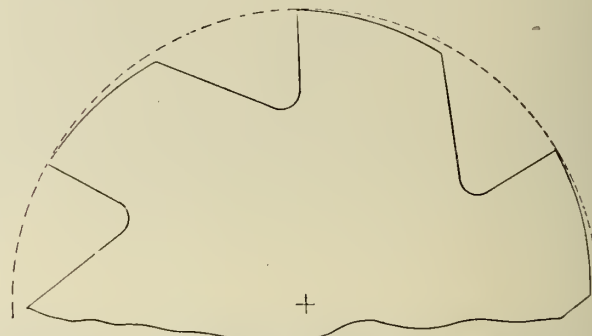
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With Eccentric Relief

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Pratt & Whitney Reamers are the only reamers having this eccentric relief, which should not be confused with the so-called "Eccentric tooth," which is nothing more than unequal spacing and adds nothing to the life of the tool.



—a stronger tooth—a smoother hole—no chatter—maintained size

All P & W Adjustable Reamers have eccentric relief, can be set to size without regrinding and can be made to face the bottom of a hole.

In order to set these reamers, it is only necessary to loosen the shoes and run back the nuts. The blades can then be pushed back and the shoes tightened slightly. Then, upon coming up with the adjusting nut, the diameter will gradually decrease until the desired size is obtained. Lock-nut and shoes are now firmly tightened and the reamer is ready for use. Quick, positive and convenient.

These reamers are made with 12 different sizes of bodies, giving an adjustment from .020 to .060 in., according to the diameter. Shell, hand or chucking reamers with the same number of body have interchangeable nuts, shoes, screws and wrenches. Shell and chucking reamers with the same number of body have interchangeable blades also.

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Canadian Railway and Marine World

May, 1922

The Newfoundland Railway's History, Position and Future.

The present position and the future of the railways and steamship lines owned and operated by the Reid Newfoundland Co., Ltd., under agreement with the Newfoundland Government, is again forming the chief subject for consideration at the Newfoundland Legislature's current session. The matter was briefly referred to by the Governor in his speech at the opening of the Legislature, March 15, and the basis for the discussion was given a few days later when the Premier submitted a report on the state of the railway prepared by R. C. Morgan, Superintendent, Winnipeg Terminal Division, who was granted leave of absence by the C.P.R., towards the end of 1921, to act as Chairman of the Management Committee, Reid Newfoundland Co., under an act passed in that year providing for the appointment as manager of a Canadian or United States railway man of experience by the Reid Newfoundland Co., subject to the Government's approval. Mr. Morgan resigned the position at the end of February, and has since been acting in an advisory capacity to the Government in connection with the transportation problem.

Mr. Morgan's report is a long one, and, it is apparent from the context, that one part of it was prepared for the Reid Co., and the other for the Government; the whole, however, being presented to the Legislature. In the letter covering the report, dated Jan. 30, Mr. Morgan said:—"I feel safe in assuming that the railway has been a losing venture from its inception. . . . It, therefore, seems apparent that the existing contract for railway operation must be modified, and in the accompanying report I have included recommendations to try and meet a very difficult problem."

Development of the Railway and Steamship Lines.

In order that Mr. Morgan's report may be thoroughly understood it will be necessary to recount briefly the development of the railway and steamship lines operated by the Reid Co. The Reid contracts with the Newfoundland Government cover first the construction of the railway and secondly its operation and the provision and operation of steamships in connection therewith. Prior to the Reid connection with Newfoundland in 1890, two railway projects had been initiated, and about 90 miles of line had been completed, and some additional grading done. The first project initiated was in 1880, when the Legislature provided for raising a loan of £1,000,000 for the building of a railway from St. John's to Hall's Bay, a branch of Notre Dame Bay, on the north shore, to open up for agricultural settlement the Gander and Exploits Rivers' valleys, and to reach the mining areas round Hall's Bay; and for the construction of a branch line to Brigus, Harbour Grace and Carbonear; the total length of the projected lines being 340 miles. A contract was let and construction was started in the following year, the line being completed to Whitburn, 54.62 miles. In 1885 con-

struction was started on a line from Whitburn to Placentia, 27 miles, the extension being completed in 1888, but construction on the line to Hall's Bay was abandoned owing to the contractor's failure. The second project was one of the numerous proposals put forward for shortening the trans-Atlantic passage by using the shortest ocean route between Newfoundland and Ireland, and consisted of the construction of a railway from St. John's along the south shore to Cape Ray, opposite the Cape Breton coast, to build which the Legislature in 1882 passed an act for the incorporation of the Great American and European Short Line Ry. Co. This project never materialized, but it had an effect in shaping the later railway construction policy on the island. In 1890 the Government decided to proceed with the construction of the line to Hall's Bay, and let a contract to the late Sir Robert G. Reid in Oct. 1890 to complete the line. Work under this contract had been in progress for some time when, as the result of surveys made, it was proposed to abandon the line to Hall's Bay, and divert it along the Exploits River valley across to the Humber River valley, and then on to Port Aux Basques, near Cape Ray. This route was finally adopted, and a new contract was signed May 16, 1893, under which the line was to be completed within three years for \$15,600 a mile, payable in Newfoundland bonds. Under this contract the transinsular line, and some branch lines were completed, and opened for traffic in 1898, giving the island a total of 638 miles of railway. The second construction contract was entered into between the Newfoundland Government and the Reid Newfoundland Co., in 1909, and ratified by the Legislature in 1910, under which the Government undertook to provide \$6,000,000 for the construction of about 400 miles of branch lines. In 1913, \$2,000,000 additional was provided for the completion of these branches, and 263 miles of them had been placed in operation, and about 120 miles were partially completed when construction was abandoned at the outbreak of war in 1914. The mileages of the transinsular line, and of the branch lines completed and operated, are as follows:—

St. John's to Port aux Basques	545.65
Waterford Bridge to Trepassay	104.43
Brigus Jct. to Baie des Verdes and branch to Grates	90.56
Whitburn to Heart's Content	42.00
Placentia Jct. to Placentia	20.00
Shoal Harbour to Bona Vista and branch to Port Union	90.00
Notre Dame to Lewisport	9.34
Total operated	901.98
Partially constructed:—	
Northern Bight to Fortune	79.00
Deer Lake to Bonne Bay	42.00
.....	1022.98

The railways are operated under a separate contract. The first operating contract is dated Sept. 1, 1893, and under it Mr. Reid undertook to construct a telegraph system and to operate it, as well as the railway, for 10 years, at his own expense, in consideration of a grant in fee simple of 5,000 acres of land per

mile of railway built. The financial disaster of 1894, brought about such a condition of affairs in the Island, that when the line was completed in 1898, a new operating contract was made, which was the subject of a lengthened and bitter controversy. Under this contract Mr. Reid undertook to operate the lines for 50 years without cost to the Government, on the expiration of which period the property of the railways was to become vested in him; to build seven steamships and operate them on specified routes, and to pay to the Government within a year \$1,000,000; the Government to hand over the telegraph system; to sell the Government dry dock at a fixed price, and to grant an additional 2,500,000 acres of land in fee simple. Mr. Reid also undertook to build an electric railway, and do certain paving work in St. John's. Controversy over this contract continued to be waged, and in 1900 the Government, which had agreed to it, was defeated. The new Government was approached by Mr. Reid with a view to the creation of the Reid Newfoundland Co., to take over his interests, but consent was refused until modifications of the 1898 contract were made. An amending agreement was approved by the Legislature in 1901, and authority was given for the formation of the Reid Newfoundland Co. Under the new contract Mr. Reid made some concessions in regard to the lands granted; agreed that the railway should revert to the Government at the end of the 50-year contract, when the \$1,000,000 paid in cash under the 1898 contract would be repaid with interest, the value of improvements made to the railway during the currency of the lease to be determined by arbitration. He also agreed to hand back the telegraph lines to the Government, and an arbitration court, of which the late Sir Donald MacMaster was a member, was formed to adjust a number of specific matters arising out of the amended contract. In 1910, the operating contract was supplemented by a contract for the operation of the 400 miles of branch lines to be built, bringing them under the same terms as the rest of the lines, the company to receive a grant of 4,000 acres a mile in respect thereof.

The steamship lines established and operated under the contract are:—Port aux Basques to North Sydney, N.S.; Trinity Bay; Placentia Bay; Green Bay; Notre Dame Bay; Bona Vista Bay; Placentia Bay along the south coast to Port aux Basques; Humbermouth and Battle Harbour; St. John's to Labrador Coast.

In 1920, owing to the condition of the lines, the Government voted \$1,000,000 to buy additional locomotives and cars, for the betterment of the line, the provision of additional terminal accommodation at St. John's, and a new terminal at Argentia; and placed the operation of the line under a commission. The year's operation resulted in a loss of \$1,650,000, and the commission was disbanded. Sir George Bury was called in early in 1921 to advise the Government, and upon his

recommendation an act was passed providing for the operation of the line for a year, under the charge of a Canadian or United States railway man; the non-operation of certain branch lines during the winter months; the provision of funds for betterments by means of loans, and the payment by the Government of loss on operation up to \$1,500,000 for 1921-22.

R. C. Morgan's Report.

Mr. Morgan's report is based on the assumption that the railway has been a losing venture from its inception, which is borne out by the figures given in an appended table showing the earnings and expenses of the line for the 18 years from 1904 to 1921 inclusive. In each of these years there was a loss, ranging from \$19,162.41 in 1910 to \$1,681,261.23 in 1921. The increasing rates of expenses to earnings began to mount up with the bringing into operation of the new branch line construction after 1910, and to a still greater extent from 1918, when the increased cost of coal, etc., and higher wages due to the war took effect. In 1919 the earnings were 88% of the expenses; in 1918, 80%; in 1919, 69% in 1920, 52%, and in 1921, 45%. The totals for the whole period were:—Earnings, \$14,317,343.40; expenses, \$20,096,346.96; loss \$5,779,003.56. Average of earnings to expenses, 70%. The report discusses the whole situation in considerable detail and assigns seven main reasons for the losses as follows:—

Insufficient Traffic.—Nearly 1,000 miles of line have been built to serve a population of 250,000, a large proportion of whom live beyond its reach, and the balance live at points directly accessible to water transportation. The main industry of the colony is fishing, and as practically the entire population lives at tide-water there is very little traffic which could not move by water, and a great proportion does so. There are, so far, no producing mines to furnish a large and continuous tonnage for the railway, and the existing pulp and paper mills are so located that they have direct access to ocean transportation. All centers of population are located on excellent natural harbors, and as was transportation is admittedly cheaper than rail transportation, it is not to be anticipated that rail traffic will greatly increase, unless new industries are developed in the interior, where they would be obliged to depend on using the railway facilities now provided. The volume of traffic is also adversely affected by unnecessary and unfair steamship competition fostered by government subsidies. In 1920-21, 20,850 passengers were carried, earning \$737.85 a mile of road; and 27,006 tons of freight were carried, earning \$681.68 a mile of road.

Excessive Gradients, etc.—Owing to the light construction of the line, the light rails, and bridges, and the heavy gradients, over the entire line, it has never been possible to get an average train-load much over one-tenth of that obtaining on Canadian lines. The railway has a larger amount of heavy gradients than most cases on the American continent, and, while no high elevations are crossed the line is a succession of gradients, largely $2\frac{1}{2}\%$. A computation of the amount of elevation in feet overcome by a train making a trip from St. John's to Port aux Basques shows the total to be 8,000 ft., a greater climb than is necessary on any transcontinental line in crossing the Rocky Mountains. This handicap cannot be overcome, owing to

the physical character of the island making it necessary to touch at water level points, and to cross high ridges of land between such tidewater points. The railway is laid with light rails, and the bridges are of light construction, which precludes the use of anything but light locomotives; the capacity of the cars is low to conform with the narrow gauge of the tracks ($3\frac{1}{2}$ ft.) and the light nature of the railway generally. Efficient handling of freight consists of getting a heavy carload and a heavy trainload, or in moving the greatest possible number of tons of freight with the fewest number of train miles. Train mileage cost does not vary greatly on different railways. For 1920-21 the Newfoundland Ry. handled its trains at a cost of \$3.06 a train mile, a not unfavorable comparison with the C.P.R. and other lines, but when account is taken of the number of tons handled per mile run the comparison is most unfavorable, being 41, as against the C.P.R.'s 498. The Newfoundland Ry. in 1920-21 earned \$1.46 a train mile run against the C.P.R.'s \$4.64. The result shows that the Newfoundland Ry. carried on at a loss of \$1.60 against a profit of 74c. a train mile on the C.P.R., or carrying the analysis still further, it cost the Newfoundland Ry. $7\frac{1}{2}\%$ c. to carry one ton of freight one mile, while it cost other companies less than 1c. The revenue per ton mile for 1920-21 was 2.55c., representing about one-third of the cost of operation.

Unremunerative Branches.—One of the most oppressive burdens which has been borne by the railway has been the operation of unremunerative branches, which appear to have been built without any reliable estimates as to their traffic possibilities or, if estimated, a gross error was made in assuming that they would produce sufficient revenue to make them self-sustaining. Such branches do, in a certain measure, provide business for the main line, but unfortunately the rates have been so low that the additional business produced has been handled at a loss. In general, it is a fact that the more business the railway handled the greater the loss involved; the years in which the earnings were highest, were those in which the largest deficits resulted. The actual operating losses for the various branches is hard to determine, as no division of earnings and expenses has been made in the accounts, but a close estimate has been made from which it appears that the following annual losses may be expected on the four main branches:—Trepassey, \$113,000; Bona Vista, \$74,000; Bay de Verde, \$54,000; Heart's Content, \$37,000. Total, \$278,000.

Too Low Freight Rates.—The railway has been operating under too low freight rates since its inception. The basis of freight rates was adopted from a comparison with Canadian rates in force in 1898; but even the low rates authorized by the 1898 contract were not actually made effective until 1918. From 1898 to 1918 a basis of rates averaging 11% lower than Canadian rates was in effect. The maximum rates which became effective in 1918, while producing an increased revenue, did not bring in anything like sufficient to meet the increased and increasing operating costs. Between 1915 and 1921 the total expenses per train mile increased 227% and the transportation cost per train mile increased 170%, while the earnings per train mile only increased 102%. Canadian railways have from time to time been granted increases

of rates, and while the present local mileage rates on the Canadian National Rys. are 48% higher than those on the Newfoundland Ry., the C. N. Rys. are not earning sufficient to pay operating costs.

Insufficient Mail Subsidies.—The Newfoundland Ry. was carrying mail for approximately \$42,000 a year from 1904 to 1912, which was increased from time to time until in 1917 it was raised to \$61,251.49, at which figure it has remained. In 1919 the Board of Railway Commissioners for Canada granted an increase in mail compensation to Canadian railways averaging 116%. The mail subsidy received by the Newfoundland Ry. is too low, and it should be greatly increased by the government.

Deferred Maintenance.—Expenditures for maintenance of road and structures averaged \$184 a mile in 1904, and were maintained at a low level until 1918, when they amounted to \$294 a mile. The result was that the roadbed reached a condition where large expenditures were necessary to enable trains to continue operating. The expenditures since, which ran from \$415 a mile in 1919, to \$575 in 1920, and to \$900 in 1921, have resulted in a great improvement in the physical condition of the property, but this high expenditure must be continued if the ground gained is not to be lost. The question of rail renewal has also to be faced. Some of the rails have been over 20 years in service, and as no charge has been made against operating expenses for deterioration of rails new money must be provided for their renewal.

Rolling Stock.—Expenditures for locomotives and cars averaged \$95 a mile of line in 1904 and were kept at a very low rate until 1918, when they were \$267 a mile. Owing to the additional traffic diverted to the railway, owing to the withdrawal of ships during the war, the locomotives and cars were worn out in service with the result that large additional expenditures had to be made, amounting to \$344 a mile in 1919; to \$530 in 1920 and to \$690 in 1921. The condition of rolling stock is now nearly up to the standard of other lines, and expenditure on this account is likely to decrease rather than to increase.

Unremunerative Agencies.—A large number of agencies are maintained at points where the amount of business does not warrant the expenditure. At 44 agencies regarding which figures are given, there are stated to have been no receipts; 10 are not doing sufficient business to pay expenses; 10 are making little more than expenses, and the remainder are doing better.

Cost of Labor and Material.—The 1921 wage bill increased by 248%, and the material bills by 283% over 1915, and while the peak has apparently been reached the downward trend has not yet afforded much relief.

Increased Revenues and Reduced Expenditures Required.—Mr. Morgan points out that relief of the present condition can only be brought about by increasing the revenues, and by reducing expenditures. The Government should authorize an increase in freight rates to a maximum at least as high as now authorized in Canada, allowing the management to meet traffic requirements, competition, etc., within the maximum; by reducing unnecessary steamship competition, thus diverting to the railway such traffic as naturally belongs to it; and by giving an increased compensation for carrying mails. The railway manage-

ment should inaugurate a more active and persistent campaign of traffic solicitation; should promote tourist traffic and the provision of accommodation therefor, and should secure the co-operation of business men to aid in bringing traffic to the railway.

Traffic should be restricted on the transinsular line during January, February and March and the traffic to and from Canada should be diverted to St. John's or to the partially completed new terminus at Argentia; only local trains should be operated between certain points, and a weekly mixed train between Millertown Jct. and Port aux Basques each way; closing the Trepassey, Baie des Veres and Bonavista branches. Locomotive and train mileage should be kept down to the lowest minimum; cars should be loaded fully and no freight train should be run without full tonnage; trains should be made up on a tonnage instead of a car basis; locomotives should be helped to ascertain hauling capacity, and if necessary two locomotives should be used on a train, this being the only method of securing fair tonnage per train apart from securing full car load and maximum train load; every train mile saved means a saving of approximately \$1.25 a mile for actual train operation. Coal, oil and other costs should be investigated, and their consumption placed on a basis of 100 mile runs; the necessary inspectors and instructors and coal-loading appliances should be provided so that savings may be made; agency stations where traffic is insufficient to justify keeping agents or operators should be closed; train crews should be reduced as traffic declines; monthly estimates of pay rolls should be required and they should not be exceeded; and monthly reports for the guidance of the management should be made according to modern practice.

Remedies Proposed.—"As the experience of about 20 years," Mr. Morgan says, "operation of the railway has demonstrated that the contract made in 1898 cannot be carried through its 50-year term, as no private company could possibly absorb the losses involved; the facts should be faced and the old contract should be abrogated on terms fair to all concerned. All claims should be waived in settlement to be made. The ownership of all physical property should be vested in the Government, which now owns nearly all the right-of-way track, structures, and certain of the rolling stock. As the steamships now owned by the Reid Newfoundland Co. are a necessary adjunct to the colony's transportation system, these should be acquired by the Government, so that they may be managed in complete harmony with its rail system, and rates and routes adjusted so as to best serve the colony's interest. The present division of the ownership is confusing, uneconomical and unsatisfactory tending to creation of conflicting claims, which will undoubtedly lead to costly litigation in the future. With the ownership of the steamships and railway consolidated in the Government, they would be free to operate, or lease same to any contractor as would best serve the interest of the people; duplication of service should be eliminated; conflicting rates harmonized; competition of outside steamships met, to the end that traffic on which the people of the Island pay the freight charges shall be carried by the Government boats and railway, so that the money will go to the citizens of the col-

ony instead of being paid to outsiders and spent in Canada or elsewhere. While it will soon be necessary to face the question of large expenditures for improvements, particularly the relaying of the line with heavier rails, it does not appear that this is the proper time to undertake such expenditures in a large way; interest rates are receding; material and labor rates are on the downward course, making it reasonable to expect that such improvements can be done more cheaply if postponed for a while. The operation of the railway is in course of readjustment and has not yet reached a settled basis; the trend of traffic following war conditions cannot be foretold with certainty, hence it appears wise to carry the railway along for a year or two with only moderate expenditure on capital account, taking care only of such items of improvement as are imperative."

Recommendations for 1922-23.—Mr. Morgan recommends that the Legislature appropriate \$500,000 for recovering rails from the Fortune Bay branch, which is not yet completed, and using it to replace worn out rail on the main line; relocating the line in the vicinity of Millgreys and Holyrood so as to protect it from storm damage; rebuilding a number of structures urgently needed; and for providing additional 100 box cars. The purchase of the Reid Newfoundland Co.'s equipment and steamships, the abrogation of the 1898 contract; readjustment of subsidies in mail, branch lines, stations, etc., and leasing steamships. Mr. Morgan says that the above constitutes as large a plan as can reasonably be expected to be taken care of at one session of the Legislature.

Mr. Morgan anticipates that the operation of the line for 1922-23 under present conditions will result in a loss of approximately \$1,000,000, which he proposes should be provided for as follows: increased rates:—Authorize a maximum tariff equal to that in force on Canadian lines, permitting the management to make whatever rates it pleases within the limit allowed. It is estimated that \$200,000 additional revenue will thereby be produced. Unremunerative branches:—The estimated loss on the four branches is \$278,000, which should be met by a direct payment on account of each branch to cover the estimated loss, or by a subsidy of \$2 a mile for each train mile run on each branch. He prefers the latter plan. Mr. Morgan proposes an additional subsidy of \$190,000 for carrying mails. The above increases amount to \$668,000, the difference between which and the estimated loss would have to be provided for by direct taxation.

Plan for Future Operation.—The concluding section of Mr. Morgan's report, outlines a plan for the future operation of the unused railway and steamship properties. It does not appear, he says, that the conditions which have prevailed will be materially changed in the next few years, and it is therefore evident that if the road is to be maintained at all, it can only be done by considering it as a public utility, as it appears hopeless to expect that it can be run as a commercial venture paying its way. He recommends that the property be operated as a public utility, the Government to assume the obligation of maintaining the roadway, buildings and structures, bridges, etc.; also the maintaining of its equipment, locomotives, cars, etc., and the lessee taking care of operation, the lessee to collect all the earnings of every

description of operation and to pay all the expenses of operation. It appears to be the general belief that the Government has not been successful so far as economical operation is concerned, and Mr. Morgan suggests this plan in order to secure the benefits of private operation combined with a plan for the efficient maintenance of the property. He further said:—"I recommend that an agreement be entered into with some responsible contractor, possibly the present management, for the operation of the railway, on the basis that the contractor will operate the road, receive the earnings from traffic, and pay all operating expenses as specified under the head of conducting transportation, dining and sleeping car service and general expenses. The earnings of the property ought to be, with economical operation sufficient to meet these charges. If a surplus should result from the operation, some agreed proportion of the balance should be paid to the contractor as his remuneration, and the agreed difference or balance should go to the Government as an offset against advances paid for the maintenance of track and equipment."

Birthdays of Transportation Men in May.

Many happy returns of the day to:—

J. F. Aitchison, Auditor of Disbursements, G.T.R., Montreal, born at Edinburgh, Scotland, May 28, 1880.

Jas. Bain, Superintendent, Bridgewater Division, Maritime District, Canadian National Rys., Bridgewater, N.S., born at Pictou, N.S., May 24, 1860.

B. A. Bourgeois, Assistant to Comptroller and Treasurer, Canadian Government Railways, Moncton, N.B., born there May 24, 1869.

B. T. Chappell, General Superintendent, Prairie District, Western Lines, Canadian National Rys. and Grand Trunk Pacific Ry., Saskatoon, Sask., born at Charlottetown, P.E.I., May 1, 1878.

N. R. DesBrisay, District Passenger Agent, C.P.R., St. John, N.B., born at Minneapolis, Minn., May 18, 1888.

A. E. Duff, ex-District Passenger Agent, G.T.R., Toronto, now of Winnipeg, born at Sherbrooke, Que., May 1, 1872.

G. C. Dunn, Assistant to Chief Engineer, Eastern Lines, Canadian Northern Ry., Toronto, born at Quebec, May 13, 1862.

C. S. Gzowski, Jr., Assistant to Vice President, Construction, Canadian National Rys. and Grand Trunk Pacific Ry., Toronto, born there, May 1, 1876.

W. S. Hall, Superintendent, Portage Division, Manitoba District, C.P.R., Winnipeg, born at Montreal, May 23, 1884.

G. H. Hedge, Works Manager, Canadian National Rys., Winnipeg, born at Neath, Wales, May 26, 1865.

G. A. Hoag, Superintendent of Transportation, Ontario District, Canadian National Rys., Toronto, born at Walters Falls, Ont., May 31, 1866.

J. Irwin, Superintendent, Edmonton Division, Western District, Canadian National Rys., Edmonton, Alta., born at Clinton, Ont., May 28, 1866.

H. E. Kane, Port Agent, Canadian Government Merchant Marine, St. John, N.B., born there, May 20, 1895.

J. N. Murphy, Roadmaster, C.P.R., Brandon, Man., born at Mooretown, Ont., May 10, 1879.

Sir Augustus M. Nanton, President, Winnipeg Electric Ry., and director, C.P.R., Winnipeg, born at Toronto, May 7, 1860.

A. V. Redmond, District Engineer, Central District, Canadian National Rys., Winnipeg, born at Kingston, Ont., May 16, 1879.

A. G. Shaw, Passenger Department, C.P.R., Montreal, born at Detroit, Mich., May 12, 1865.

W. H. Snell, General Passenger Agent, C.P.R., Montreal, born at Palmyra, Neb., May 23, 1872.

W. Stapleton, District Passenger Agent, Canadian National-Grand Trunk Pacific Rys., Saskatoon, Sask., born at

Bristol, Eng., May 20, 1884.

R. B. Teakle, Manager, Canadian Government Merchant Marine, Montreal, born at Quebec, Que., May 19, 1877.

E. E. Tedford, Marine Superintendent, Canadian Government Merchant Marine, Montreal, born at Yarmouth, N.S., May 21, 1870.

J. M. Walker, District Agent, Canadian National Rys., Glasgow, Scotland, born there, May 14, 1880.

J. H. Walsh, General Manager, Quebec Central Ry., Sherbrooke, Que., born at Quebec, May 12, 1860.

H. K. Wicksteed, B.A.Sc., C.E., ex-Chief Engineer of Location, Canadian National Rys., Toronto, born at Quebec,

May 25, 1855.

C. L. Wilson, Assistant Manager, Toronto & York Radial Ry., Toronto, born at Boston, Mass., May 23, 1871.

A. O. Wolff, Resident Engineer, Brownville Division, New Brunswick District, C.P.R., Brownville Jct., Me., born at Copenhagen, Denmark, May 14, 1887.

J. M. Woodman, General Superintendent, New Brunswick District, C.P.R., St. John, N.B., born at St. Marys, Ont., May 15, 1866.

C. H. Worby, Assistant Superintendent, Sleeping, Dining and Parlor Cars and News Service, Western Lines, Canadian National Rys., Winnipeg, born at London, Ont., May 18, 1883.

The Proposed Windsor-Detroit Bridge.

Development of the plans for the Detroit River bridge to connect Windsor, Ont., and Detroit, Mich., a project that has been under consideration during the past two years, has progressed far enough to put into concrete form some of the outstanding individual features of the proposed structure. A span of 1,803 ft. center to center of towers will

security brokerage house to sell the bonds and stock. In the meantime an advisory board of engineers has been formed, comprising G. H. Pegram, Prof. W. H. Burr, C. N. Monsarrat and Prof. C. R. Young.

The principal dimensions of the structure are given in fig. 1 herewith. The towers will be of steel, consisting each

load of 36,000 lb. per lin. ft. of bridge (24,000 lb. for 4 railway tracks, 5,000 lb. for 2 trolley tracks, and 7,000 lb. roadway and sidewalk load.) This is regarded as full or "congested" loading, a condition that would probably never be possible of realization as a test load, and to which extreme unit stresses might be applied. The normal live load, for the ap-

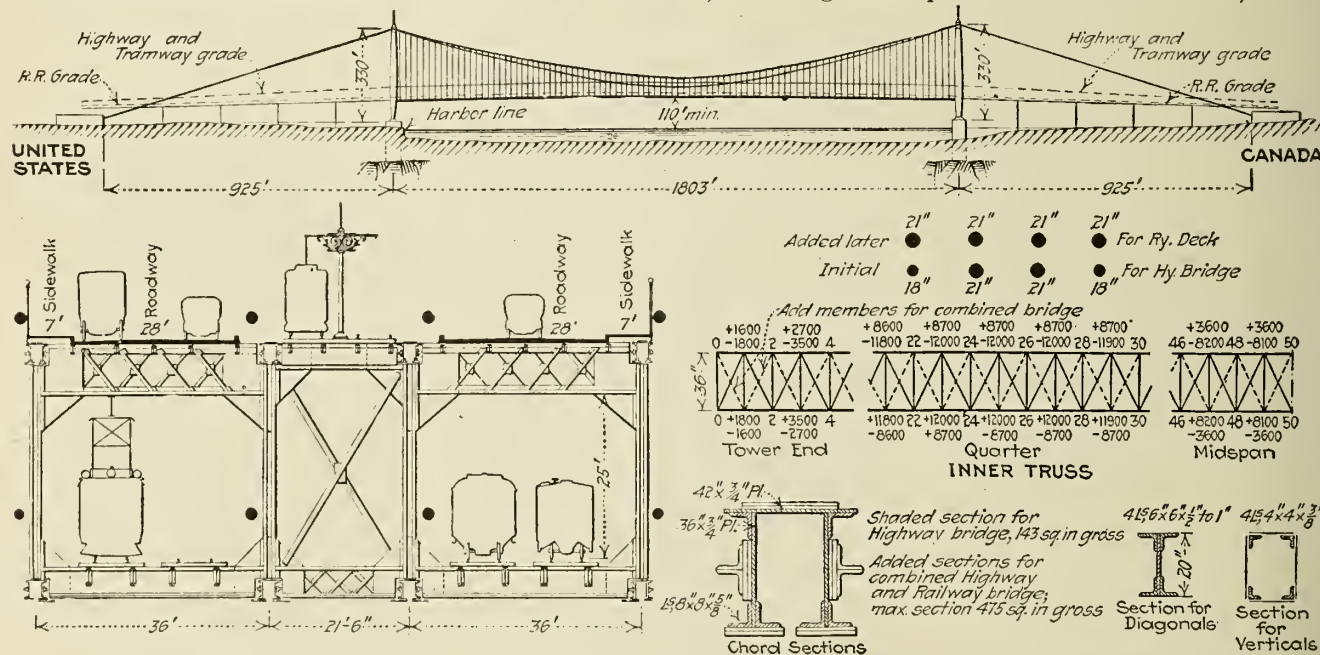


Fig. 1. Windsor-Detroit Bridge, Dimensions and Structural Arrangement, Truss re-inforcement when second deck is added.

be required, and for this purpose a suspension bridge with unloaded backstays, carrying two decks for separate accommodation of railway and highway traffic, has been designed. The plan has been adapted to the requirement of construction in two stages, the highway deck to be built first and the railway deck to be added later, together with the cables and extra stiffening truss capacity required to take care of it. The unprecedented span length and the high load capacity necessary for the service to be carried made the design a difficult problem. Some drawings of the design prepared by C. E. Fowler, Chief Engineer, and D. B. Steinman, Assistant to Chief Engineer, are reproduced herewith.

The promoters have obtained the necessary authority from the Dominion Parliament, and the U.S. Congress, through the granting of charters to a Canadian and a U.S. company for the construction of the bridge, and these companies have been organized for joint action. Arrangements have also been made with a

of 4 posts in the vertical planes of the 4 pairs of cables (one pair to each stiffening-truss.) A sag ratio of one-tenth has been adopted, with stiffening-truss depth one-fiftieth of the span length; a sag ratio of one-ninth and a truss depth of one-sixtieth are being investigated for economy, deflection and general appearance of the structure. The sag in question is the mean of that of upper and lower cables. The two decks will be spaced the full depth of the trusses. The lateral system will have a paneling four times the length of the stiffening-truss panel.

On account of the heavy loading, special effort has been made to utilize the material to fullest efficiency by careful adaptation of the unit stresses to the available strength. For the floor, normal concentrations have been taken into account, including E60 loading on the railway deck, with impact 50% of that specified by the Pencoyd formula, for railway speed of 20 m.p.h.; for the major elements of the structure, a total live

plication of normal unit stresses, is made up of three-quarters of the congested railway load (four tracks at 4,500 lb.), 40% of the trolley load (two tracks at 1,000 lb.), and half the roadway and sidewalk loading (50 lb. per sq. ft.), making a total of 23,500 lb. per lin. ft. of bridge, or 65% of the congested loading. Wind was computed at 30 lb. per sq. ft. of exposed surface, including the projected surface of 2 trusses and train and traffic loading, a total of 1,850 lb. per lin. ft. of bridge, considered as a moving load. The railway and highway floors will however absorb nearly half the lateral force. A temperature variation of 60 deg. F. above and below mean was allowed for. The suspended dead load for the design as worked out amounts to 37,700 lb. per lin. ft., of which the cables and suspenders make up 6,700 lb. and the 4 trusses 16,500 lb. Unit stresses have been applied as follows, the 2 stresses given being in each case extreme and working, respectively: Cables, 100,000 and 85,000; suspenders,

50,000 and 40,000; alloy steel for towers and trusses, 45,000-150 l/r and 30,000-120 l/r; structural steel, 20,000-80 l/r. The extreme stresses are to be applied to congested loading and temperature, or to normal loading with temperature and wind. The working stresses are to be applied to normal load and temperature, or to empty bridge with temperature and wind.

Eight cables are considered necessary primarily because of the long span and great load. Cables of 21 in. diameter are considered the largest practicable for construction and efficiency. How-

load with temperature.

As the development of railway traffic arrangements and connections is believed likely to delay the realization of the project if construction to full capacity at the start is contemplated, the present intention is to build a highway bridge first, under such method of construction that only so much will be built as is necessary to support the highway deck, while at the same time the additional supporting and carrying structure for the railway deck can be provided by direct attachment to the original bridge. Accordingly the design is such that the

the difficulty or impracticability of 2-stage construction.

Two special elements of the structure are given in fig. 2, showing one of the towers and one of the anchorages. The 4 posts of each tower will be portal-braced, instead of being connected by full diagonal bracing. Below roadway level they will be braced by transverse diaphragms. While these towers are to be built of alloy steel, the working stresses in compression will not exceed 35,000-140 l/r even under congested loading. The maximum compression in an inner tower post is 30,500,000 lb., for working live-load conditions, with extreme temperature and wind action. The towers will be hinged at the base to allow for movement of the saddles due to temperature change of the cables. Their weight will be about 20,000,000 lb., while towers fixed at the base would be more than twice as heavy.

The stiffening trusses were designed 2-hinged for reduction of deflections and to avoid high suspender loads near midspan such as may occur with a center hinge; the weights of 2-hinged and 3-hinged truss were found to be about equal for the conditions of the Detroit bridge.

Unloaded backstays are to be used primarily on account of a curve in the railway approach, but the avoidance of large deflections in the side spans and decrease of main-span deflection were considered weighty additional reasons for this type as against loaded backstays, although there was little difference in economy between the two arrangements.

For the anchorages the novel construction shown has been devised to provide for direct transfer of the cable pull to the underlying rock, with a concrete anchorage block only heavy enough for the desired solidity of construction and for the purposes of bracing the 4 strut frames. This will be attained by providing an inclined strut from rock up to the anchorage saddle, from which saddle (taking the pull of one upper and one lower cable) 2 eyebar chains will pass backward and downward into a pit in the rock containing anchorage girders. Both strut and anchorage chains will be encased in shafts of concrete as protection from corrosion and indirectly a reinforcement of the anchorage.—Engineering News-Record.

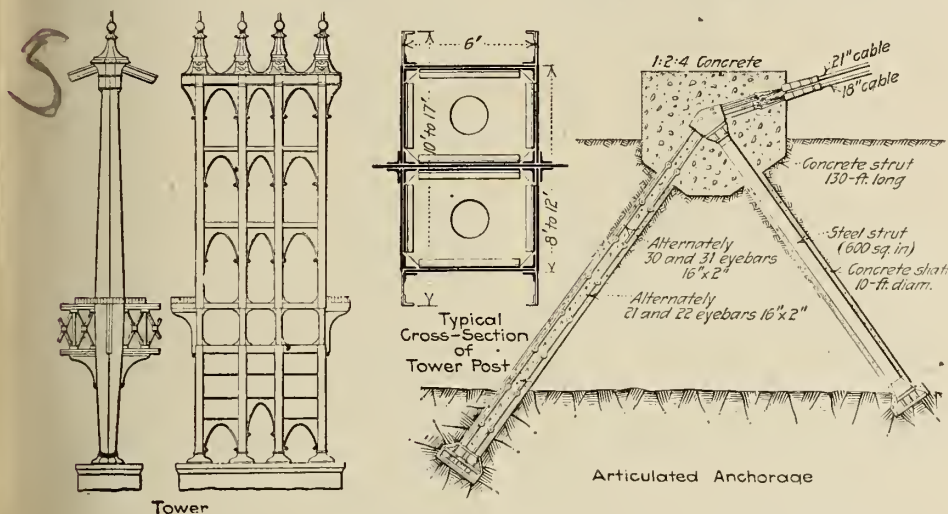


Fig. 2. Windsor-Detroit Bridge, Portal-braced tower and street-and-tie anchorage.

ever, this arrangement also affords a ready solution of the problem of 2-stage construction. Six of the 8 will be 21 in. in diameter, containing 7,980 parallel wires each, of 0.192 in. diameter, galvanized. Two of them will be 18 in., with 6,700 wires of the same size. Wire of 215,000 lb. ultimate and 70% elastic limit was counted on, though material of about 10% higher elastic value may be obtained. The cables are to be continuous from anchorage to anchorage, and to be wrapped with no. 9 soft annealed galvanized steel wire; the suspenders will be pairs of galvanized-wire ropes $1\frac{1}{4}$ and $1\frac{1}{2}$ in. diameter. Maximum cable stress will amount to 19,700,000 lb. for a 21-in. cable, under normal

four lower cables (inner 21 in., outer 18 in.), the 4 stiffening-trusses, and the entire upper deck structure could be built first, but with the omission of one (of two separate) web systems and of reinforcing plates of the chords of the stiffening-trusses. The second or upper set of cables would be reeved and assembled only when the railway or lower deck is required. These cables, separated near midspan from the lower ones by a height of some 20 ft., are to pass over saddles directly above the saddles of the lower cables and then run closely parallel to them along the backstay length to separate anchor chains. Anchorages, tower piers and towers are to be built of full capacity in the beginning, on account of

The Railway Chief Clerk, His Problems, Duties, and Required Qualifications.

By H. A. Balkwill, Car Accountant, G.T.R., Montreal.

The modern railway is of so complex a character and the chief clerk is such an important part of the organization that we cannot hope to deal fully with our subject in the time allotted to us. I am aware that in claiming such an important position for the chief clerk, a very prominent railway man some years ago declared the position illogical, mainly on the ground that no man can sign another man's name without a "dishonest violation of the fundamental laws of matter." It is respectfully submitted, however, that the position of the chief clerk, not only before, but since this statement was made, has proved its worth, and granting his place in the modern railway organization, there can be no doubt in respect to his responsibilities. His problems will, of course, like his responsibilities be governed by the size of the staff over which he has control, as well as the nature of the

peculiar duties of the office with which he is connected. We will endeavor to show later that the qualifications necessary for a successful chief clerk are those which all of us must possess to some degree if we are to play our part in life with any resultant credit.

It is, of course, a fundamental truth that no man can serve two masters. The modern chief clerk in a large railway office, however, successfully upholding his chief to the benefit of the company by demonstrating to his fellow employees that his selections for the various tasks are in line with justice and the legitimate demands of their employer, has as closely approached this impossible task as can well be expected of any man and has thereby solved one of his most, if not the most, important problems confronting him. The problem I refer to is that of securing an organization, for it is a fundamental truth that team work will

give results greatly in excess of uncontrolled individual effort. As the ability of each employee differs in degree, it is absolutely necessary that they be assigned to the various tasks, so as to become an efficient whole, thereby securing the maximum of service for the company. The wise employee will admit the truth of this statement, as an unorganized staff or a staff not properly organized will require a larger number of employees with a possible decreased output and it does not necessarily follow under such conditions that the company alone will be the loser. The problems generally confronting the chief clerk in some of the more important railway offices are as varied as the ramifications of the road itself, and if he is to successfully measure up to his responsibilities, he should have a general knowledge of matters affecting every activity of his railway as well as the work of his own particular

office. The majority of employees are conscientious, not merely time servers, but, being human, dislike and resent apparent injustice. A successful chief clerk will, therefore, see that his fellow employees receive justice, with courteous treatment, for courtesy will ever bring large dividends in the dealings of every day life. We can all possibly recall men eminently just, but so harsh in manner as to largely counteract the justness of their actions. I have endeavored to stress the important facts concerning the chief clerk, that he must secure for his company efficient as well as cheerful service, by wise selection, firm and courteous bearing, so that both he and his fellow employees will be dividend producing advertisers for their road, instead of being merely 8-hour day clerks. A disgruntled employe is not a profitable investment during office hours, and may by his "knocking" both at home and in society become a positive liability.

If the duties of a chief clerk bring him in touch with the public, his problems as well as his responsibilities are necessarily increased, as the particular problem then confronting him is to satisfactorily meet the demands of those whose knowledge of the difficulties concerning railway operation must of necessity be limited, and while a great majority of the public are fair and broad-minded, still there is always a considerable portion to whom the one and only important matter before the railway is their particular case, and no allowance will be made for any failure to measure up to the standard set up by them. In fact cannot we railway men recall a similar attitude of mind towards commercial houses when to us they have most inexorably failed in service.

The wise chief clerk will also always bear in mind the telephone is probably the most important point of contact with the public, and will carefully mark the manner in which the public is approached by this avenue. Even an unwise answer over the phone will leave a feeling of irritation and may result in the shipper listening to the wiles of the other road's solicitor. Of course there is as much human nature in the public as in railway employees and occasionally the employe is hard put to it to control his temper. In such an event he should be trained to turn the customer over to the chief clerk, whose larger experience will generally win the day. Do not let us forget that while a soft answer will turn away wrath, a wise answer in the first instance will obviate the necessity for the soft answer later on.

No endeavor has been made to draw a sharp distinction between the responsibilities, the problems and the qualifications of a chief clerk, as it is somewhat difficult to separate them into their component parts and our purpose will be equally served if we do not attempt to draw too sharp a distinction. If, therefore, we are prepared to admit the responsibility attaching to the position, it logically follows that the problems add to the responsibilities, and the responsibilities are because of the duties confronting the occupant of the office.

The heads of some offices are of necessity absent from headquarters a considerable portion of each month; the chief clerk then becomes in the full sense of the term the "assistant" and must shape his actions so that the best interests of the company as laid down by his head will be fully served. This emphasizes the necessity for practical

knowledge of all of the details of the work coming under his supervision, so that urgent and unexpected demands for special information, or statistics, in which time is a vital essential, can be fully complied with.

Of course, chief clerks being only human we sometimes find that the possessor of the title has magnified the importance of his position and has assumed responsibilities out of all proportion to their real value; then is the unfortunate caller overawed by the magnificent presence and regal manner and if he does not feel that his business demands an interview with the head, he frequently leaves that particular office fighting mad with a desire to get even with the cause of his irritation. If, however, the caller finds it necessary to see the head of the department, he draws his first assured breath only on being admitted to the private office, feeling that he has come in contact with the fallible human being.

On the other hand we have the timid chief clerk, a man afraid to shoulder responsibility and apparently unable to reach a decision even in matters of every day detail. Such a one is greatly bothered by a request for a prompt decision, and usually asks that the matter be submitted in writing, so that careful consideration may be given to it. Of course, such a chief clerk has his value to the pulp and paper industry, as many a file of correspondence is started on its innocent way to assume large proportions simply as the result of the timid chief clerk. Again we have the offhand chief clerk, the bright snappy optimistic fellow to whom all things are possible and who will promise practically everything requested, but whose promises must of necessity fall short on many occasions. It is a source of satisfaction, however, to note that such varieties of chief clerks are becoming rare, necessarily so, as modern business has no room and cannot afford time for self glorification, undue timidity or reckless optimism.

As against the foregoing, let us recall with pleasure the competent chief clerk encountered in so many railway offices, whose quiet manner, supported by an intelligent grasp of the subject, leaves you with a feeling of respect, not only for the chief clerk as a man, but for the office of the road he represents.

In considering the qualifications required by the really successful chief clerk, we could, of course, sum it up in the one word efficiency. This word has, however, I think, been overworked and does not completely define the qualifications considered necessary and it will, therefore, doubtless prove profitable to consider the matter in more detail. A certain railway man of this continent, in an endeavour to bring himself prominently before the railway public, has stated he possesses the qualifications of being "viciously ambitious and yet cautious and determined." Without ambition, advancement cannot, of course, be achieved, but I fail to comprehend why a man should claim viciousness as a virtue necessary to advancement. Viciousness must necessarily be a handicap even to the "cautious and determined" man. I would strongly advise my ideal chief clerk to purge such a poison out of his system without delay. Would not the better motto be "Ambition controlled by fairness and aided by determination."

As the ideal chief clerk I would picture a man mentally alert, with a broad understanding of humanity, whose heart is kept in proper control by his reason.

In such a person we will expect to find, and will find enthusiasm, for enthusiastic leadership will turn many an apparent defeat into victory. With it the morale of the staff will be raised to a high level, and will be consistently maintained, resulting in more efficient service. In fact I would place enthusiasm properly controlled close to the top of the qualifications required by the successful chief clerk. We have, however, referred previously to the necessity of the chief clerk securing cheerful as well as efficient service. This of necessity involves a systematic arrangement of the work, but system must not become a fetish, otherwise the results will not be those hoped for. These two qualifications, viz., enthusiasm and system, necessarily imply the faculty to plan. If, therefore, we are prepared to admit that enthusiastic leadership and systematic arrangement of the office are essentials to the career of a successful chief clerk, it necessarily follows that the possessor of these two important attributes must likewise possess the power of seeing, to a certain extent, into the future, and be able to plan for today, so that tomorrow's changes may be taken care of without serious derangement of the main plan of the organization. Thus enthusiastic leadership, aided by judicious system, strengthened by foresight, will go far towards success, and the office so blessed with a chief clerk possessing these attributes will rank high in the organization of any road. In fact a staff of average ability, under such conditions, will give better results than one depending rather on the outstanding abilities of the few, hindered more or less by the unintelligent efforts of the many.

I have endeavored to show that the qualifications I would demand in the ideal chief clerk are those of enthusiasm, systematic habit of mind, ability to forecast and plan for the future, ability to select the individual for the work best suited to his mental qualifications, firmness of character tempered by mercy, so that true justice will prevail. Such a one will of necessity be courteous; in fact I would again emphasize the tremendous importance of courtesy. Many a man occupying a high position, occupies the position in some measure at least by being able to say "Please" and "Thank You" with such natural courtesy that it is a pleasure to render such a one a service. I cheerfully admit the ideals I have endeavored to set forth are high ones, but on the other hand, I can claim that the chief clerk possessing such characteristics will successfully deal with his daily problems and will fully measure up to his responsibilities.

The foregoing paper was read before the Canadian Railway Club in Montreal recently.

Editor's Note.—In some offices the practice is for the chief clerk to simply sign the head's name, without anything to show that it is not a personal signature; in other offices the clerk's initials are added, but frequently very indistinctly. In our opinion the name of the head should be typed or written, followed by "per," and the chief clerk's signature. This is, of course, a debatable question, and Canadian Railway and Marine World will be pleased to receive expressions of opinion on it from any of its readers.

The West Australian Government has invited tenders for shop machinery for locomotive building.

Movements of Canadian Grain for the Crop Year Ended Aug. 31, 1921.

The Dominion Bureau of Statistics, Internal Trade Branch, has prepared a summary of the main movements of Canadian grain during the crop year ended Aug. 31, 1921, (crop of 1920), from the eastern and western fields into the principal channels of consumption within the country and towards export markets. For purposes of the grain trade, Canada has been divided into two main inspection divisions, the western and the eastern, the dividing line falling east of Port Arthur. It has been impossible to include all the details of the movement within the country, and the expedient has been adopted of showing a pool for each division, with the principal streams into and out of each of these pools for the crop year.

The chief source of supply is, of course, the wheat crop of the year, computed at 263,189,300 bush., of which 235,059,827 were produced in western division. Stocks on hand at the beginning of the crop year Sept. 1, 1920, amounted to 4,580,228 bush. and imports to 269,892. This makes the total flow into the western pool for the crop year 239,909,947 bush.

The quantity of wheat disposed of for commercial purposes in the western division, that is, shipped out of the division or milled within the division, amounted to 188,304,783 bush. Shipments out of the division were 163,964,892 bush., distributed as follows: exports to the United States, 46,272,438; exports to the United Kingdom and other countries, 37,717,742; shipments to the eastern inspection division, 79,974,712. The quantity milled for consumption in Canada was 21,404,712 bush. and 2,935,179 were milled but exported in the form of flour. In addition to the above amounts disposed of commercially, it is estimated that 38,900,860 bush. were retained for seed, and 5,257,073 were carried over in store to the next crop year. (Aug. 31, 1921).

The primary movement of the wheat is, of course, from the farm to the inspection points and on to the public and private terminal elevators at Fort William and Port Arthur. Inspections were 187,185,000 bush. and receipts at these elevators 141,816,632. In addition 306,149 were shipped by rail to the east via Armstrong, Ont., without touching the head of the lakes. The rail shipments from Fort William and Port Arthur were 17,897,997 bush. These, with direct shipments other than those mentioned above, amounted to 24,013,837 bush., making a total shipment all rail out of the division of 24,319,986. The water movement from the head of the lakes was 123,059,577 bush., 55,270,869 going to Canadian lake ports and 67,788,708 to U.S. points. Canadian wheat shipped from Duluth, Minn., amounted to 687,374 bush., of which 77,708 went to Port McNicoll, Ont., the balance, 609,666, going to U.S. ports.

Of the total lake shipments from Fort William and Port Arthur 30,344,757 bush. entered Georgian Bay ports, rail shipments from which totalled 31,530,139 bush. The bulk of the rail shipments no doubt found their destinations in Montreal for export. Goderich elevators received 7,817,918 bush. by water and 395,832 by rail. This was all shipped out by rail, either as wheat or flour. Port Colborne elevators received 17,523,017 bush. by water and 553,848 by rail, a total of 18,076,865. Of this amount 12,

011,597 were shipped out by water, the rail shipments of 6,036,030 from Port Colborne including grain milled by the Maple Leaf Milling Co. there, 10,004,103 bush. were received at Montreal by water, of which 880,639 were direct shipments from the head of the lakes. Rail receipts were 20,935,743 bush., making the total quantity of wheat handled at Montreal 30,939,846.

Shipments by water from Fort William and Port Arthur to United States ports were as follows:—

	Bush.
Duluth-Superior	4,990,940
Chicago	1,550,485
Detroit	411,440
Toledo	1,753,496
Cleveland	895,500
Buffalo	57,626,003
Other U.S. ports	560,544
Total	67,788,708

Customs returns show that 37,251,394 bush. of wheat were exported billed direct from Fort William and Port Arthur to countries other than the U.S. via U.S. seaboard ports. Total lake shipments increased from 80,803,960 bush. to 123,059,577, shipments to Canadian ports decreased while shipments to U.S. ports increased.

Shipments from the western division into the eastern pool were 79,974,712 bush. as shown above. The eastern crop was 28,129,473 bush., and the quantity carried over from the previous year was 5,267,363. Imports from the U.S. were 322,592 bush., making the total quantity entering the eastern pool 113,694,140.

Shipments out of the eastern pool to U.S. were 2,941,113 bush.; to other countries, via Canadian seaboard ports, 32,300,876; to other countries via U.S. ports, 16,941,616; a total of 52,183,605 bush. Mill grindings for domestic consumption were 18,074,160 bush., for export 28,054,341; a total of 46,128,501. The total disposed of commercially was 98,312,106. Of the balance 1,806,282 were required for seed and the carry over at the end of the crop year was 2,599,732 bush. The exports of 32,300,876 bush left Canada through the following ports:

	Bush.
Montreal	25,784,118
Quebec	41,186
Total, St. Lawrence ports	25,825,304
North Sydney, N.S.	400
Halifax, N.S.	333
St. John, N.B.	6,474,839
	32,300,876

Other exports through Canadian points were as follows:—to the Orient, via Vancouver, B.C., 466,329 bush.; from Dawson, Yukon, 20 bush., making total export of 32,767,224 bush. passing through Canadian points.

Rail shipments from the eastern division to the U.S. for consumption were 2,941,113 bush., and for re-export to other countries 16,941,616, a total of 19,882,729 bush. Of this amount 3,005,402 left Canada through Ontario ports of exit, 13,917,750 through Coaticook, Que., other Quebec inland ports of exit showing 18,464. Exports of Canadian wheat through Portland, Me., were 13,883,449 bush.

Total exports of wheat to the U.S. for consumption were 49,213,551 bush. Exports to the United Kingdom and other overseas countries were 86,960,234 bush., 32,767,224 being shipped via Canadian ports and 54,193,010 via U.S. ports. Total exports of wheat from Canada were 136,173,785 bush.

Comparative figures of export shipments overseas via Canadian and United States seaboard ports for other crop years are as follows:—

	Canadian ports	U.S. ports	Total
Sept. 1- Aug. 31			
1918-1919	35,292,000	19,102,080	54,394,080
1919-1920	48,009,632	13,023,281	61,032,913
1920-1921	32,767,224	54,193,010	86,960,234

The bulk of the exports of Canadian grain via U.S. ports during the crop year 1920-21 passed through New York. Other U.S. ports handled Canadian grain in the following order:—Portland, Baltimore, Philadelphia and Boston.

Movement of Canadian Oats.

The crop of oats in the western division was computed for the crop year 1920-21 to be 316,418,280 bush. The amount on hand at the beginning of the year was some 5,825,352 bush. The only other stream entering the western pool is the small amount of 3,666 bush. imported from the U.S. This makes a total flow into the pool during the year of 322,247,298 bush. Of this 55,186,098 were used for commercial purposes, i.e., shipped out of the division or milled within the division. Shipments out of the division were 49,657,772 bush., distributed as follows: to the eastern inspection division 44,076,446, exported to the U.S. 2,442,874, exported to the United Kingdom and other overseas countries 3,138,452. There were ground in the west 5,528,326 bush., 4,512,860 for domestic consumption and 1,015,466 for export. In addition to the quantity disposed of commercially it is estimated that 27,213,735 bush. were required for seed, and 23,653,459 were carried over in store to the next crop year.

Receipts of oats at the public and private terminal elevators at Fort William and Port Arthur were 50,302,399 bush. Shipments were 45,299,610 bush, 39,300,489 by lake and 5,999,121 by rail. In addition 3,866,072 were shipped straight through to the east by rail, 882,522 going via Armstrong, Ont., making a total rail movement from the western division to the east of 9,865,193 bush.

Lake shipments to Canadian ports were 34,211,253 bush. These, with the rail shipments of 9,865,193 made a total movement of 44,076,446 from the western inspection division to the eastern. No oats were shipped via Duluth. Exports via Vancouver, B.C., were 8,085 bush.; via Prince Rupert 29, and via Dawson 600.

Of the total lake shipments to Canadian ports 21,078,990 bush. entered the Georgian Bay port elevators, from which 18,986,196 were forwarded by rail; 4,606,460 bush. from the lake streams were received at Goderich, shipments by rail from these elevators being 4,055,284. Receipts at Port Colborne elevators were 4,586,225. Shipments from Port Colborne by water were 4,275,198 and by rail 257,858, a total of 4,533,056. Water shipments from Port Colborne were mainly transshipments of grain en route to Montreal, 6,782,984 bush. were received by water at Montreal, including 2,283,209 shipped direct from Fort William and Port Arthur. Rail receipts of oats at Montreal were 17,279,348 bush., making total receipts at Montreal 24,062,332.

All oats shipped during the crop year 1920-21 by water from the head of the lakes to U.S. ports were destined to Buffalo, and amounted to 3,958,648 bush. Customs returns show that 3,129,738

bush. of oats were exported billed direct from Fort William and Port Arthur to countries other than the U.S. via U.S. seaboard ports.

The eastern crop of oats was estimated at 214,291,420 bush. Shipments from the west as above were 44,076,446. In addition to the crop of the year and shipments from the western division 4,287,807 were carried over from the previous year. There also was an importation from the U.S. into the eastern division of 1,017,435. The total quantity of oats entering the eastern pool was 263,673,108.

The movements out of the eastern pool during the chop year 1920-21 included 6,494,626 bush. milled for domestic consumption, 2,030,928 milled for export, and export shipments from Mont-

real of 19,214,321, from St. John 1,282,722, from Halifax 471,541, from Charlottetown 39,254, from Sydney and North Sydney 50,954. Fifty bushels were also shipped out through Amherst, N.S., making a total export shipment of 21,058,842 bushels through Canadian Atlantic seaboard ports.

Shipments to the U.S. for consumption were 428,599 bush. and 1,645,715 were shipped from the eastern pool for export to other countries through U.S. ports, making the total shipments by rail from the east into the U.S. 2,074,314. Seed requirements in the east were 15,158,837 bush. and 19,120,264 bush. were carried over into the next crop year.

Two main streams went into the U.S., 3,958,648 by water via Buffalo, and 2,-

074,314 moved by rail from the eastern pool. These, with other shipments southerly by rail from the western inspection division, amounted to 7,646,926 bush., of which 2,871,473 were for U.S. consumption and 4,775,453 were for re-export to other countries, via United States Atlantic seaboard ports. These shipments, together with the shipments of 21,067,556 bush. through Canadian ports, both eastern and western, made a total export movement of 28,714,482 bush.

During the crop year the export of Canadian oats through U.S. ports dropped from 5,802,538 bush. in 1919-20 to 4,775,453, compared with an increase from 3,427,156 to 21,067,556 in the movement through Canadian ports.

Switching and Transfer Locomotives, Grand Trunk Railway.

As stated in Canadian Railway and Marine World for February, the G.T.R. is having 10 switching locomotives and five transfer locomotives built at its Montreal shops. The switching locomotives' principal details are as follows:—

Gauge	4 ft. 8½ in.
Fuel	Bituminous coal
Tractive power	34,381 lb.
Weight in working order	174,000 lb.
Weight on drivers	174,000 lb.
Weight of engine and tender in working order	304,000 lb.
Wheel base, driving	11 ft. 6 in.
Wheel base, total	11 ft. 6 in.
Wheel base, engine and tender	45 ft. 9½ in.
Length, overall	62 ft. 6¾ in.
Weight on drivers÷tractive effort	5.06
Total weight÷tractive effort	5.06
Heating surface÷grate area	38.4
Cylinders, diam and stroke	22 x 26 in.
Valves	Piston 14 in.
Driving wheels, diam. over tires	56 in.
Driving wheels, thickness of tires	3½ in.
Driving journals, main, diam. and length	9½ x 12 in.
Driving journals, others, diam. and length	9½ x 12 in.
Boiler, style	Extended wagon top
Boiler, working pressure	180 lb.
Boiler, outside diam. of first ring	5 ft. 8 9/16 in.
Boiler, firebox, length and width	96¾ x 75¼ in.
Boiler, firebox plates, thickness	½ in. tube, ¾ in. crown, sides and back
Boiler, firebox, water spaces	Front, 5½ in.; sides and back, 4½ in.
Boiler, tubes, number	178
Boiler, tubes, outside diam	2 in.
Boiler, flues, number	28
Boiler, flues, outside diam.	5¾ in.
Boiler, tubes and flues, length	12 ft. 4 in. over sheet
Boiler, heating surface, tubes and flues	1,777 sq. ft.
Boiler, heating surface, firebox and arch tubes	168 sq. ft.
Boiler, heating surface, total	1,945 sq. ft.
Grate area	50.62 sq. ft.
Tender, tank	Water bottom
Tender, frame	Built up type
Tender, weight	130,000 lb.
Tender, wheels, diam.	33 in.
Tender, wheels, material	Cast iron
Tender, journals, diam. and length	5½ x 10 in.
Tender, water capacity	6,000 gals.
Tender, coal capacity	9 tons

A number of existing G.T.R. standards are being used in the construction, the locomotives will be thoroughly modern, and equipped with all economy devices, which, in combination with a tractive power of over 34,000 lb. and the factor of adhesion shown, will make them highly efficient power units for switching. They will be designated as class F 13.

The locomotive frames are to be of cast steel, 4 in. wide, provided with heavy cast steel deck castings, and cast steel bumpers at the front, and cross ties of ample section will be employed. The back end of the frame will be fitted with cast steel foot plate or deck casting, and the front and back ends will be of a very substantial and strong design.

The boiler courses will be fitted with sextuple riveted joints, and double stag-

gered rivets, in circumferential seams, and the firebox will be fitted with two special blow off cocks, applied to the throat sheet. The locomotives will be equipped with a superheater and brick arch, the arch bricks being supported on four 3 in. tubes. Boiler accessories will include an air-operated firebox door of modern design, double turret valves, inspirators of the latest type, and a five feed lubricator. Smoke boxes will be equipped with A.R.M.M. front ends.

The cylinder castings have been designed with steam and exhaust passages of ample area and with easy bends. Cylinder and steam chest bushings, and packing rings in the piston heads and piston valves, will be of Hunt-Spiller gun iron. Piston rods and valve stems will be fitted with metallic packing. Baker valve gear will be employed, and will be controlled by power reverse gear, greatly facilitating the handling of the locomotive in switching service.

Driving wheel centers will be of cast steel, and all tires will be flanged 3½ in. thick, and shrunk on. Franklin adjustable driving box wedges will be used.

The cab will be spacious and spaced well back, providing ample deck space for the fireman, and special attention has been paid to the location of the cab fittings, to place brake valves, throttle handle, reverse lever, valves, etc., within easy reach of the crew, and the position of the steam, air and water gauges will be such that they can be easily read.

The tender will be carried on two 4-wheeled trucks of the equalizer design, with pedestals and McCord boxes, for 5½ x 10 in. journals.

Heavy 33 in. cast iron wheels will be used, with inside hung brake beams. The tender frame will be of channel steel design, and fitted with heavy cast steel bumpers at front and back ends, and stub casting for use with M.C.B. coupler. The radial buffer will be used. The tender tank will be of the water bottom type, with capacity of 6,000 U.S. gall., and the coal capacity will be 9 tons. The coal will be carried in a special hopper, designed that both the locomotive man and fireman will have an unobstructed view over the top of the tank.

The specifications of the five 8-wheel transfer locomotives are as follows:

Tractive effort	52,329 lb.
Weight in working order	242,750 lb.
Weight on drivers	242,750 lb.
Weight engine and tender in working order	410,400 lb.
Wheel base, driving	15 ft. 6 in.
Wheel base, engine and tender	53 ft. 4½ in.
Length over all	71 ft. 3¼ in.
Weight on drivers÷tractive effort	4.6
Total weight÷tractive effort	4.6

Heating surface÷grate area	48.35
Cylinder, diam. and stroke	26 x 30 in.
Valves	Piston
Valves, diam.	14 in.
Driving wheels, diam. over tires	56 in.
Driving wheels, thickness of tires	3½ in.
Main driving journals, diam. and length	11 x 20 in.
others	10 x 13 in.
Boiler, style	Extended wagon top
Working pressure	170 lb.
Outside diameter first ring	74 in.
Firebox, length and width	108½ x 75¼ in.
Firebox plates, thickness	½ in. tube, ¾ in. crown, sides and back
Firebox, water space	Front 5½ in., back 4½ in., sides 4½ in.
Tubes, diam.	2 in.
Tubes, number	228
Flues, diam.	5¾ in.
Flues, number	32
Tubes and flues, length	15 ft. over sheets
Heating surface, firebox, with arch tubes	235 sq. ft.
Heating surface, total	2732 sq. ft.
Grate area	56.5 sq. ft.
Tender—	
Tank	Water bottom
Frame	Commonwealth
Frame	157,650 lb.
Wheels, diam.	33 in.
Journals, diam. and length	6 x 11 in.
Water capacity	9,000 gall.
Coal capacity	12 tons

These 8-wheel locomotives will be known as class F-12, and will embody a number of existing G.T.R. standards in their construction. The frames will be of cast steel, 6 in. wide, and provided with heavy cast steel deck casting and cast steel bumpers at the front, while cross ties of strong design will be fitted, and the back end of the frame will be fitted with cast steel foot plate, with unit safety arrangement, making the front and back ends of a very substantial and strong design.

The boiler courses will be fitted with sextuple riveted joints, and double staggered rivets, in circumferential seams, and the firebox will be fitted with two special blow-off cocks applied to the throat sheet. Boiler accessories will include air operated firebox door and double turret valves, modern inspirators and five feed lubricator. Superheaters are to be applied, and the firebox will be equipped with four 3 in. arch tubes for the support of arch brick. The smoke box will be fitted with A.R.M.M. front end, and the cylinders will have steam and exhaust passages of ample area and easy bends.

Driving wheel centers will be of cast steel, and spaced equally apart one from the other, being 5 ft. 2 in. centers, and all tires will be flanged 3½ in. thick and shrunk on. The engines will be equipped with Young valve gear, controlled by power reverse gear. Automatic driving box wedges will be employed. The cabs will be spacious and will provide ample deck space for the firemen.

The tender will be carried on two 4 wheel trucks of the equalizer design, with pedestal and McCord boxes for 6 x 11 in. journals. Tender wheels will be 33 in. cast iron, and Buffalo brake beams,

inside hung, will be used. The tender frame will be of the Commonwealth cast steel design, in one piece, and so arranged that Miner draft rigging may be fitted, with M.C.B. coupler type D, with

6 x 8 in. shank. The tender tank and coal hopper will be so arranged that the locomotive man and fireman will have a good view to the rear over the top of the tank.

Self Propelled Cars on Steam Railways.

Greater Winnipeg Water District Railway.—The Greater Winnipeg Water District Commission has bought a gasoline operated railway motor car for operation on its railway, which extends from St. Boniface, Man., to Shoal Lake, adjoining Lake of the Woods, 92 miles. It has the following general dimensions:—

Length over all	42 ft. 6 in.
Width over all	8 ft. 4 in.
Height from rail to top of ventilators.....	11 ft.
Truck centers	22 ft.
Weight, body and frame	7 tons
Weight of car complete	13 tons

The car underframing consists of four 6 in. 8 lb. channels with cross members, gussets, etc., and the body framing consists of 1½ x 1½ x 3/16 in. steel tees, continuous, forming carline and posts. The siding, to the belt rail, is 3/32 in. steel plate, hot riveted, while the belt rail is 2½ x ¾ in. steel. Each end of the car is slightly rounded, as shown by the illustration. The vestibules are sheathed outside with 13 gauge sheet steel, and inside with 20 gauge sheet steel. The car flooring is double; the bottom layer is 13/16 in. yellow pine,

with 3 concentric rings ¼ in. wide. The valves, of special alloy steel, are 2¼ in. diam. and have a 7/16 in. lift. The piston displacement is 381.6 cu. in. The horse power at speed is as follows:—At 800 r.p.m., 37.5 h.p.; at 1,000 r.p.m., 46 h.p.; at 1,200 r.p.m., 53 h.p.; at 1,400 r.p.m., 59 h.p.; at 1,500 r.p.m., 61 h.p.; at 1,800 r.p.m., 66 h.p.

The cooling system consists of a tube and continuous fin type radiator, with a frontal area of 715 sq. in. and a 20 in. diam. 4-blade fan, driven at twice engine speed, by a 2 in. belt. The water pump, of the propulsion type, delivers 22.5 gall. of water a minute at 1,000 r.p.m. Ignition is through high tension magneto, equipped with impulse coupling, and the car is also equipped with a starting motor. The transmission is of the 4-speed, heavy duty type, mounted in a unit with the engine, and the gears are made from carbonized and oil-tempered nickel steel, and carried on nickel steel shafts and taper roller bearings. A multiple dry disc clutch is employed. The gear ratios are as follows:

wheels have cast steel centers, rubber cushioning elements, and M.C.B. rolled steel tires, 30 in. diam. The car is equipped with Westinghouse semi-automatic air brakes, and all wheels are equipped with brake shoes, supported by inside hung rigging. Hand brake staffs for emergency use are fitted at each end of the car. Brill dumpit type sanders are provided for each of the 4 driving wheels. The gasoline tank is of 50 gall. capacity. Electrical equipment consists of a 12 volt engine driven electric generator of 300 watts capacity, fitted with automatic cut-out and voltage control, and a 140 a.h. storage battery. Control is by a foot operated clutch and hand operated gear shift; the spark and throttle control are by hand.

The interior of the car is divided into passenger and baggage compartments, separated by a paneled partition. The baggage compartment has a sliding door on each side. The inside finish of the car, including all doors, sash, mouldings, etc., is of cherry. The side lining below the window sills is of agasote, and the



Gasoline Railway Motor Car, Greater Winnipeg Water District Railway.

tongued and grooved; over this are 3 layers of tar paper, and the top flooring is also of 13/16 tongue and groove yellow pine. The flooring in the baggage compartment is of 1½ in. yellow pine.

The roof is of the plain arch type, extending the full length of the body, and the roof boards are of ¾ in. poplar, tongued and grooved, and covered with no. 8 canvas, well bedded in white lead. The roof is reinforced by continuous side posts.

The car is driven by a 4-cylinder 4-cycle, valve in head, heavy duty type gasoline engine, with cylinders 4½ in. diam. by 6 in. stroke. The engine is equipped with a pressure oiling system, in which a gear driven pump supplies oil, under pressure, through crankshaft to all main crank and camshaft bearings, the pressure being regulated by automatic control from the intake manifold, so that the oil pressure varies with the load. The oil pump delivers 1.7 gall. a minute at 1,000 r.p.m. The crankshaft is 3 in. in diam. and is carried on 3 main bearings, the total main bearing length being 10¾ in. The connecting rod bearings are 3 in. diam. by 2¼ in. long, and the pistons are 4¾ in. long and fitted

1st, 5.35 to 1; 2nd, 2.12 to 1; 3rd, 1.68 to 1; 4th, 1 to 1.

The engine and transmission are mounted at the front of the car so as to be removable as a unit. The drive is through propeller shafts, having two universal joints each, used between the engine and the auxiliary transmission, and between the auxiliary transmission and each of the driving axles. The auxiliary transmission is mounted in the cast steel swing bolster, and transfers the drive through 2 propeller shafts to each driving axle. It is arranged to provide 2 ratios for forward operation, and one ratio for reverse, making a total of 8 speeds forward and 4 reverse. The driving axles are in the forward truck.

The 4-wheeled trucks are pivoted to take curves of radius as short as 70 ft. The truck frames are of 6 in. material. I beam side rails extend fore and aft over each axle inside of wheels, supporting channel transoms, which in turn carry the swing motion links. The I beams are tied at the ends by gusset plates and cross channels. The axles, of 3 in. diam., are of heat treated steel. Axle housings carry underslung semi-elliptic springs, which support the truck frames. The

baggage compartment is lined from floor to top rail with ¾ in. poplar tongued and grooved sheathing. The seats in the passenger compartment are of cherry, and are arranged transversely. They are finished in brown artificial leather, with the bottom cushions removable. The passenger compartment has accommodation for 38 passengers, and in addition there are folding seats of ash in the baggage compartment to accommodate 8 passengers. There are 11 windows on each side of the car, with double sash, the top sash being stationary and the lower made to raise. Each side window is provided with a pantasote curtain. There are 10 exhaust ventilators in the roof, 7 of these being in the passenger compartment, 1 in the lavatory saloon and 2 in the baggage compartment. The car is heated by exhaust from the engine, the waste gases being carried in thin steel wall tubes along either side of the car beneath the seats. The car is lighted by sixteen 15-candle power electric lights inside the car, 2 over the steps, 1 in the saloon, 4 in the baggage room and the remainder in the passenger compartment.

We are advised by the Greater Winnipeg Water District Commission that it

is expected to have the car in operation by about the middle of May, after which it is intended to use the present steam train service for freight only, making about one trip a week. During the past winter the Commission has operated a mixed train three trips weekly, in addition to which during the past two months a special freight train has been making two trips weekly, on account of the large quantity of wood and wood products to be brought out. The schedule for the motor car is not yet worked out, and it will necessarily depend upon the demand for service. It is probable that it will make four round trips a week at least. The car was manufactured by the Service Motor Truck Co., Wabash, Indiana.

The Canadian National Rys. management is continuing development work in connection with self propelled cars for branch line service, and has placed an order with Ledoux, Jennings Ltd., Montreal, for a gasoline driven passenger motor car, 26 ft. long over all, 7 ft. 8 in. wide and 10 ft. 2 in. extreme height from top of rail. The steel car body will be mounted on two 4-wheel trucks. The car will be driven by a Reo 6-cylinder 50 h.p. engine, equipped with self starter, dynamo, etc., and water cooled. The cooling system will include a centrifugal pump. The drive will be through a shaft

sioners' attention for some time, and on March 25 the Board issued order 32,224 upon a Canadian National Rys. application for permission to operate the car now being built by Ledoux, Jennings Co., as follows:—"Upon reading the application and the submissions filed in support thereof, and upon the report and recommendation of the Board's Mechanical Expert, the Board orders that the applicants be authorized to operate upon their railway a passenger car propelled by gasoline and constructed to detail plans on file with the Board, the motive power to be a 6-cylinder gasoline engine; and that, before the car is put into operation, it be inspected and approved by the Board's Mechanical Expert. That the Board reserves the right at any time hereafter, upon the report of its Chief Operating Officer or its Mechanical Expert, to order any changes or improvements in the said plans, or in any car constructed thereupon, which to it may seem necessary for the safety and convenience of the public or the applicant's employees; and the Board further reserves the right, at any time, to direct the discontinuance of the passenger service to be afforded by any car built according to the said plans, and the substitution therefor of other service."

Particulars of the gasoline motor passenger car operated by the Canadian

to whether it is the management's intention to re-establish such a service between Brockville and Westport. The Minister of Railway replied that the matter was then under consideration by the management.

The Board of Railway Commissioners has authorized the gasoline motor car service to be restored on the Brockville-Westport run, and the Canadian National Rys. management has therefore ordered another car from Ledoux, Jennings Ltd., Montreal, similar to the one for the Picton-Trenton run described above. Pending the delivery of this car, the present steam train service between Brockville and Westport will be maintained.

The electric storage battery car, described in preceding issues of Canadian Railway and Marine World, is still in operation between Bathurst and Campbellton, 62.96 miles, on the Maritime District, Campbellton Division, Bathurst Subdivision. One of the accompanying illustrations shows this car equipped with a snow plough which will remain on the car permanently. This car is continuing to give good and dependable service at the favorable costs mentioned previously, and despite delays of as great as 30 minutes has no difficulty in making its trips in schedule time on this busy subdivision.

In the latter part of 1921 the Victoria, B.C., Chamber of Commerce applied to the Canadian National Rys. management for the operation of a daily mixed passenger and freight service between Victoria and Sooke, some 22 miles out of Victoria on the Victoria-Alberni line, track on which has been laid to mile 74.6 from Victoria and on which a freight service is being operated weekly, and occasionally oftener when business offers, by the operating department for the construction department. The Chamber of Commerce suggested that a gas-electric car service, or service by steam car with box car trailer, would be most suitable, in view of the limited population to be served. An investigation by the Traffic Department showed that such a service would be subject to severe competition by highway vehicles, and the management pointed out recently that the business in sight would not begin to pay the expenses of operating a steam train service, but that a railway motor car would be the most economical and satisfactory way of handling the business, and that such a service was under consideration. It was also stated that at the conclusion of tests being made with self propelled cars on other C.N.R. lines, about the end of May, the management would probably be able to give a definite decision.

That the Canadian National Rys. management is keenly alive to the possibilities in connection with the operation of self propelled cars in railway service is evidenced by the reference made to the subject by the Minister of Railways in the House of Commons on April 11, when he said: "A problem which in recent years has confronted railway managements is the question of providing suitable service on branch lines at a cost not out of proportion to the earnings, and capable of meeting in many cases motor car competition. For this, the self propelled gasoline car seems to be most suitable. The Canadian National Rys. have been active in obtaining experience with this plan of operation. Much will depend on the attitude of railway labor toward the self propelled car, which could take care of branch line service, if expenses of oper-



Electric Storage Battery Car, Canadian National Railways, with Snow Plough Attached.

to the front axle of the rear truck, and side rods on the wheels of the rear truck will transmit the drive from the leading to the following wheels of this truck. The axles will be of heat treated steel, those in the front truck being 2½ in. diam. and in the rear truck 3½ in. The front wheels will be M.C.B., chilled iron, 20 in. diam., and the rear wheels 30 in. diam. Brakes will include ordinary type brake shoes and beams, operated by toggle joints and pull rods, geared to a hand wheel convenient to the operator. The general finish of the interior of the car will be white and mahogany stain. The floor will be of 2-ply wood, insulated, and the roof of ¾ in. tongued and grooved wood, covered with canvas and painted. The body will be equipped with 2 side doors for regular use by passengers and an emergency door at the rear. The seating capacity will be 32, and the seats, arranged transversely on each aisle, will be finished in rattan. This car will be used on the run between Picton and Trenton, 30.6 miles, on the Ontario District, Ottawa Division, Picton Subdivision, and it is expected that delivery will be made and the service inaugurated by May 15.

The question of the operation of self propelled cars on steam railways has engaged the Board of Railway Commis-

sioners' attention for some time, and on March 25 the Board issued order 32,224 upon a Canadian National Rys. application for permission to operate the car now being built by Ledoux, Jennings Co., as follows:—"Upon reading the application and the submissions filed in support thereof, and upon the report and recommendation of the Board's Mechanical Expert, the Board orders that the applicants be authorized to operate upon their railway a passenger car propelled by gasoline and constructed to detail plans on file with the Board, the motive power to be a 6-cylinder gasoline engine; and that, before the car is put into operation, it be inspected and approved by the Board's Mechanical Expert. That the Board reserves the right at any time hereafter, upon the report of its Chief Operating Officer or its Mechanical Expert, to order any changes or improvements in the said plans, or in any car constructed thereupon, which to it may seem necessary for the safety and convenience of the public or the applicant's employees; and the Board further reserves the right, at any time, to direct the discontinuance of the passenger service to be afforded by any car built according to the said plans, and the substitution therefor of other service."

We are informed that the people along the Canadian National Rys. line between Brockville and Westport were greatly pleased with the gasoline car service, which may have had something to do with H. A. Stewart, Leeds, Ont., asking in the House of Commons on April 5 as

ation are not made too costly in the matter of wages. In this effort to cut excessive costs, and yet provide reasonable service, the co-operation of railway labor is invited. As a matter of fact, these branch lines suffer not only from heavy costs of operation, but from competition of the motor car and motor truck, a competition which is increasingly felt each year by all railways." The Minister's reference to co-operation by labor is significant. An excessively large crew would impose an undue burden on such operation, and it is to be hoped that crews of the right number of men may be arranged, having due regard to the work to be done and to safety of operation. The storage battery car mentioned above is operating with a 3-man crew on a busy subdivision, when the Ledoux, Jennings Co. car, which operated between Brockville and Westport, was handled by one man, with absolute telegraphic protection.

It is evident that the use of self propelled cars for branch line operation is an important one. There has been a lot said and written about the advantages of electrification of branch lines, but a little study of the subject will convince anyone that the fixed charges incidental to their electrical operation would in many cases be prohibitive, and there is little doubt that self propelled cars will furnish the best means of operation. The matter of determining the type of car best suited for a particular service is one that requires a great deal of trial. We are informed by an official who has given this a great deal of study that there is room for all the types of cars so far tried by the Canadian National Rys. management, the main consideration being to get each type of car located on a run for which it is particularly suited. The storage battery type of car has been found to be well suited to a run within the battery power limit, with cheap power available at the required end of the run; the smaller gasoline cars are suitable for short runs where the traffic is light, while for the longer runs, and heavier traffic, a much larger gasoline car should be provided. We are confident that the experiments and trials now being conducted will prove the superiority of the self propelled car for branch line service, and that when they are adopted in large numbers great savings over the cost of steam train operation will be the result.

The Winnipeg Traffic Club, which was established in 1917, has the following objects:—To promote closer relationship between the shipping and travelling public and representatives of transportation companies by private and social intercourse between them, and for the friendly discussion of traffic problems, also to provide clubrooms, reading matter etc., and to create a benefit fund from which payment to certain dependent relatives of deceased members may be made. The club now has a membership of 225, consisting of railway officials and employees, and traffic officials of Winnipeg commercial houses. Its quarters, including reading room and library, are in the Cadomin Building. During the winter the club has had billiard tournaments, dances and smoking concerts. It has an eight team, ten pin bowling league, including some of the city's best bowlers. The officers are C. A. Fullen, President; C. K. Parrish, Vice President and A. J. Barber, Secretary Treasurer.

Proposed Limitation of British Preferential Tariff to Goods Entering via Canadian Ports.

H. J. Logan, for Cumberland, N.S., moved in the House of Commons, April 5, that the British tariff preference should be confined to goods brought into Canada through Canadian seaports. He stated that it would do much to support the policy that Canadian trade should be carried through Canadian channels to the greatest extent possible. He pointed out that the advantages of the policy advocated would not be confined to the Maritime Provinces or the ports of St. John and Halifax, but that all ports in Canada would benefit. He claimed that the autumn importations from Great Britain would come in through Quebec and Montreal, and importations from various British possessions, such as New Zealand, to which the British preference applies, would be brought in via Vancouver and Prince Rupert. He claimed that freight rates on eastbound commodities would be decreased if there were a greater westbound traffic to balance the eastbound traffic, and that legislation to compel the goods to enter Canadian ports to get the preference would give Canadian railways a greater westbound traffic. He also claimed that the Canadian Government Merchant Marine would benefit greatly; the ships would be in a position to get traffic to Halifax, St. John, Quebec, Montreal, Vancouver and Prince Rupert, and would naturally turn it over to the Canadian National Rys. At present, if an importer of goods in Vancouver makes a purchase in London, the goods are likely to be sent on a U.S. ship to New York, and will then be sent on a U.S. railway as far west as possible, so that all the Canadian railways get out of the transaction is the short haul from a junction in the western U.S., north to Vancouver. In addition to contending that the proposed legislation would benefit Canadian rail and ocean carriers and Canadian ports, he claimed that the policy is necessary for the building of a strong and independent Canada, and that it seemed to him to be the height of folly to spend millions of dollars on Canadian ports and then refuse to pass legislation which would help them. He admitted that an argument could be advanced that freight charges on imported goods would be slightly higher on account of the scarcity of complete cargoes to Canadian ports, but he would not, he said, admit the truth of that argument.

John Evans, Saskatoon, Sask., said that he considered the resolution a "camouflage of intent to curtail British competition," and for that reason, he said, he would not support it.

J. B. M. Baxter, St. John City and St. John and Albert Counties, N.B., supported Mr. Logan's motion, advancing arguments along the same lines as those employed by the mover. C. Marcell, for Bonaventure, Que., asked Mr. Baxter what would happen to the G.T.R. traffic from Portland, Me., if the proposed legislation were adopted. In reply, Mr. Baxter said that the development of Canadian ports is more important than the development of Portland, and pointed out that it is more important to shape railway policy to build up Canada than to build up the U.S.

Hon. T. A. Crerar, Marquette, Man., spoke against the resolution. He said that Mr. Logan's reasoning, by which he

arrived at the conclusion that lower freight rates would be given to the Canadian consumer by reason of return loads being provided for west bound movement from Canadian ports was most fallacious. He said that rates are lower between the U.S. and Europe than between Canada and Europe because of the greater volume of traffic to and from the U.S., and that an attempt to compel British goods to come in via Canadian ports would throw trade out of its natural and normal channel into an artificial channel. Such an attempt would be costly to the Canadian people. He pointed out that a great traffic in U.S. goods is enjoyed through the port of Montreal, and was of the opinion that if Canada attempted to discriminate against U.S. ports, the U.S. would see to it that Montreal got none of the U.S. traffic. He admitted that the proposed legislation would benefit St. John and Halifax, doubtlessly, but that it would retard the progress of Canada generally.

Jas. Malcolm, North Bruce, Ont., said that now that the G.T.R. is a nationally owned railway, it is the duty of the country to see that it has the maximum chance to make good, and he pointed out that if the resolution were given effect to, the G.T.R.'s chief port, Portland would be discriminated against with serious results. Canadians receive package freight in mixed cargoes through U.S. ports, but that is because a solid cargo of mixed merchandise is seldom available from Great Britain to Canadian ports, for the reason that our imports are limited. The present situation is that the Canadian importer gets the benefit of a low freight rate via Portland, but if the resolution were adopted, the Canadian importer would be discriminated against and in fact penalized.

Mr. Logan, in introducing his motion, stated that it was not his intention to press it to a vote, and after further discussion, he asked the Government to give the matter thorough consideration, and withdrew his motion.

Railway Finance, Meetings, Etc.

Canadian Pacific Ry.—The State Department at Ottawa has advised the New York Cotton Exchange, warning it against the acceptance of certain C.P.R. certificates, which present invalid holders are trying to dispose of against deliveries of cotton. These notes were sequestered by the Canadian Government under the peace treaty, the German Government obligating itself to hand them over. It is reported that the certificates were smuggled out of Germany, to Switzerland, and that endeavors are being made for their disposal through Milan.

The Pere Marquette Rd. Co. has declared a dividend of 1 2/3% for four months, and a dividend of 1% on account of the cumulative dividend of 5% on the preferred stock.

Canadian Government Railways' Deficits.—The Minister of Militia and Defence stated in the House of Commons, April 3, in answer to W. Irvine, Calgary East, Alta., that the total amount of deficits paid by the Government for the operation of Canadian Government railways to Dec. 31, 1921, was \$46,097,072.56.

Orders By Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

General order 361. Mar. 15.—Prescribing regulations and forms to be used by railway companies for reporting accidents to the Board, and rescinding orders 39,244 and general order 251, and circulars 110, supplements 1 and 2, thereto, and 131, herein. This order was published fully in Canadian Railway and Marine World for April, pg. 190.

32,219. March 22.—Ordering that 25% of the cost of installing wigwag signal at Michigan Central Rd. crossing at Shedden, Ont., be paid out of the railway grade crossing fund.

32,220. March 16.—Extending for three months, time within which Canadian National Rys. may install bell and wigwag signal at crossing at intersection of Smith St. and Eighth Ave., Regina, Sask.

32,221. March 20.—Approving agreement between Bell Telephone Co., and Tyendinaga Municipal Telephone System, Hastings County, Ont.

32,222. March 17.—Relieving Canadian National Rys. and C.P.R. from maintaining signalman on Sundays at crossing at Carberry, Man., so long as present character of movements continues.

32,223. March 16.—Extending to June 30, time within which G.T.R. may build extension to siding for Swift Canadian Co., Ottawa, Ont., authorized by order 30,041.

32,224. March 25.—Authorizing Canadian National Rys. to operate a 6-cylinder car propelled by gasoline.

32,225. March 20.—Authorizing C.P.R. to divert roadway in Lots 3 and 4, Range 6, Wright Tp., Que.

32,226. March 24.—Authorizing Brantford Municipal Ry. to operate cars and trains over crossing of Lake Erie & Northern Ry. on Morrell St., Brantford, Ont., pending installation of half-interlocker.

32,227. March 13.—Dismissing application of Canadian National Millers' Association for order directing C.P.R., G.T.R., Canadian National Rys. and other Canadian railways to reduce the export rates on grain and grain products to that of wheat, particularly for shipment lake and rail, and also application of Dominion Millers' Association regarding flour arbitrators over wheat for export.

32,228. March 17.—Authorizing C.P.R. and Canadian National Rys., when signals are clear, to operate trains over crossing at Russell, Man., without first stopping.

32,229. March 24.—Amending order Feb. 14, 1905, authorizing Canadian Northern Ry. to cross C.P.R. near Emerson station, Man., by providing that watchman be appointed by C.N.R., being junior at crossing.

32,230. March 24.—Authorizing Canadian National Rys. to build spur for Pembroke Timber, Tie & Pulp Co., at mile 74.4 Ruel Subdivision, Ont.

32,231. March 27.—Amending order 1,359, Aug. 6, 1906, authorizing crossing of C.P.R. and Canadian Northern Ry. by Grand Trunk Pacific Ry. at James St. near Pacific Ave., West Fort William, Ont., by providing that watchman at such crossing be appointed by the Canadian National Rys. instead of C.P.R.

32,232. March 27.—Approving Michigan Central Rd. plan showing installation of two additional levers to operate details at crossing of G. T.R. at Southwold, Ont.

32,233. March 27.—Approving Canadian National Rys. Standard Mileage Freight Tariffs C. R.C. no. E390, in so far as same applies to Halifax & Southwestern Ry., and Tariff C.R.C. no. E393.

32,234. March 16.—Amending order 31,975, re crossing of Ottawa & New York Ry. by G.T.R. at Hawthorne, Ont., to provide that special movements may be made when operators are off duty, provided that N.Y.C. Ry. arrange to have operators called when each special movement is made.

32,235. March 16.—Dismissing National Dairy Council of Canada's application for reduction in express rates on butter from Silverdale and Renton, to Hamilton, Ont.

32,236. March 24.—Ordering G.T.R. to install wigwag signal in addition to automatic bell at crossing of Wilson St., Woodstock, Ont.

32,237. March 24.—Extending for four years time within which Boston & Maine Rd. may remove and examine the interior of flues and boilers in service on its lines, instead of three years as provided under general order 78, rule 5, and extending for two years, instead of 18 months, time within which test of flexible staybolts with caps, shall be removed.

32,238. March 29.—Relieving C.P.R. from maintaining signalman at crossing of G.T.R. at

Eldon, Ont., so long as present character of movement exists.

32,239. March 29.—Relieving Canadian National Rys. from erecting fences, gates, and cattle guards between Rideau Jct. and Brent, mile 101.9 to 108., and 108 to 163.8, on both sides, through Algonquin National Park, Ont.

32,240. March 29.—Relieving Canadian National Rys. from erecting fences, gates and cattle guards from mile 94.4 to 95, between Parry Sound and Capreol, Ont.

32,241. March 29.—Authorizing British Columbia Public Works Department to build highway crossing over Grand Trunk Pacific Ry. at Topley, B.C.

32,242. March 29.—Ordering Canadian National Rys. to erect fourth class station building at Eldersley, Sask., by Sept. 30.

32,243. March 29.—Relieving Canadian National Rys. from erecting fences, gates and cattle guards between Brent and Capreol, Ont., mile 0 to 20.6 north side, mile 21.9 to 35 north side, mile 0 to 35 south side, and mile 116.4 to 118.2 on both sides.

32,244. March 30.—Authorizing Windsor, Essex & Lake Shore Rapid Ry. Co. to build siding into property bought for freight terminal at Leamington, Ont.

32,245. March 31.—Approving location and details of proposed new G.T.R. station at Dixie, Que.

32,246. March 30.—Ordering Town of Lachine, Que., to pay G.T.R. \$150 a year for maintenance of bell installed at crossing of Second Ave.

32,247. 32,248. March 27.—Approving Bell Telephone Co.'s agreements with Shakespeare Telephone Co., Sudbury District, Ont., and with Iron Bridge Telephone Co., Algoma District, Ont.

32,249. March 27.—Ordering Canadian National Rys. within 90 days to install automatic bell, with wigwag signal, at crossing of main road at Shawinigan Falls, connecting Three Rivers and Grand Mere, Que.

32,250. March 31.—Amending order 28,353, July 9, 1919, authorizing Canadian Northern Saskatchewan Ry. to make crossing in n.w. ¼ Sec. 19, Tp. 22, Range 9, west 3rd meridian, by showing location of crossing at Sec. 24, Tp. 22, Range 10, instead.

32,251. April 1.—Ordering Canadian National Rys. to erect third class station building at Blackfoot, Alta., by Sept. 1.

32,252. March 31.—Amending order 1,606, Sept. 14, 1906, by providing that watchman at crossing of C.P.R. and Grand Trunk Pacific Ry. at MacGregor, Man., be appointed by G.T.P. Ry. instead of C.P.R.

32,253. March 31.—Approving agreement between Bell Telephone Co. and Wakefield & Massey Telephone Co., Ottawa and Pontiac Counties, Que.

32,254 to 32,256. April 1.—Authorizing Lethbridge Northern Irrigation District to make ditches across C.P.R. in s.w. ¼ Sec. 29, Tp. 9, Range 22; in n.w. ¼ Sec. 6, Tp. 10, Range 22; and in n.e. ¼ Sec. 19, Tp. 9, Range 26, west 4th meridian, Alta.

32,257. April 3.—Dismissing Montreal Tramways Co. application to rescind order of Railway Committee of Privy Council, Jan. 6, 1903, apportioning cost of subway under C.P.R. at Forsyth St., Montreal.

32,259. Apr. 1.—Authorizing Lethbridge Northern Irrigation District to make irrigation ditch across C.P.R. in s.w. ¼ Sec. 9, Tp. 10, Range 23, west 4th meridian, Alta.

32,259. Apr. 1.—Authorizing Lethbridge Northern Irrigation District to build irrigation ditch across the C.P.R. in s.e. ¼ Sec. 15, Tp. 10, Range 24, west 4th meridian, Alta.

32,260. Apr. 1.—Rescinding orders 25,724, Dec. 15, 1916, and 29,778, June 17, 1920, authorizing transfer track between C.P.R. and Canadian Northern Saskatchewan Ry. at Yorkton, Sask.

32,261. Apr. 3.—Approving deviation of C.P.R. as built in Tp. 90, Thunder Bay District, Ont., between miles 46 and 47, Nipigon Subdivision.

32,262. Apr. 3.—Authorizing C.P.R. to build spur and to rearrange existing spur for George Pigott & Co. at mile 1.99 MacTier Subdivision, York Tp., Ont.

32,263. Apr. 3.—Authorizing Pipestone rural municipality, Man., to make highway crossing over C.P.R. in Sec. 13, Tp. 7, Range 29, west first meridian, Man.

32,264. Apr. 3.—Authorizing Canadian National Rys. to divert highway between Secs. 32 and 33, Tp. 58, Range 9, west fifth meridian, Alta.

32,265. Apr. 3.—Approving Canadian Northern Ontario Ry. revision of proposed branch line in St. Eustache and St. Augustin Parishes, Que.

32,266. Apr. 3.—Approving Canadian National Rys. change in proposed branch at mile 35.16 Lachute Subdivision, to Ste. Monique, Que.

32,267. Apr. 3.—Approving change of location of north connection between Canadian Northern Ry. and Grand Trunk Pacific Ry. in n.w. ¼ Sec. 14 and n.e. ¼ Sec. 15, Tp. 53, Range 25, west 4th meridian, Alta.

32,268. Apr. 1.—Amending order 1075 May 9, 1906, authorizing crossing of C.P.R. by Northern Extension Ry. in St. James Parish, Man., by providing that watchman be provided by N.E.R. instead of C.P.R.

32,269. Apr. 3.—Authorizing Canadian National Rys. to cross highway in Sec. 30, Tp. 26, Ososyoos Division of Yale District, mile 32.2 Vernon-Kelowna Branch.

32,270. Apr. 4.—Authorizing C.P.R. to rebuild bridge 112.3 over Coquitlam River, Cascade Subdivision, B.C.

32,271. Apr. 4.—Authorizing British Columbia Railways Department to build temporary structure over Esquimalt & Nanaimo Ry. over Johnson St. subway at Victoria, B.C.

32,272. Apr. 4.—Authorizing C.P.R. to rebuild tunnel 21.45 on its Mountain Subdivision, B.C. District.

32,273. March 27.—Authorizing use of subway under C.P.R. at Algoma station, Ont.

32,274. March 31.—Authorizing Canadian National Rys. to rebuild bridge over Kaministiquia River at mile 7.7 North Lake Subdivision, near Stanley, Ont.

32,275. March 31.—Authorizing Alberta Public Works Department to make highway crossing over Canadian National Rys. in s.e. ¼ Sec. 27, Tp. 50, Range 8, west 4th meridian, Alta.

32,276. March 27.—Approving C.P.R. plan showing automatic signal protection at Sharbot Lake, Ont., where its Havelock Subdivision crosses and connects with its Kingston Subdivision.

32,277. Apr. 6.—Shortening to one week the publication of notice of C.P.R. intention to make application to build a branch line on Kingston & Pembroke Ry., near Godfrey, Ont.

32,278. Apr. 6.—Authorizing Canadian National Rys. to carry second Ave. East over its tracks at Rochfort Bridge, Alta.

32,279. Apr. 6.—Relieving Ottawa Electric Ry. from paying proportion of cost of protection at diamond crossing on Broad St., Ottawa, when work of disconnecting details and switches from interlocking plant was completed, as authorized by order 31,062, and O.E.R. had ceased operations over said crossing, and authorizing G.T.R. to operate over crossing without first stopping trains.

32,280. Apr. 6.—Authorizing Canadian National Rys. to rebuild bridge at Birdtail Creek, Man., mile 190 Miniota Subdivision.

32,281. Apr. 7.—Authorizing Canadian National Rys. until further order, to remove station agent at Hillier, Man., caretaker to be appointed.

32,282. Apr. 5.—Authorizing Grand Trunk Pacific Ry. to build spur for Fort Garry Lumber Co. at mile 1290.9 Cariboo District, B.C.

32,283. Apr. 5.—Ordering Canadian National Rys. to improve approaches to farm crossing on G. W. Higginson's property, Rockland, Ont.

32,284. Apr. 5.—Ordering that south side of cut at first crossing west of Lytton station, B.C., over C.P.R., be cleared out so that a train can be seen 350 ft. away, at a point about 35 ft. from centre of track.

32,285. Apr. 7.—Authorizing G.T.R. to close draw span in its bridge over the St. Lawrence River, near Soulanges, Que., between 8 p.m. and 5 a.m. daily during the navigation season.

32,286. Apr. 10.—Approving agreement between Bell Telephone Co. and Glangarry Telephone Co., Glangarry and Prescott counties, Ont.

32,287. Apr. 11.—Ordering that C.P.R. crossing of Kingston Road, at mile 90 Belleville Subdivision, 2 miles east of Belleville, Ont., be altered and made to cross track at right angles instead of skew.

32,288. Apr. 10.—Ordering that notice of C.P.R. proposed application for authority to build branch on its Kingston & Pembroke line, near Godfrey, Ont., be shortened to 7 days.

32,289. Apr. 10.—Authorizing G.T.R., for purposes of protection and removing obstructions to view at Perrottes crossing, east of milepost 209, near Eganville, Ont., to enter upon part of Lot 21, Con. 19, Wilberforce Tp., Ont., to cut down trees and shrubs.

32,290. Apr. 10.—Ordering that so long as present character of movements over C.P.R. crossing over Canadian Northern Ontario Ry. at mile 46.9 Port McNicol Subdivision continues, the C. P.R. be relieved from maintaining a signalman between midnight and 8 a.m. on all weekdays.

32,291. Apr. 1.—Authorizing G.T.R. to build extension to siding for W. Gracey & Son, Allandale, Ont.

32,292. Apr. 10.—Amending order 31,850, Dec. 2, 1921, authorizing C.P.R. to remove station agent at Monarch, Alta., by providing that caretaker be appointed.

32,293. Apr. 11.—Rescinding order 16,944, July 3, 1912, authorizing G.T.R. to build spur for Meaford Brick Co., on Lot 10, Con. 1, St. Vincent Tp., Ont.

32,294. Apr. 12.—Authorizing C.P.R. to appeal to Supreme Court of Canada, re application of Ontario Lands and Forests Department, for order directing C.P.R. to build crossings on line between Lots 6 and 7, Eton Tp., and crossing on line between Lots 10 and 11, Con. 6, Aubrey Tp.,

Kenora District, Ont., on a question of law: "Whether, upon the facts stated by the Board, the title of the railway company is subject to a prior right reserved in the Crown to construct and maintain public crossings over the railway company's right of way, as applied for by the applicant herein."

32,295. Apr. 11.—Authorizing Canadian National Rys. to build bridge over Stillwater Creek, Nipigon Tp., mile 79.72 from Jellicoe, Ont.

Carriage of Mails by Railways.

In answer to a question by W. M. McQuarrie, New Westminster, B.C., in the House of Commons, April 10, the Postmaster General gave the names of 56 steam and electric railways carrying mails. In answer to the question, "What are the details of existing contracts, and on what dates do they terminate?" he said:—Contracts are not entered into with railways for carrying His Majesty's mails, the conveyance of such mails being provided for by the Post Office Act, Sec. 115, as follows:—"His Majesty's mail and persons travelling therewith on postal service, shall, at all times when thereunto required by the Postmaster General, be carried on any steamship or steamboat navigating the waters of Canada, and on any railway in Canada, and with the whole resources of the railway company if required, on such terms and conditions and under such regulations as are made by the Governor in Council." Mail services on railways are established or terminated in accordance with the requirements of the postal service, and the detail thereof authorized by order in council. Payment for conveyance of mail by railways is made on a car mile basis, and the existing rates per mile authorized by order in council 472, of Feb. 19, 1921, in effect since March 1, 1921, are as follows:—For a full postal car service, 34.7c. a car mile; for an apartment postal car service, 19.52c. a car mile; for service by baggage car, 8.67c. a car mile; for special train ordered by the department, \$2.71 a train mile; for special passenger trains, \$2.17 a train mile.

In answer to the question, "Does the Government intend to make arrangements to have all mails carried by the Canadian National Railways, where possible?" he said:—"Instructions issued on Dec. 13, 1920, by the then Minister of Railways were to the effect that the Post Office Department should see that the Canadian National Rys. and the C.P.R. were fairly treated in connection with mail service—neither given an unfair advantage. In every case the Department is governed by the requirements of the postal service in the territory served by the railway. Any further intention on the part of the Government will be announced in due course."

The Anglo-Newfoundland Development Co.'s accounts for the year ended Aug. 21, 1921, show a profit of £168,442. After meeting interest on first and second debenture stock and writing off £20,000 off cost of issue of second mortgage debentures there remained an available sum, including £195,661 brought forward, of £250,983, out of which the directors decided to apply £120,000 to writing down stocks of raw materials, mill supplies, etc., and pay the dividend on the cumulative preference shares for the year to Aug. 31, 1920. There was no distribution on the shares in 1920. The company is controlled by the Northcliffe interests, and operates a pulp and paper mill in the Exploits River Valley, Newfoundland, with a railway from Millertown Jct. on the Newfoundland Ry. to Millertown.

Canadian National Railways Construction, Betterments, Etc.

The Minister of Railways stated in the House of Commons April 11 that during this year it is proposed to continue works which were uncompleted at the end of 1921, and undertake new works, of which the principal items are as follows:—

Canadian Government Rys., Eastern Lines.—Continue dredging at Cape Tormentine, yard improvements at Moncton, installation of automatic signals between Levis and Chaudiere, construction of staff quarters at Parent, replacing trestles over the Coffee and Matagan rivers on Amos Subdivision. Flattening the slope and placing additional rock and large capping stones on breakwater at Cape Tormentine. Provide two 80-ton cranes for Moncton repair shop. Completion of yard extension and rearrangement of main line at St. John. Provide telephone train dispatching service between Mont Joli and Levis. Extend stores building at St. Malo.

Canadian Northern Ry., Eastern Lines.—Complete the work on Burrill deviation and replacement of trestles on various subdivisions. Extend 5 stalls of locomotive house and provide additional machinery at Parry Sound. Ballasting on various subdivisions. Construct new station at Napanee. Provide additional stores accommodation and scrap reclaim building and plant at Leaside. Pave roadways and provide drainage at Cherry St. yard, Toronto. Provide additional terminal accommodation and trackage at Quebec. Construct 6-stall extension to locomotive house and provide additional yard facilities at Limoilou.

Canadian Government Rys., Western Lines.—Erect boarding-house for staff at Sioux Lookout and lengthen 15 stalls of locomotive houses. Fill various trestles. Provide telephone train dispatching service between Sioux Lookout and Winnipeg. Install scrap reclamation plant at Transcona.

Canadian Northern Ry., Western Lines.—On the D.W. and P. Ry., it is proposed to construct car repair shops at Virginia and Duluth as required by Minnesota State laws. Between Port Arthur and Fort William a second track is proposed to provide for the dense traffic. A number of wooden trestles are to be replaced with steel bridges on concrete foundations and a number with concrete culverts and earthfills. Wooden bridges over the Kaministiquia and Assiniboine Rivers are to be replaced with steel trusses on concrete substructures. Ballasting on various subdivisions. At Fort Rouge a trunk sewer and a filtering plant for the water supply are to be constructed to serve the terminal. New water supplies are proposed at Maryfield, Rama, Avonlea, Gravelbourg, Delisle, Wiseton, Eston, Lloydminster, Vegreville, Mecheche, and completion of the water supplies at Paskewin and Kindersley.

Grand Trunk Pacific Ry.—Construct additional trackage at Watrous and Rivers terminals and improve water supply at latter point. Provide water supplies at Arrow River, Tate and Bradwell and complete water supply at Hubbard. Complete filling of Battle River trestle. Improve Mirror terminal by construction of 6 additional stalls to locomotive house and additional trackage. Construct a freight repair shop at North Edmonton, this to form a unit of a complete repair

shop at that point. Construct a diversion of the railway at the Big Eddy crossing at Sundance Creek. Complete the construction of a terminal at Coalspur. Complete the construction of a station, salmon dock and warehouse at Prince Rupert. Complete the filling of the Kyax River crossing and erect a steel span to provide permanent waterway at this point. Ballasting on various subdivisions. Replace various trestle bridges with steel spans on concrete substructures or with concrete culverts and earth fills.

Co-ordination, Canadian Northern, Canadian Government and Grand Trunk Pacific Rys.—Connect Transcontinental Ry. with Canadian Northern at Mokomon, to permit abandonment of approximately 28 miles of Lake Superior branch. Provide new classification yards west of Fort William. Consolidation of C.N.R. and G.T.P. yards at Portage la Prairie. Complete consolidation of terminal facilities at Regina. Consolidate G.T.P. and C.N.R. in one line through Camrose and provide the necessary connection. Complete connection between C.N.R. and G.T.P. at East Edmonton. Consolidate C.N.R. with G.T.P. in the vicinity of Entwistle and construct the necessary connections. Construct connections between G.T.P. and C.N.R. at Stony Plains and abandon the C.N.R. between Edmonton and Stony Plains. Consolidate Lucerne and Jasper terminals at one point..

Location of Freight Cars on Canadian Railways.

The Railway Association of Canada has issued a report dealing with the location of freight cars as of April 1, based on returns from the following railways: Algoma Central & Hudson Bay; Canadian National, including Grand Trunk Pacific; Canadian Pacific; Central Vermont (in Canada); Dominion Atlantic; Edmonton, Dunvegan & British Columbia; Grand Trunk; Kettle Valley; Michigan Central (in Canada); Napierville Jct.; Pere Marquette (in Canada); Quebec Central; Quebec, Montreal & Southern; Timiskaming & Northern Ontario; Temiscouata; Toronto, Hamilton & Buffalo; Wabash (in Canada).

The figures are as follows: Cars owned by reporting railways, 222,722; home cars on Canadian foreign lines, 17,108; home cars on U.S. lines, 35,963; home cars on home roads, 169,651; Canadian owned foreign cars on home lines, 13,894; U.S. owned foreign cars on home lines, 21,048; total cars on line, 204,593; per cent. on line to total owned, 91.8; deficiency on line to total owned, 18,129; home cars in bad order, 19,964; foreign cars in bad order, 418; total cars in bad order 20,382; per cent. in bad order, 10; privately owned U.S. cars on line, 1,860; privately owned Canadian cars on line, 1,086.

The Toronto Transportation Club had a very successful luncheon on April 24, the President, Thos. Symington, Superintendent, Shedden Forwarding Co., being in the chair. Jos. Muller, Passenger Agent, Bureau of Service, National Parks and Resorts, Chicago & Northwestern Ry., and Union Pacific System, gave a talk on a trip through Rocky Mountain and Yellowstone National Parks, illustrated by a series of colored photographic pictures.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta & Great Waterways Ry.—The Alberta Legislature has passed an act providing for granting to the company, which is owned by the Alberta Government, \$740,000, of which \$225,000 is to reimburse the province's general revenue for the cost of maintenance, upkeep and equipment of the railway during 1921, which the company was unable to defray out of its resources, and the remainder is required for maintenance, upkeep and equipment during 1922. The latter amount is to be paid to the company as may be required from time to time. The total amount is advanced to the company by way of loan.

Replying to questions in the Alberta Legislature recently, the Minister of Railways stated that the contract between the Government and the Northern Construction Co. for reconditioning of the railway, and for its extension, had been terminated, and the Government had paid \$1,740,447.82 for work done under the contract. Other questions asked and the answers given thereto were:—

Q. How do the rates and prices shown in the Northern Construction Co.'s schedule for A. & G.W.R. work, compare with prices paid by other railway companies for similar classes of work in Alberta at concurrent periods of time where contractor did not receive the benefit of free transportation? A. The A. & G.W.R. prices average 73% higher.

Q. Was this work performed at the schedule of unit prices referred to in the contract? A. No. These prices were exceeded by from 6% to 67%.

Q. What amount was lost to the province by reason of the agreement made by the province in Aug. 1920, with the Northern Construction Co.? A. Approximately \$548,000.

Q. What loss in revenue, freight and passengers did the A. & G.W.R. sustain through giving the Northern Construction Co. free transportation over the A. & G.W.R. lines? A. Approximately \$70,000.

Q. What loss did the A. & G.W.R. sustain by reason of giving the Northern Construction Co. free transportation over all foreign railways in Manitoba, Saskatchewan, Alberta and British Columbia? A. Approximately \$73,000.

On another occasion the Minister of Railways informed the Legislature, in answer to questions, that there is nothing in the company's act of incorporation, or in the provisions for the guarantee of the bonds by the province requiring the railway to be built into Fort McMurray. It would not be in the public interest to extend the line to Fort McMurray at present and he had no information as to when, if ever, it would be in the public interest to do so. About 5.6 miles of the grading between Waterways and Fort McMurray has been done at a cost of \$37,307.03. There are sufficient rails on hand to complete the line to Fort McMurray. The Deputy Minister of Railways made a thorough examination of the Clearwater River as to navigation, and according to the best information available there is a sufficient depth of water in the river to the railway terminals at Waterways during the whole period the Athabasca River is open for navigation. (April, pg. 185.)

Anyox, B.C.—The Granby Smelting & Mining Co. is reported to be building a railway at Anyox, B.C., by day labor, at a cost of \$50,000.

The Canada Central Ry. is operated by the C.P.R., as a branch of the Edmonton, Dunvegan & British Columbia Ry., under an agreement to which the Alberta Government and the J. D. McArthur interests are parties with the operating company. The Alberta Legislature has passed an act authorizing a loan to the company of \$475,500 to build an extension of the line westward for 13 miles. Out of the sum to be advanced \$144,093.39 is to be paid to the Alberta & Great Waterways Ry. Co. for rails, and the balance is to be paid out as required for construction purposes. The operating company is to enter into an agreement with the Government for the construction and operation of the extension, and to secure the advance upon the whole undertaking of the company. The C.C. Ry. branches off from the Edmonton, Dunvegan & British Columbia Ry. at Winagami, mile 273.5 from Edmonton, and is being operated across Peace River, 48.5 miles. In 1921 arrangements were made to build a 25 mile extension in the direction of the Waterhole district, track on which was laid for 23 miles to Berwin, by Dec. 31. The present proposal is to extend the line 13 miles farther. This extension will, a press report states, leave the railhead about 20 miles short of Waterhole. (April, pg. 185.)

The Edmonton, Dunvegan & British Columbia Ry. is operated by the C.P.R., under an agreement to which the Alberta Government and the J.D. McArthur interests are parties. The Alberta Legislature has authorized the lending to the company of \$410,000 to extend the line from Grand Prairie, mile 50, on the branch from MacLennan Jct., westerly to Tps. 71-72, Range 8, west of the 6th Meridian, 15 miles. The sum to be advanced is to form a charge upon the company's whole undertaking, and an agreement for its construction and operation is to be executed between the Government and the C.P.R. Co. as the operating company. In connection with this projected extension, a press report states that two routes have been surveyed, one running west, with a southerly tendency, having as its ultimate destination the Wapte Pass, described as the easiest gradient in the Rocky Mountains, while the second swings more to the north and the Pine Pass.

Nothing has been arranged with regard to construction from Spirit River to the Pouce Coupe district. About 60 miles of grading is reported to have been completed from Spirit River, prior to 1916.

When the bills for the E.D. & B.C. Ry. and the Canada Central Ry. were under consideration the Premier stated that C. P.R. officials had given an undertaking that that company considered itself wholly responsible for any deficits on the lines under its operating agreement. The C.P.R. had also agreed to the lines being taxed on a basis of \$1,300 instead of \$1,000 a mile as previously.

The E.D. & B.C. Ry. Co. is applying to the Dominion Parliament for authority to extend the Grande Prairie Branch from mile 50 for 50 miles westerly, and for authority to issue securities for \$40,000 a mile in respect of such extension. (April, pg. 185.)

Hudson Bay Ry.—The Prince Albert, Melfort, Sask., and Pas, Man., Boards of Trade have named deputations to go to Ottawa, to urge the Dominion Govern-

ment to take steps to secure the completion of the railway from Pas to Port Nelson, on Hudson Bay. It is completed from Pas to the second fall of the Kettle River, 332 miles, and the grading thence to Port Nelson, about 90 miles, has been ready for track laying since 1917. (Feb., pg. 76.)

Kettle Valley Ry.—In addressing the Penticton, B.C., Club, during a recent trip to the Pacific Coast, D. C. Coleman, Vice President, C.P.R., Western Lines, and President, K.V.R. Co., stated that the branch line to Oliver will be pushed forward vigorously and will be completed by the autumn. (April, pg. 185.)

Lacombe & Northwestern Ry.—The Alberta Legislature has passed an act authorizing the raising of \$100,000, of which \$65,000 is to be used to reimburse the province's general revenue for advances made to the company for the maintenance, upkeep and equipment of the railway during 1921, and the remaining \$35,000 is to be utilized for its maintenance, upkeep and equipment during 1922. The Legislature also authorized the raising of \$265,000 to extend the line from mileage 37, near Rimbey, Alta., for 11.5 miles in a generally northerly direction. These sums are to be advanced by way of loan to the company, which is owned by the Alberta Government. (April, pg. 185.)

The Lake Huron & Northern Ontario Ry. Co. is in the process of reorganization, and has issued a prospectus, from which the following details are extracted:—The officers are: President, D. G. Curtis; Vice President and General Manager, H. Appleton; Chief Engineer, L. Whitman, B.E.; the office is at 46 King St. West, Toronto. The company's authorized capital is stated to be \$6,000,000 of common stock, and \$6,000,000 of 8% cumulative preferred stock. Of these stocks there are now being offered for subscription \$600,000 of preferred stock, and \$300,000 of common stock, which form part of the stock issued and to be issued to the Scottish-Canadian Finance Corporation, which corporation, the prospectus states, will retire without burden or obligation on the part of the railway company \$595,000 of bonds at present outstanding. The present issue of stock is stated to be for the purpose of building and equipping an extension of 114 miles from the present terminus at Rock Lake, Ont., to the C.P.R. main transcontinental line at Wakami. This stock will be issued in units of two shares of preferred and one share of common stock, each unit carrying a bonus of one share of stock of Ontario National Development Corporation, Ltd., the authorized capital of which is \$6,000,000 of common stock.

The old Lake Huron and Northern Ontario Ry. took over the charter of the old Bruce Mines and Algoma Ry. Co., which was incorporated by the Ontario Legislature in 1899 to build from Bruce Mines northerly for 30 miles, under which charter, and subsidy contract, the company built a line from Lake Huron, through Bruce Mines to Rock Lake, about 17 miles. In 1903 the B. M. and A. Ry. Co. was authorized to extend this line from Rock Lake to a junction with the C.P.R. transcontinental line between Chapleau and Bisco, and in 1905 it was further authorized to extend the line to Hannah Bay or some other point on James Bay, within Ontario. The company was reorganized under the title of

the Lake Huron and Northern Ontario Ry. and in 1913 the Ontario Legislature ratified an agreement providing for granting to the company upon completion of the extension of the line from Rock Lake to the National Transcontinental Ry., and upon certain other conditions the right to purchase at certain prices up to 4,000 acres of land a mile. No construction has been done, and in 1921, the Legislature, after considerable discussion granted an extension of one year for starting construction.

The prospectus refers to the liberal terms of the company's act of incorporation and to the land concession; to the water powers on the Mississauga River which would be reached, and to the agricultural, timber and mining resources of the territory through which the proposed line will pass, crossing the C.P.R. at Wakami, the Canadian Northern Ry. at Kirkabush, and the National Transcontinental Ry. at Alexander, a total distance of 272 miles from the terminus on Lake Huron. The estimated length of the further extension to James Bay is 328 miles.

The construction of the proposed extension of 114 miles to the C.P.R. would give the company a line of 130 miles from the operation of which, the prospectus states, it is estimated that a gross annual revenue of \$3,295,000 will be realized. The operating expenses are estimated at 60% or \$1,977,000; depreciation, taxes, etc., at \$98,850; sinking fund, \$98,850; fixed charges, \$480,000, or a total of \$2,654,700, which would leave \$640,300 for distribution. (April, pg. 185.)

A deputation from Sault Ste. Marie, Ont., and other districts in Algoma, waited on the Ontario Government, March 29, to urge the extension of the company's franchise for a further two years, and that a grant of the pine along the route of the railway be made to the company at an upset price. It was stated that the company had already expended \$700,000 upon the railway to Rock Lake, and in connection with the projected extension. The Premier pointed out that the Government felt that the land grant to the company had been too extensive, and that the present might be a good time to revise the agreement, and he added that the Government was prepared to do anything it could do with justice. (April, pg. 185.)

Michigan Central Rd.—We are officially advised that the Michigan Central Rd. Co. is negotiating for certain privileges which will make it possible for it to build the proposed new bridge over the Niagara River. Until these matters are disposed of details of the structure cannot be definitely settled.

The Niagara River Bridge Co. is asking the Dominion Parliament for authority to enlarge, alter or rebuild its bridge across the Niagara River, or to remove and abandon it, and build, maintain and operate a new one in lieu thereof on the same site or some other one; to enable the company to lease its present bridge and undertakings now existing, or hereafter constructed, and to enter into any contract or agreement with reference to operating and using them. An increase of capital stock and bonding power is also asked for. A bill was introduced in the United States Senate, April 13, to confer powers similar to the above upon the company in the State of New York.

A press report states that a contract has been let to the Hall Construction Co. for the re-laying of several miles of track

on the company's Canadian lines. (Dec., 1921, pg. 645.)

Timiskaming & Northern Ontario Ry. We are officially advised that the T. & N.O.R. Commission has let a contract to Hamilton Bridge Works for the fabrication and erection of the steel superstructures for the following bridge on the extension of the line northerly from Cochrane, Ont.—Abitibi River crossing, at Long Sault Rapids, mile 11.3 from Cochrane, one 75 ft., two 110 ft., and three 90 ft. deck plate girder spans. Sucker Creek crossing, mile 20.3 from Cochrane, two 85 ft. deck plate girder spans. The first named bridges will be carried on concrete piers, and abutments, and the second on one center pier, and 2 reinforced concrete trestle abutments.

The same company has also been given a contract for the fabrication and erection of 3 steel viaducts, one over the Jawbone Creek's east branch, at mile 27.3; one over that creek's west branch at mile 29.5; one over Trapper's Creek, mile 37 from Cochrane. These viaducts will consist of 35 ft. tower spans, with 55 ft. between spans, and their length between faces of ballast walls will be 326 ft., 236 ft. and 451 ft. respectively.

We are advised that the Commission's proposals for the electrification of the railway, or of some sections of it, will soon be ready for submission to the Ontario Government. A press report states that the Government is holding the Abitibi Canyon falls in reserve in connection with the electrification project. It is estimated that the development of these falls would produce 200,000 h.p. (April, pg. 185.)

The Bad Order Car Situation.

The Railway Association of Canada reported the total number of freight cars on Canadian lines for the 15 days ended March 15 as 203,497. The allowance for bad order cars on the A.R.A. basis, which assumes a total of 7% of the cars in bad order, worked out to 14,245, while the actual number of bad order cars was 20,167, an excess of 5,922 on the 7% basis. The figure of 20,167 represents a percentage of bad order cars of 9.91. Of surplus cars in good order there were 31,192, making a total number not in use of 51,359, or a total of 37,114 idle cars on the basis of 7% of the cars being normally in bad order.

For the 15 days ended April 1, the total number of cars on Canadian lines was 204,593. The allowance for bad order cars on the A.R.A. basis worked out to 14,321, while the actual number of cars in bad order was 20,382, an excess of 6,061 on the 7% basis. The figure of 20,382 represents a percentage of bad order cars of 9.96. Of surplus cars in good order there were 36,592, making the total number not in use 56,974, or a total of 42,653, on the basis of 7% of the cars being normally in bad order.

In the U.S., according to the American Railway Association's car service division, the total number of cars on line on the class 1 roads was 2,275,058 on March 15. Of these, 330,338 were in bad order, this number representing 14.5% of the total. On March 1, the bad order car percentage was 14.7. Freight cars idle, but in good order, and fit for use should traffic offer, numbered 216,661. Out of 1,026,550 box cars on line on March 15, there were 154,499, or 15.1%, in bad order; out of 60,215 refrigerator cars, 7,940, or 13.2%; out of 964,574 gondolas,

142,393, or 14.9%; out of 82,629 stock cars, 10,014, or 12.1%, and out of 98,488 flat cars, 12,354, or 12.5%, were in bad order.

An Illuminating Discussion on Locomotive Power?

When traffic men and lawyers discuss locomotives, startling conclusions are likely to be arrived at. In the recent rate proceedings before the Board of Railway Commissioners, a C.P.R. witness had an exhibit prepared showing the average tonnage a C.P.R. 100% locomotive can haul on various districts. This caused the following examination to take place, as reported officially:—

G. G. McGeer, representing British Columbia:—"I would like to know what the average load per 100% capacity locomotive, all classes, actual cars, years 1920-1921, means."

W. B. Lanigan, Freight Traffic Manager, C.P.R.:—"Well, that is reducing to get the common factor, your locomotive capacity, 100%. One hundred per cent. means the tractive drawbar power of 20,000 lb., "on a level piece of land."

The Chief Commissioner:—"20,000 lb."

Mr. Lanigan:—"Yes, per horsepower."

H. J. Symington, representing Manitoba:—"Drawbar capacity 20,000 lb."

Mr. Lanigan:—"Drawbar tractive capacity 20,000 lb."

Mr. McGeer:—"Per horsepower."

Mr. Lanigan:—"No, per 100% engines, isn't it?"

Chief Commissioner Carvell:—"No, it is a little more than that."

Mr. Symington:—"I should think so."

Mr. Lanigan:—"Mr. Lloyd" (Assistant Comptroller) "can tell you, he worked in the mechanical department."

Chief Commissioner:—"I can tell you. A 100% engine on a level road would start, I should think, 700 or 800 tons anyway, wouldn't it, Mr. Lloyd?"

Mr. Lloyd:—"A 100% engine on the level will start 3,000 tons, and it exerts 7 lb. of tractive effort to every ton behind it."

At the same hearing it was stated by J. M. R. Fairbairn, D.Sc., Chief Engineer, C.P.R., that the construction of the Connaught tunnel cut out so many complete circles of curvature, which moved Commissioner Lawrence to ask, "what the width of those circles" was. While we have no definite information on the matter, we suspect that if the "width" had been given, the circles might have been considered unduly wide, which would, no doubt, materially affect the "drawbar tractive capacity per horsepower on a level piece of land" of the locomotives under discussion.

G.T.R. Coal Supplies.—The Minister of Militia and Defence stated in the House of Commons, on April 3, in answer to E. M. Macdonald, Pictou, N.S., that 1,823,000 net tons of coal were imported into Canada, during the calendar year 1921, for and on account of the G.T.R., the cost at the mines being \$4,725,000, and the cost delivered in Canada, with duty and charges, \$11,250,000. Of this total \$963,000 was for duty.

New Westminster Bridge.—The British Columbia Government which owns the railway and passenger traffic bridge across the Fraser River at New Westminster, is having the passenger deck resurfaced with asphalt. M. P. Cotton has the contract. The estimated cost is \$7,500.

Mainly About Railway People Throughout Canada.

R. B. Angus, who has been a director of the C.P.R. Co. since its inception, and who has been very ill recently, was reported, Apr. 24, to be considerably improved.

E. R. Bruce, Director of Exhibits, Colonization and Development Department, C.P.R., sailed from Vancouver at the end of March, on the s.s. Empress of Russia, to take charge of the C.P.R. exhibits at the Peace Exposition at Tokyo, Japan, which was opened March 10 and continues to July. Canada is being given considerable publicity at this exposition by a very large illuminated map of the Dominion to attract attention to the great possibility of commercial development and its resources and industrial raw material. It shows the general location of these resources, each one being indicated by electric lamps, different colors being used for each group. The map was designed and prepared by the C.P.R. Colonization and Development Department in co-operation with the Dominion Interior Department, the cost being divided. The Prince of Wales will attend the exposition and will be the guest of honor at the Canadian exhibit.

A. B. Buckworth, General Manager, Pacific Great Eastern Ry., Vancouver, B.C., was confined to his home for a few days at the end of March, owing to an injured knee, having been thrown from his motor car when travelling over a bad piece of road near Squamish.

A. V. Clark, who has been appointed Managing Director, Canadian Pacific Railway Company (France), entered C. P.R. service in England in April 1906, in the Passenger Department, and from 1908 to 1910, was London Traveller, and handled all the passenger arrangements for the Eucharistic Conference and also for the British Association's meeting in Canada. He was subsequently chief clerk, General Passenger Department, London, Eng., and from 1911 to 1912, was chief assistant, Passenger Department, Antwerp, Belgium, and from 1912 to July 1, 1913, Assistant to the General Representative for Austria, in Vienna. On the outbreak of war, he was interned with others of the C.P.R. staff in Vienna, and was eventually released on parole. He returned to London for three years and acted as secretary to the European General Manager, Sir George McLaren Brown until 1920, when he was appointed Special Continental Representative.

Francis G. J. Comeau, whose appointment as General Freight and Passenger Agent, Dominion Atlantic Ry., Halifax, N.S., was mentioned in our last issue, was born at Meteghan River, N.S., March 10, 1859, and entered railway service July 1, 1881, since when he has been, to Nov. 1, 1881, station agent, Windsor & Annapolis Ry., Horton Landing, N.S.; Nov. 1, 1881 to May 1, 1885, station agent, Western Counties Ry., at various points; May 1, 1885 to Jan. 1, 1890, assistant agent, same road, Yarmouth, N.S.; Jan. 1, 1890 to Jan. 1, 1897, station agent, same road, Yarmouth, N.S.; Jan. 1, 1897 to Jan. 1, 1900, General Agent, Dominion Atlantic Ry., Yarmouth, N.S.; Jan. 1, 1900 to March 1, 1922, General Freight Agent, same road, Halifax, N.S., and also from May 1, 1916, District Freight Agent, C.P.R., Halifax, N.S.

Harry H. Disher, who has been appointed Purchasing Agent, Toronto, Hamilton & Buffalo Ry., Hamilton, Ont., was born there, Feb. 5, 1883, and entered

T.H. & B.R. service Sept. 10, 1903, since when he has been, to June 12, 1904, stenographer, Trainmaster's office; June 13, 1904 to Oct. 31, 1911, chief clerk, Trainmaster's office; Nov. 1, 1911 to July 31, 1920, chief clerk, Purchasing Department; Aug. 1, 1920 to Apr. 1, 1922, acting Purchasing Agent, all at Hamilton, Ont.

W. P. Hinton, formerly Vice President and General Manager, Grand Trunk Pacific Ry., Winnipeg, and from Aug. 23, 1920, Consulting Officer to the Receiver, the Minister of Railways and Canals, G. T.P.R., who was relieved of his duties by the Minister from Feb. 28, is reported to have announced at Calgary, Alta., Apr. 17, that he had been appointed Vice President and General Manager, Cadomin Collieries, in the Rocky Mountain district, south of Edson, Alta., and would take up his new duties at once.

J. L. Englehart, Chairman, Timiskaming & Northern Ontario Ry. Commission, who died April 6, 1921, left an estate of \$2,056,805, on which \$437,737.19 succession duty has been paid to the Ontario Government.

Charles E. Field, who died at Brockville, Ont., April 10, aged 86, is stated in a press report to have been at one time engaged in railway construction in Western Canada in partnership with the late H. B. Abbott. He is said to have built the first railway across Montreal Island, to have gone to Winnipeg in 1879 and later settled at Fort Frances, Ont.

John Fogelberg, who died at Minneapolis, Minn., recently, aged 77, was one of the contractors on the construction of the railway from St. Paul, Minn., towards Winnipeg, in 1866.

Grant Hall, Vice President, A. D. MacTier, Vice President, Eastern Lines, and W. B. Lanigan, Freight Traffic Manager, C.P.R., were the principal guests at a dinner given by the Three Rivers, Que., Board of Trade, April 20.

Grant Hall, Vice President, and Sir Edmund Osler, another of the C.P.R. directors, were honorary pall bearers at the funeral of their co-director, Sir John Craig Eaton, in Toronto, April 3.

D. B. Hanna, President, Canadian National Rys., was a guest of the Midday Luncheon Club, at Springfield, Ill., on April 28, and spoke at length on government railway operation.

Mrs. Hays, widow of the late C. M. Hays, formerly President, G.T.R., and Miss Mary Hays, returned to Montreal early in April, after spending some two months at Pasadena, California.

J. W. King, a former General Manager, Dominion Atlantic Ry., Kentville, N.S., died there March 23, aged 85. He was born in Scotland and entered Dominion Atlantic Ry. service in Dec. 1875, as audit clerk, and was appointed Traffic Superintendent and Assistant Manager in July 1877, and in July 1889, was appointed General Manager, succeeding the late Peter Innes. He retired from the company's service in March 1890. He was responsible for the incorporation of Kentville as a town, and was its first mayor. The funeral, which took place March 27, was attended by the Mayor, A. H. Chesley, General Accountant, Dominion Atlantic Ry., and the corporation, as well as by other D.A.R. officials.

Angus Macmurchy, K.C., Solicitor, C.P.R., Toronto, and Mrs. Macmurchy, returned early in April from Europe.

J. A. McGillivray, of the maintenance of way department, Canadian National Rys., St. John, N.B., was given a club bag by the local staff, April 4, on his retirement on pension, after 40 years continuous service with Canadian government railways.

S. J. McLean, LL.D., Assistant Chief Commissioner, Board of Railway Commissioners, addressed the Canadian Railway Club, at Montreal, April 11, on the Commission and the nature of its work.

J. D. McMillan, Superintendent, G.T.R., Belleville, was given a gold and enamelled scarf pin by the Governor General, as an appreciation of the services rendered on the latter's recent trip in Ontario.

F. W. Peters, General Superintendent, British Columbia District, C.P.R., returned to Vancouver towards the end of March, after a short pleasure trip to China and Japan.

J. K. L. Ross, one of the C.P.R. directors, returned to Montreal, early in April, from Europe.

Lord and Lady Shaughnessy, and the Hon. Marguerite Shaughnessy, who went to Cannes, France, after attending the Princess Mary's wedding in London, are expected to return to Montreal in May.

G. K. Wark, Vice President, Brotherhood of Locomotive Firemen and Engineers, died at Grace Hospital, Toronto, Apr. 24, aged 60. He was born at Quebec, Que., but had lived in Toronto since 1890. He was at one time in C.P.R. service, and was Chairman of the Canadian Railway Board of Adjustment No. 1, until his death.

W. H. Winterrowd, Chief Mechanical Engineer, C.P.R., Montreal, read a paper on refrigerator cars, before the Engineering Institute of Canada's Montreal branch, on March 20.

Canadian Pacific Railway Baggage Traffic in 1921.

Mail, Baggage and Milk Traffic Department handled the following traffic in 1921: passengers' baggage forwarded, 2,600,231 pieces; bicycles forwarded, 10,680; dogs forwarded, 19,767; baby carriages forwarded, 26,782; corpses forwarded, 2,838; baggage received, 2,826,157 pieces; total passengers' baggage handled, 5,486,455 pieces; cans of milk forwarded, 1,614,791; parcels checked, 981,450; hotel supplies forwarded, 30,735 pieces; company's supplies forwarded, 604,356 pieces; other articles forwarded, 14,887; grand total of pieces handled, 8,732,674, compared with 9,784,856 in 1920, the falling off in baggage traffic coinciding with the decrease in passenger traffic compared with 1920.

The following collections were made in 1921: from excess baggage, \$433,508.43; storage charges, \$71,857.85; carriage of bicycles, \$4,806.44; carriage of dogs, \$16,245.32; carriage of baby carriages, \$13,933.80; carriage of corpses, \$32,753.46; from special delivery, \$12,952.30; from duplicates for lost checks, \$1,203.80; total collections from passengers' baggage traffic, \$587,261.40; collections from milk traffic, \$273,448.77; from parcels, \$112,056.65; carriage of hotel supplies, \$11,110.72; carriage of other articles, \$37,325.84; total collections from all traffic, \$1,021,203.38. The total collections in 1920 were \$1,056,387.61.

Grand Trunk Railway President and Vice Presidents' Salaries and Positions.

The following questions were asked in the House of Commons April 6 by W. F. Garland, Carleton, Ont., and answered by the Minister of Railways:—

Q. What salary is paid Howard G. Kelley for his services as President of, or in any other capacity in connection with, the Grand Trunk Ry. Co. and the Grand Trunk Pacific? A. Salary, \$50,000 a year, all chargeable to G.T.R. System, i.e., G.T.R. Co. of Canada and subsidiary companies within the system. No portion of the amount is chargeable to the G.T. Pacific properties, and Mr. Kelley receives nothing whatever from or on behalf of those properties at present. Director's fee, G.T.R. Co. of Canada, \$2,000 a year.

Q. What connection has the said H. G. Kelley with, and what offices does he hold in, and what salary is he paid by, other companies connected with, controlled or operated by, the G.T.R. Co., and what is the total amount that is paid the said Kelley by such companies, or by the G.T.R. for such services? A. H. G. Kelley holds office in the following companies as shown:—Grand Trunk Ry. Co. of Canada, Director and President; Atlantic & St. Lawrence Rd. Co., director and President; Portland Elevator Co., director and President; New England Elevator Co., director and President; Champlain & St. Lawrence Railroad Co., director and President; United States & Canada Rd. Co., director and President; Vermont & Province Line Rd. Co., director and President; International Bridge Co., director and President; St. Clair Tunnel Co., director and President; Grand Trunk Western Ry. Co., director and President; Grand Trunk Junction Ry. Co., director and President; Chicago & Kalamazoo Terminal Rd. Co., director and President; Pontiac, Oxford & Northern Rd. Co., director and President; Detroit & Huron Ry. Co., director and President; Detroit, Grand Haven & Milwaukee Rd. Co., director and President; Grand Rapids Terminal Rd. Co., director and President; Toledo, Saginaw & Muskegon Rd. Co., director and President; Chicago, Detroit & Canada Grand Trunk Junction Rd. Co., director and President; Michigan Air Line Ry., director and President; Bay City Terminal Ry. Co., director and President; Grand Trunk-Milwaukee Car Ferry Co., director and President; Detroit & Toledo Shore Line Rd. Co., director and Vice President; Detroit Terminal Rd. Co., director; Belt Railway Co. of Chicago, director; Chicago & Western Indiana Rd. Co., director; Central Vermont Ry. Co., director and Chairman of Board; Central Vermont Transportation Co., director and Chairman of Board; Southern New England Rd. Corporation, director and Chairman of Board; Southern New England Ry. Co., director and Chairman of Board; Bethel, Granite Ry. Co., director and Chairman of Board; Southern Vermont Ry. Co., director and Chairman of Board; Montreal & Vermont Jct. Rd. Co., director and Chairman of Board; Montreal & Province Line Ry. Co., director and Chairman of Board; Stanstead, Shefford & Chambly Rd. Co., director and Chairman of Board; Canada Atlantic Transit Co., director and President; Canada Atlantic Transit Co., of United States, director and President; Erie, London & Tillsonburg Ry. Co., director and President; Pembroke Southern Ry. Co., director and President; Toronto Belt Line Ry. Co., director and President;

Magnetawan River Ry. Co., director and President; Ottawa Terminals Ry. Co., director and President; Canadian Express Co., director; Canadian National Express Co., director; Whipple Car Co., director and President; Montreal & Southern Counties Ry. Co., director and President; Montreal Warehousing Co., director and President; Ontario Car Ferry Co., director and President; Toronto Terminals Ry. Co., director and President; Lachine, Jacques Cartier & Maisonneuve Ry. Co., director and President. The Minister of Railways, receiver—Grand Trunk Pacific Ry. Co., director and President; Grand Trunk Pacific Branch Lines Co., director and President; Grand Trunk Pacific Saskatchewan Ry. Co., director and President; Grand Trunk Pacific Development Co., director and President; Grand Trunk Pacific Coast Steamship Co., director and President; Grand Trunk Pacific Dock Co. of Seattle, director and President; Grand Trunk Pacific Telegraph Co., director and President; Grand Trunk Pacific Terminals Elevator Co., director and President. The only company from or on behalf of which Mr. Kelley receives a salary—apart from the Grand Trunk Ry. Co. of Canada, is the Detroit & Toledo Shore Line Rd. Co. From this company he receives a salary as Vice President of \$2,500 a year, but this he in turn remits to the G.T.R. Co. of Canada. He receives a fee of \$10, and in one or two instances \$20 (from a few of the companies named above for their infrequent directors' meetings. In the majority of cases, however, no salary or fee of any kind is received.

Q. What salaries are paid Frank Scott, W. H. Biggar, W. D. Robb, J. E. Dalrymple and R. S. Logan for their services in any capacity in connection with the G.T.R., and the Grand Trunk Pacific? A. Frank Scott, \$18,000 a year; W. H. Biggar, \$20,000; W. D. Robb, \$19,000; J. E. Dalrymple, \$18,000; R. S. Logan, \$14,000. These amounts are all chargeable to G.T.R. System, i.e., the G.T.R. Co. of Canada and component companies in the system. No portion whatever of these salaries is charged to the G.T. Pacific properties.

Q. What connection have the said Scott, Biggar, Robb, Dalrymple and Logan with, and what offices do they hold in, other companies connected with, controlled or operated by, the G.T.R. Co., and what is the total amount that is paid to each by such companies or by the G.T.R. for such services? A. Frank Scott holds office in following companies:—Grand Trunk Ry. Co. of Canada, Vice President and Treasurer; Atlantic & St. Lawrence Rd. Co., director and Treasurer; Portland Elevator Co., director, Treasurer and Assistant Clerk; New England Elevator Co., director, Treasurer and Assistant Clerk; Champlain & St. Lawrence Rd. Co., Secretary and Treasurer; United States & Canada Rd. Co., director, Secretary and Treasurer; Vermont & Province Line Rd. Co., director, Assistant Clerk and Treasurer; International Bridge Co., director and Treasurer; St. Clair Tunnel Co., director and Treasurer; Grand Trunk Western Ry. Co., director and Vice President and Treasurer; Grand Trunk Jct. Ry. Co., director and Treasurer; Chicago & Kalamazoo Terminal Ry. Co., director and Treasurer; Pontiac, Oxford & Northern Rd. Co., director and Treasurer; Detroit & Huron Ry. Co., Treasurer; Detroit,

Grand Haven & Milwaukee Ry. Co., director, Vice President and Treasurer; Grand Rapids Terminal Rd. Co., director and Treasurer; Toledo, Saginaw & Muskegon Ry. Co., director and Treasurer; Chicago, Detroit & Canada G.T. Jct. Rd. Co., director and Treasurer; Michigan Air Line Ry., director and Treasurer; Bay City Terminal Ry. Co., director and Treasurer; Detroit Terminal Ry. Co., director; Grand Trunk Milwaukee Car Ferry Co., director; Central Vermont Ry. Co., director and Vice President; Bethel Granite Ry. Co., director and Vice President; Central Vermont Transportation Co., director and Vice President; Southern New England Ry. Co., director; Southern New England Rd. Corporation, director; Southern Vermont Ry. Co., director; Montreal & Vermont Jct. Rd. Co., director; Canada Atlantic Transit Co., director and Secretary-Treasurer; Canada Atlantic Transit Co. of United States, director, Treasurer and Asst.; Erie, London & Tillsonburg Ry. Co., director, Secretary and Treasurer; Pembroke Southern Ry. Co., director, Secretary and Treasurer; Toronto Belt Line Ry. Co., director, Secretary and Treasurer; Magnetawan River Ry. Co., director, Secretary and Treasurer; Ottawa Terminals Ry. Co., director, Secretary and Treasurer; Canadian Express Co., director, Secretary and Treasurer; Whipple Car Co., director, Vice President and Treasurer; Montreal Stock Yards Co., director; Montreal & Southern Counties Ry. Co., director, Vice President and Treasurer; Montreal Warehousing Co., director; Ontario Car Ferry Co., Secretary-Treasurer; Lachine, Jacques Cartier & Maisonneuve Ry. Co., director, Secretary and Treasurer; Rail & River Coal Co., director and Vice President; the Minister of Railway, receiver—Grand Trunk Pacific Ry. Co., director and Vice President; Grand Trunk Pacific Branch Lines Co., director and Treasurer; Grand Trunk Pacific Saskatchewan Ry. Co., director and Treasurer; Grand Trunk Pacific Development Co., Treasurer; Grand Trunk Pacific Coast Steamship Co., director and Treasurer; Grand Trunk Pacific Telegraph Co., Treasurer; Grand Trunk Pacific Terminal Elevator Co., director; also director of all the above mentioned G.T. P. companies of which Minister of Railways is now receiver.

W. H. Biggar holds office in following companies, as shown:—Grand Trunk Ry. Co. of Canada, Vice President and General Counsel; Central Vermont Ry. Co., director and Vice President; Montreal Stock Yards Co., director; Rail & River Coal Co., director.

W. D. Robb holds office in following companies, as shown:—Grand Trunk Ry. Co. of Canada, Vice President; Portland Elevator Co., director and Vice President; New England Elevator Co., director and Vice President; Champlain & St. Lawrence Rd. Co., Vice President; United States & Canada Rd. Co., director and Vice President; Central Vermont Ry. Co., Vice President; Minister of Railways, receiver—Grand Trunk Pacific Ry. Co., director and Vice President; Grand Trunk Pacific Sask. Ry. Co., director; Grand Trunk Pacific Terminals Elevator Co., director; Canada Atlantic Transit Co., director; Canadian Express Co., director; Montreal Stock Yards Co., director; Montreal Warehousing Co., director; Ontario Car Ferry Co., director; Oshawa Ry. Co., director and President; Thous-

and Islands Ry. Co., director and President.

R. S. Logan holds office in following companies, as shown:—Grand Trunk Ry. Co. of Canada, Vice President; Lachine, Jacques Cartier & Maisonneuve Ry., director and Vice President.

Canadian Pacific Railway Freight House and Offices, Windsor, Ont.

Due to increasing business, now so large as to severely tax the l.c.l. freight handling facilities at Windsor, Ont., the C.P.R. is about to build a larger freight house there. The new house will be located at Caron Ave., with entrances from Elliott St. and Janette Ave., and adequate trackage will be laid to provide for loading and switching cars. The building will consist of an office portion 40 x 60 ft., and a freight shed 40 x 304 ft., and it is probable that the shed portion will be enlarged by the addition of another 100 ft. The entire building will be on concrete foundations, and the office portion will have a basement under the whole of it.

As shown by the accompanying plan, the ground floor of the office portion of the building will contain a general office

Apart from the G.T.R. Co. of Canada, no salary is paid Messrs. Scott, Biggar, Robb, Dalrymple and Logan by or on behalf of any of the companies mentioned above. Directors' fees, amounting principally to \$10, are paid by a few of the companies named for their meetings.

dation walls 14 in. thick, will be of the C.P.R. standard type. It will have a plain sloping roof, set on two interior supporting columns, the center of one 15 ft. 4 in. from the low side of the shed, and of the other 31 ft. 4 in. from the low side. The total width of the building will be 37 ft. 8 in. from inside to inside of foundation walls. Transversely, the supporting columns will be 16 ft. apart center to center, and the same distance apart longitudinally, as shown by the plan. The columns will be set on longitudinal sills 8 x 14 in. and on the sills will be laid joists, 3 x 12 in., a 17 ft. from the low side of the shed, making a joint with a 24 ft. length over the sill nearest to the low side of the house. These joists will be laid at 16 in. centers. On top of the joists, 1

In addition to space for l.c. freight, the shed will contain an office for the cartage foreman, 7½ ft. x 18 ft., and an office 7½ x 12 ft. for the shed foreman, adjoining the stairs leading to the basement under the office portion of the building. Near the center of the shed will be the bond room, 32 x 16 ft., partitioned off and entered by sliding doors.

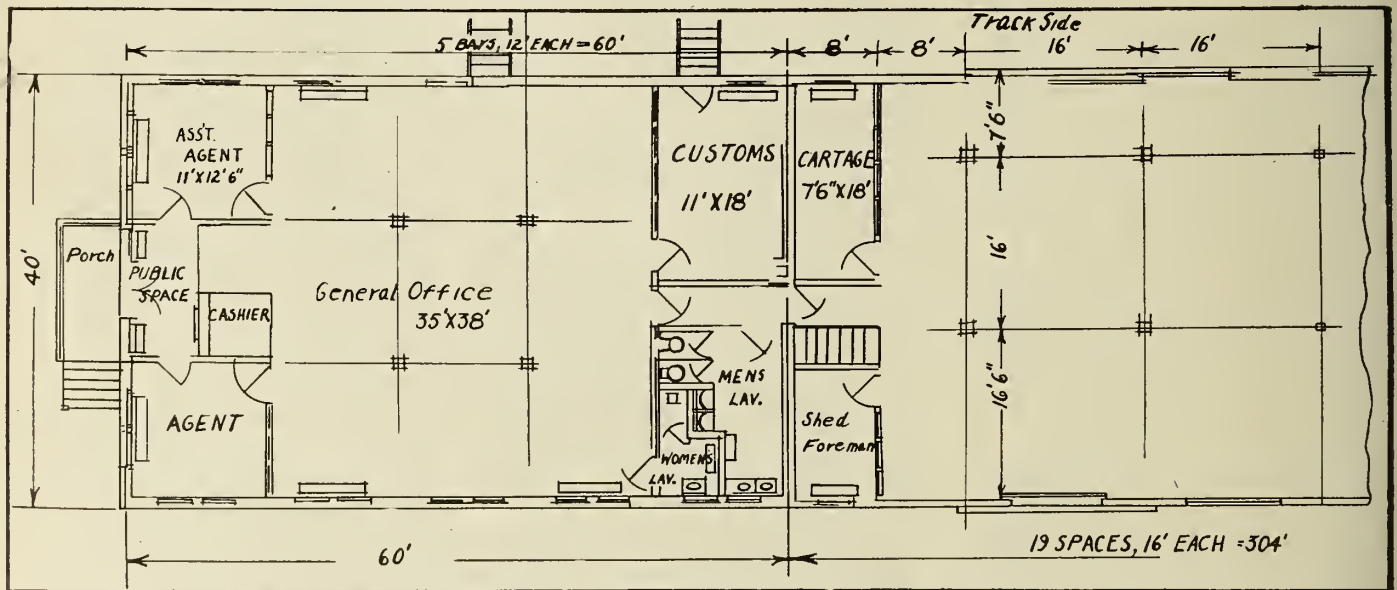
Tenders for the erection of this building were invited early in April, and it is expected that construction will be completed in July.

Canadian Railway and Marine World is indebted to J. M. R. Fairbairn, D.Sc., Chief Engineer, C.P.R., for the information on which the foregoing article is based. The work will be under the general supervision of Lt.-Col. Blair Ripley, C.B.E., D.S.O., District Engineer, Ontario District, C.P.R. Jas. A. Irvine, Division Engineer, London Division, London, Ont., will be in direct charge.

Board of Railway Commissioners' Traffic Orders.

Canadian National Rys. Standard Mileage Freight Tariffs.

32,233. March 27.—Re application of Canadian National Rys., under section 330 of the Railway Act, 1919, for ap-



Ground floor, freight house and offices, Canadian Pacific Railway, Windsor, Ont.

35 x 38 ft., an agent's office 11 x 12½ ft., assistant freight agent's office, cashier's cage, and space for customers. In addition, there will be a customs officials office 11 x 18 ft. The office portion will be provided with men's and women's lavatories and toilet facilities, and all of the office floors will be of hardwood.

The basement under the office portion of the building will contain a freight handlers' rest room, a room for storage of records, furnace room and coal cellar, and a lavatory for freight handlers reached by stairs from the freight shed. The basement will have a concrete floor, and the partitions between the freight handlers' rest room, the records room and the furnace room will be of terra cotta brick or concrete blocks. A corridor will extend between the freight handlers' rest room and the furnace room and coal chute and coal bins will be installed.

The freight shed portion of the building, 40 x 304 ft., set on concrete foun-

in. t. and g. hardwood flooring will be laid longitudinally, on top of which again the hardwood wearing surface, of ¾ in. material, will be laid transversely, with tar paper between the two layers of flooring. The upright columns will be surmounted by purlins 8 x 14 in. running longitudinally and supporting the roof rafters, of 3 x 12 in. section. The roof will be of 1½ in. tongued and grooved planks, covered with tar and gravel. The roof will have a slope of ¾ in. in 12 in. and will be cantilevered 7½ ft. over the front post line, and supported externally by 3 x 8 in. bracing at the front, or high side, and internally by 2 x 6 in. bracing at the lower side. The shed will be equipped with continuous mill type sliding doors, there being two runways for the doors to operate past each other. By this means the doors may be opened at any point throughout their length so as to give a clear space for trucking into or out of cars without post interference. The doors will be 8 x 10 in. high and 16 ft. wide.

proval of Standard Mileage Freight Tariffs, C.R.C., no. E. 390 and E. 393, upon the report and recommendation of the Board's Assistant Chief Traffic Officer, the Board orders that the Standard Mileage Freight Tariffs, C.R.C. no. E. 390 in so far as it applies to the Halifax & Southwestern Ry. and C.R.C. no. E. 393, be approved.

Express Rates on Butter.

32,235. March 16.—Re application of the National Dairy Council of Canada, for a reduction in express rate on butter from Silverdale and Renton, Ont., to Hamilton, Ont. Upon hearing the application at Ottawa, Sept. 20, 1921, the applicant and the express companies being represented at the hearing and what was alleged, the Board orders that the application be refused.

The Imperial Parliament has passed an estimate providing for the payment of £1a000a000 to the Dominion Government for rails and track material supplied for war purposes during 1916.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Board of Railway Commissioners.—W. E. CAMPBELL, Chairman, Canadian Freight Association, Western Lines, Winnipeg, from which position he has been given leave of absence, has been appointed rate expert, to assist the board in an advisory capacity. The appointment was authorized by Dominion order in council, 610, March 21, as follows:—The committee of the Privy Council have had before them a report, dated March 16, 1922, from the Minister of Railways, stating that, in view of the great importance of the question of railway rates in Canada, the Chairman of the Board of Railway Commissioners has recommended the appointment of a railway expert to assist the Board in an advisory capacity, and has mentioned W. E. Campbell, now Secretary, Canadian Freight Association, Western Section, Winnipeg, as a suitable appointee and \$550 a month as an appropriate salary. Attention is drawn to The Railway Act, 1919, reading as follows:—"21. The Governor in council may, from time to time, or as the occasion requires, appoint one or more experts, or persons having technical or special knowledge of the matters in question, to assist in an advisory capacity in respect of any matter before the Board." The Minister, therefore, recommends the appointment of W. E. Campbell, at a salary of \$550 a month, as a rate expert to assist the Board in an advisory capacity. The committee concur in the foregoing recommendation and submit the same for approval.

The following questions were asked in the House of Commons recently by F. W. Bowen, Durham, Ont., the answers being given by the Minister of Railways.

Q. Has W. E. Campbell been appointed recently to advise the Minister of Railways, or Deputy Minister of Railways, or the Board of Railway Commissioners, in regard to traffic matters, or has he been appointed in any capacity, and for what duties? **A.** He has been appointed as a rate expert to assist the Board of Railway Commissioners in an advisory capacity.

Q. Is such appointment permanent, or temporary, and if the latter, for what period? **A.** Is employed by the month for such period as may be found necessary.

Q. Is W. E. Campbell the gentleman who has held the position of Secretary of Canadian Freight Association, Western Lines, and if so, has he resigned such position? **A.** Was Secretary of the Association in question until Sept. 18, 1921, when he was appointed Chairman. At present he is on leave of absence from his late duties.

Q. Is his appointment for the special purpose of advising the Government regarding the Crowsnest Pass agreement? **A.** No.

The Civil Service Commission has given notice that applications will be received from persons qualified to fill the position of the Board's Chief Traffic Officer, at a salary of \$6,500 a year. Duties To be responsible under the Board for the conduct of all traffic matters involving rates and practices pertaining to the service of railway, express, telegraph,

and telephone companies; to direct the work of the Board's traffic branch; to investigate and prepare important reports and to advise the Board on traffic matters; and to perform other related work as required. Qualifications—Education equivalent to graduation from a university of recognized standing; at least five years of experience in an administrative and constructive capacity in an important railway and freight or traffic department; wide knowledge of the structure, classification and application of railway freight and passenger tariffs; ability to meet and discuss traffic matters with railway and public service officials; executive ability of a high order. While a definite age limit has not been fixed for this competition, age may be a determining factor when making a selection. Examination—A rating on education and experience will be given from the sworn statements submitted by applicants on their application forms. To those who qualify, an oral examination may be given if necessary.

Canadian National Rys.—L. E. CROWDER has been appointed Locomotive Foreman, Gravelbourg, Sask., vice H. N. Lukes, transferred.

J. C. FULMORE, Roadmaster, Maritime District, Moncton Division, Spring Hill Subdivision, from Truro to Sackville, has applied for retirement on the provident fund.

T. E. A. HALL, heretofore Division Engineer, Montreal Division, Quebec District, Montreal, has been appointed Division Engineer, Nipissing Division, Ontario District, vice S. McIlwain, transferred to Ottawa. Office, Capreol, Ont.

R. B. JENNINGS, heretofore Division Engineer, Ottawa Division, Ontario District, Ottawa, has been appointed Division Engineer, Montreal Division, Quebec District, vice T. E. A. Hall, transferred to Capreol, Ont.

W. L. LOOMIS, heretofore Assistant Master Mechanic, Edmonton Division, Big Valley, Alta., has been appointed Assistant Master Mechanic, Edmonton Division, vice S. A. Stacey, transferred. Office, Edmonton, Alta.

H. N. LUKES has been appointed Night Foreman, Radville, Sask., vice C. Graham, transferred.

S. McILWAIN, heretofore Division Engineer, Nipissing Division, Ontario District, Capreol, Ont., has been appointed Division Engineer, Ottawa Division, Ontario District, vice R. B. Jennings, transferred to Montreal. Office, Ottawa, Ont.

A. MAYS, heretofore General Foreman, Mechanical and Car Work, South Shops, Edmonton, Alta., has been appointed Assistant Master Mechanic, with jurisdiction over Battle River, Strathcona, Alliance and Brazeau Subdivisions, Edmonton Division, Alberta District, vice W. L. Loomis, transferred. Office, Big Valley, Alta.

J. F. MONGAN, heretofore Travelling Passenger Agent, New York, N.Y., has been appointed City Passenger Agent, Canadian National-Grand Trunk Rys., there.

P. SPENCE has been appointed General Foreman, Mechanical and Car Work, South Shops, Edmonton, Alta., vice A. Mays, transferred.

S. A. STACEY, heretofore Assistant Master Mechanic, Western District, Edmonton, Alta., has been appointed Assistant Master Mechanic, Central Dis-

trict, vice J. Allen, deceased. Office, Winnipeg.

M. J. WOODS, heretofore purser, s.s. Prince Rupert, Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C., has been appointed Travelling Passenger Agent, Canadian National-Grand Trunk Rys., New York, N.Y., reporting to General Agent C. E. Jenney, vice J. F. Mongan, appointed City Passenger Agent.

Canadian Pacific Ry.—G. E. CARTER is reported to have been appointed Travelling Passenger Agent, with headquarters at St. John, N.B.

A. V. CLARK, heretofore Special Continental Representative, has been appointed Managing Director, Canadian Pacific Railway Co. (France), which has been organized in France to carry on all the C.P.R. business in that country, and A. Catoni, heretofore Agent, C.P.R., at Paris, has resigned. Office 1 Rue Scribe, Paris.

J. MITCHELL, heretofore Superintendent of Telegraph Traffic, Eastern Lines, Montreal, has been appointed Superintendent of Telegraphs, Eastern Division, with office at Montreal, vice W. M. Thompson transferred.

W. D. NEIL, heretofore Superintendent of Telegraphs, Ontario Division, Toronto, has been appointed Assistant Manager of Telegraphs, Eastern Lines, at Montreal, vice W. J. Camp transferred to the retired list.

G. A. OWENS, heretofore section foreman, Maniwaki and Waltham Subdivisions, and Ottawa Terminals, Ottawa Division, Quebec District, has been appointed Roadmaster, Shore Line Subdivision and St. John Terminals, Brownville Division, New Brunswick District, vice K. O. Shepard, transferred to Newport Subdivision, Farnham Division, Quebec District. Office, St. John, N.B.

K. O. SHEPARD, heretofore Roadmaster, Shore Line Subdivision and St. John Terminals, St. John, N.B., has been appointed Roadmaster, Newport Subdivision, Farnham Division, Quebec District. Office, Farnham, Que.

W. M. THOMPSON, heretofore Superintendent of Telegraphs, Eastern Division, Montreal, has been appointed Superintendent of Telegraphs, Ontario Division, at Toronto, vice W. D. Neil promoted.

Reid Newfoundland Co.—R. C. MORGAN, Superintendent, Winnipeg Terminal Division, C.P.R., who was given six months leave of absence, to act as Chairman, Management Committee, Reid Newfoundland Co., severed his connection with the Reid management in February and has since been acting as advisor to the Newfoundland Government on railway matters.

Toronto, Hamilton & Buffalo Ry.—H. H. DISHER, heretofore acting Purchasing Agent, has been appointed Purchasing Agent, vice G. W. Holmes, resigned on account of ill health. Office, Hamilton, Ont.

United States Coal for Canadian National Rys.—The Minister of Commons, April 19, in answer to E. M. MacDonald, Picton, N.S., that 977,696 net tons of coal were imported during 1921, from the U. S. for the Canadian National Rys. exclusive of the G.T.R., that the cost was \$5.10 per net ton at the border, and that \$4,992,694.97 was paid for the coal.

Interstate Commerce Commission Hearings on Automatic Train Control.

As stated in Canadian Railway and Marine World for February, pg. 69, the Interstate Commerce Commission issued an order on Jan. 10, calling upon 49 railways to show cause by March 15 why it should not issue an order requiring them to equip certain portions of their lines with automatic train stops. On March 20 the Commission held a hearing in Washington, when a committee of the American Railway Association, representing 40 out of the 49 railways affected, urged that the Commission withhold the proposed order. The case for the railways was presented by R. H. Aishton, President, Association of Railway Executives; A. M. Burt, Assistant to Vice President, Northern Pacific; C. E. Denney, Vice President, New York, Chicago & St. Louis, and A. P. Thom, Association Counsel. Generally speaking, all roads represented were unfavorable to the Commission's proposal. The first objection raised was that the science of automatically stopping trains when danger threatens is not sufficiently far advanced to warrant such extensive installations as those contemplated. Attention was called to the three most prominent installations, viz, the Regan system on the Chicago, Rock Island & Pacific, the Miller system on the Chicago & Eastern Illinois, and the American system on the Chesapeake & Ohio, and the members of the committee claimed that experiments with these systems indicated that they all needed a lot of improvement before they could be considered thoroughly reliable. It was further objected that the systems most developed to date use ramps along the track, for the securing of mechanical contacts, while many railways officials believe that an induction system would be more suitable. If the ramp systems had to be installed, the representatives of these roads claimed, no opportunity would be given of experimenting with the induction systems now originated, but in need of development. The committee assured the Commission that it would do everything in its power to co-operate in testing all good devices, but the opinion was expressed that if the Commission insisted on a division of each road being equipped at once, the progress of automatic train control development would be retarded more than advanced. It was also stated by committee members that the proposed order would require many more installations than are advisable at the present stage of the development of the devices, resulting in great waste. Mr. Aishton argued that, under present financial conditions, expenditures should be confined to safety devices which had been proved practical by long experience. Many roads were represented individually at the hearing, and all advanced objections to the proposed order. Many stated that they wanted to finish equipping the busy portions of their lines with automatic block signals before starting on the automatic stop; others said the proposed order would disrupt their present betterment programmes; others pleaded financial inability, and still others stated that the climatic conditions under which they operate call for a great deal more development than had taken place in the systems most advanced before they would feel justified in spending the large sums necessary. R. S. Parsons, General Manager, Erie Rd., said that his road had

not had a passenger train accident, which train control would have prevented, in the last 20 years.

On March 23 and 24, M. E. Miller, representing the Simplex Train Control Co., maintained that its device had been tested on the Buffalo, Rochester & Pittsburgh, and had made good, but the company's Signal Engineer stated that the road's officers did not think much of it because it left portions of the track unprotected by the block system. Mr. Miller said that could be remedied. R. L. Miller, of the Otis Automatic Train Control Co., said that tests of its apparatus had been made on the Spokane International Ry. at Spokane, in June 1920 and Feb. 1921, and that since then he has introduced a number of improvements in it.

The hearing was continued on April 12, when a statement was read into the record showing the number of accidents which have taken place in the U.S. From July 1, 1911 to March 31, 1922, there were 255 head-on collisions, resulting in the death of 863 persons and injuries to 5,462, and in the same time there were 205 rear end pitch-ins, resulting in the death of 773 persons and injuries to 3,948. C. W. Hendrick, of the American Train Control Corporation, told of the costs of equipping with his system, and expressed the opinion that the automatic train stop will ultimately result in doing away with block signals.

It is noteworthy that in the majority of the train control systems now developed a locomotive man can, if he is alert, and if he knows that it is all right to proceed, stop an automatic stop from taking effect, and according to the code of requirements drawn jointly by the American Railway Association committee and the Interstate Commerce Commission Bureau of Safety, a train control system with this feature is quite satisfactory. But the Interstate Commerce Commission in its order of Jan. 10 left out this modification, which would make it appear that systems having this feature will not be satisfactory. In view of the fact that the systems which have so far seemed to give the best results contain this feature, it is generally felt that the feature should be retained if the manufacturer of any system so desires.

Hearings on the advisability of issuing the proposed order are being continued before the Commission.

Government Advances to Railways.

The Minister of Railways stated in the House of Commons, on March 29, in answer to J. W. Kennedy, Glengarry and Stormont, Ont., that up to March 25 the following sums had been advanced, or loans guaranteed, to the railways mentioned, since they were authorized during the Dominion Parliament's last session:—

Canadian Northern: sums advanced, \$34,035,553.72; bonds guaranteed, \$25,000,000.00.

Grand Trunk: sums advanced, \$36,200,857.03; bonds guaranteed, \$25,000,000.00.

Grand Trunk Pacific: sums advanced to receiver, \$4,651,341.88; loans guaranteed, nil; guaranteed interest paid by Dominion, \$2,138,335.46.

Grain in Store at Elevators.

Returns to the Dominion Bureau of Statistics, Internal Trade Branch, for the week ended Apr. 14, showed that the quantity of grain in store at elevators throughout Canada decreased by 3,432,394 bush., made up as follows,—wheat 2,180,070, oats 925,586, barley 295,098, flax 37,390, and there was an increase in rye of 6,290 bush.

In western country elevators there were decreases in wheat of 1,328,135 bush., oats 780,652, barley 80,341, flax 56,482, and rye 26,470, and of the total amount, viz., 32,884,516 bush., the following amounts were held by the different prairies provinces,—Manitoba 4,393,069, Saskatchewan 11,395,871, Alberta 16,932,242. The receipts at country elevators were 1,418,581 bush., and the shipments were 2,750,155.

The interior terminal elevators showed decreases in wheat of 45,443 bush., oats 82,113, barley 128, while flax and rye showed increases of 2,726 and 1 bush. respectively. The receipts of wheat at Vancouver were 196,836 bush., and the shipments were,—by ship 255,159, and by rail 1,100.

In public and private terminal elevators increases were shown in wheat of 769,296, oats 345,737, barley 92,201, flax 15,825, rye 36,952. The receipts of all grains were 1,546,924 bush., and the shipments, by ship were 44,500 and by rail 242,513. The quantity of wheat in winter storage afloat was 394,656 bush. The rail shipments from Fort William were distributed as follows,—to Atlantic seaboard 1,941 bush., Canadian domestic 118,445.

The private terminal elevators at Winnipeg showed increases in wheat, barley and flax of 65,050 bush., 1,411 and 1 bush. respectively, and a decrease in oats of 4,629.

In eastern public elevators decreases were shown in wheat 643,418 bush., oats 183,404, barley 97,856, rye 5,193. The receipts of wheat were 13,712 bush. and the shipments were, by ship 169,877, and by rail 487,252.

The quantity of U.S. grain in store at the eastern public elevators was 3,156,033 bush., compared with 458,945 at the same period in 1921. The U.S. lake ports showed decreases in wheat of 520,220 bush. and barley 47,423.

Grain Shipments Through Port McNicoll, Ont.

Following are particulars of grain shipped through Port McNicoll, Ont., by the C.P.R., from Sept. 1, 1921, to March 31, 1922, and from Sept. 1, 1920, to March 31, 1921, respectively:—

	1921-22	1920-21
Total bush. shipped	31,789,120	12,230,031
Bush. shipped per day	149,949	57,689
Total cars shipped	16,941	7,953
Cars shipped per day	86	38

Railway Accidents Throughout Canada. The total number of railway accidents throughout Canada during March, reported to the Board of Railway Commissioners, was 182, resulting in 11 persons being killed, and 219 being injured. Of those killed, 5 were employes and 6 were others, and of those injured, 37 were passengers, 155 were employes and 27 were others. Under "others" are included 1 person killed, and 10 injured, in 8 unprotected highway crossing accidents, in 5 of which automobiles were concerned, in 1 a motor truck, and in 2, other vehicles.

Railway Wages and Working Conditions in Canada and the United States.

American Federation of Labor, Railway Employees' Department, Division 4, which includes in its membership the large majority of shopmen employed by Canadian railways, met at Winnipeg on March 27, 28 and 29. The delegates were informed of a communication from the Railway Association of Canada, stating the railway managements' desire to revise shopmen's working conditions by making changes in 25 of the general rules and 20 of the craft rules, the changes desired being designed to modify the present rules, contained in agreement 4, so as to bring them into line with the rules promulgated for shopmen in the U.S. by U.S. Railroad Labor Board decision 222, agenda 6, as mentioned in Canadian Railway and Marine World recently. The matter of wages is not a direct consideration at this time, except in so far as they are affected by the proposed changes in the working conditions. Elimination of time and a half for Sunday and holiday work, and the payment of punitive overtime rates for work after the 9th hour of continuous service, instead of after the 8th hour, are two of the principal points involved. The delegates at the meeting decided to ask the railways to adopt a 40 hour week consisting of five 8-hour days, as a counter proposal to the Railway Association's request for changes in the existing agreement. The delegates without exception opposed the changes proposed in the working conditions, and promised full support to the division's executive in combatting the proposals.

On April 17 railway representatives met in Montreal to prepare for a meeting with shopmen's representatives, and the two parties met in conference beginning April 19. The Railway Association was represented by Geo. Hodge, Assistant to Vice President, Eastern Lines, C. P.R.; C. F. Needham, Assistant to General Superintendent, Motive Power and Car Department, G.T.R., and C. E. Brooks, Mechanical Assistant, Locomotive Department, Canadian National Rys. The shopmen were represented by R. J. Tallon, President, American Federation of Labor, Railway Employees Department, Division 4, Chas. Dickie, Secretary of the Division, and delegates representing the individual trades. At the time of writing (April 24) the conference was still in progress.

The Railway Association of Canada some time ago issued notice to the maintenance of way employees, who have what may be described as a "national agreement" with Canadian railways, that a revision of schedule rules was desired, to bring such rules into line with those put in force recently by the U.S. Railroad Labor Board. A committee of maintenance of way employees met the Railway Association's wage committee for a discussion of the matter, but no agreement was reached, and the employees' representatives asked for time to refer the Railway Association's proposals back to the local chairmen and the men, which was granted.

The railway managements have also notified the telegraphers that it is desired to bring up for consideration the schedule of rules and working conditions under which they are working. While the railways have not as yet acquainted the leaders of the telegraphers' organization with the changes proposed, the drafting of the new schedule desired is

about completed, and it is expected that a conference to determine on new rules will be held in the near future. The railways have also notified the Canadian Brotherhood of Railway Employees, and the United Association of Railway Employees (this latter organization, with its membership confined largely to the G.T. R., and of comparatively recent formation, was described in Canadian Railway and Marine World for March) that schedule revisions are desired, and as soon as the railways have determined upon the change to be proposed, the customary 30 days notice will be issued to these organizations. It is considered likely that the railways will propose rules calling for a restriction of punitive overtime payments and the limiting of the overtime rate to time worked after nine hours continuous service. A meeting of the United Association of Railway Employees was held at the Labor Temple in Toronto on April 16 to discuss the matter. A. R. Mosher, President, Canadian Brotherhood of Railway Employees, in addressing the London, Ont., membership of the organization, on April 10, promised that any efforts made by the railways to make working conditions less favorable to the employees would be opposed to the limit.

Details have been given in previous issues of Canadian Railway and Marine World of the arbitration proceedings held before the Board presided over by Rev. Byron Stauffer, the recommendations in which for an adjustment of C.B.R.E. members' wages were not adopted by the Canadian National Rys. management. C. B.R.E. leaders, interviewed the Minister of Labor and the Minister of Railways at Ottawa on April 5, urging that this award be put into effect on the C.N.R. Consideration was promised by the ministers, but no action has as yet been taken.

On April 4, legislative representatives of the Brotherhood of Locomotive Engineers, Brotherhood of Locomotive Firemen and Enginemen, Brotherhood of Railroad Trainmen and Order of Railway Conductors met the Dominion Prime Minister, and the Minister of Labor, and submitted a memorandum requesting, among other things, that the customs tariff on foodstuffs coming into Canada be removed; that an investigation into unemployment insurance be undertaken; that income tax exemptions be increased; that Asiatic immigration be further restricted; that certain amendments to the Election Act and the Industrial Disputes Investigation Act be made, and that the elimination of level crossings, as provided for in the Railway Act, be aggressively undertaken, and that labor representative be appointed on the Canadian National Rys. directorate.

At the time of writing, no action had been taken by Canadian railways toward seeking a revision of rules and working conditions affecting the employment of conductors, brakemen, and locomotive enginemen and firemen.

United States Situation.—The hearing before the U.S. Railroad Labor Board, in connection with the railways' requests for decreases in shopmen's wages, was continued in the latter part of March and in the first part of April. As stated in our last issue, B. M. Jewell, President, American Federation of Labor, Railway Employees' Department, questioned the legality of the carriers' position before the Board, but J. W. Higgins, represent-

ing the western railways, argued that the railways had held conferences with the employees as the Transportation Act required. The Labor Board refused Mr. Jewell's request to refer the disputes back to the individual railways and their shop employees for further conference. On the hearings being continued, Mr. Jewell attacked the whole industrial system of the country and the existing social order of things in general. He argued that shopmen's wages should not be reduced, but on the contrary should be increased. He stated that industry as a whole should be able to pay a living wage, and cited figures to show that shopmen are not receiving it from the railways. F. J. Wayne, an economist in the labor organizations' employ, presented figures designed to show that employees are not paid sufficient wages, and that the railways are not operating under the financial disabilities which are claimed. In rebuttal argument, J. G. Walber, representing the eastern carriers, and Mr. Higgins, contended that Mr. Jewell's statements were entirely irrelevant, and that he was asking the Labor Board to solve a sociological problem which had remained unsolved throughout the ages. Mr. Warren's figures were severely criticized by Mr. Walber, who characterized them as constituting an unfair attack upon the railway industry in its entirety. Both Mr. Higgins and Mr. Walber presented reasons to the Board as to why the railways should be allowed to have graded rates for mechanics, instead of the one rate for men of varying skill and experience, and employed on widely varying work. They also contended that the railways should have latitude to meet local conditions, and pointed out how injurious to the railways and to the employees, and to industry generally, standard rates are. On April 10 Mr. Higgins presented arguments as to why wages of maintenance of way department employees should be reduced. (The rates proposed by the railways for various grades of labor were given in Canadian Railway and Marine World for April, pg. 198.) On April 11, the maintenance of way employees' representatives, F. P. Walsh and W. J. Lauck, argued against the proposed reductions in wages. To make their arguments convincing, they had a number of sectionmen and their wives appear before the Board and testify as to present earnings, which they claimed to be inadequate. The Board has stated that the hearings on the maintenance of way employees' and shopmen's wages will conclude before May 1, and that on that date hearings will be commenced on disputes involving the rules and working conditions affecting locomotive employees.

An interesting development in the railway wage situation in the U.S. in April was a demand by the Eastern Federation of the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees for the abolition of the Labor Board, a resolution being addressed to President Harding.

The U.S. Railroad Labor Board's offices have been removed to the Transportation Building, 608 South Dearborn St., Chicago, Ill.

U.S. Railroad Labor Board.—L. M. Parker, formerly secretary to Ben Hooper, public member of the Board, has been appointed Secretary of the Board,

Railway Electrification Discussed in Parliament.

H. Deslauriers, St. Mary, Montreal, moved in the House of Commons on April 3: "that in the opinion of this House it is advisable that the Government substitute electric power for that of coal over its railways, in such centers where this natural supply abounds." He pointed out the great power developments on the Paris-Lyons-Mediterranean and Orleans-Midi railways in France; on the Butte-Anaconda, New York Central, New York, New Haven & Hartford, and Chicago, Milwaukee & St. Paul in the U.S., and in England, Germany, Australia, Africa, Switzerland and Spain. He said that in the central part of Canada there are no known coal deposits and according to geological data presented there never would be any discovered, but that there is a superabundance of water power capable of being transformed into electrical energy. He emphasized the undesirable conditions brought about by the use of steam locomotives in large cities, particularly Montreal, and claimed that if large U.S. cities had the same power potentialities they would have been utilized long ago. He stated that while Canada has large undeveloped electrical power, mounting into the millions of horsepower, it is nearly all going to waste, while the Chicago, Milwaukee & St. Paul scheme was based on a maximum supply of 200,000 h.p., some of it is furnished by electrical plants with an output as low as 4,000 h.p. Unlike the majority of people who want to see every mile of railway in Canada electrified at once, without regard to capital cost, or ultimate economy in relation to traffic and operating conditions, Mr. Deslauriers stated frankly that it might seem unduly venturesome for Canada, with its large public debt, to make the large capital expenditures which would be necessary for electrification. He believed in the final economy of the proposition, however, and proposed to overcome conditions of low railway traffic density by having domestic and industrial requirements for power supplied by the railway power lines, and presented figures to show that the cost of lighting and heating homes, and furnishing power for industries, would be decreased greatly by this method. He gave figures to show the cost of coal, and stated that "it takes approximately two pounds of coal to produce one horsepower hour." If his remark was intended to be applicable to power produced by steam locomotives only, we cannot refrain from stating that he has, presumably unintentionally, flattered the great majority of them. Basing his remarks on his experience with power companies in Quebec, he stated that it would be advisable for the power to be developed by the Government, and that private power companies should not be considered. As a further argument for the introduction of large scale electrification, he stated that he knew that the C.P.R. had, two years ago, almost concluded a contract with the Shawinigan Power Co. for the supply of power for the electrification of the Quebec-Montreal line.

In the discussion which followed, W. F. Maclean, M.P. for South York, Ont., advanced arguments for railway electrification, advocating Government control of power development and the electrical operation of the national lines. He pointed out that freight rates depend primarily on operating costs, and was

confident that electrification would reduce operating costs materially. He expressed the hope that when the Minister of Railways commences his consolidation of the national properties, he will be in a position to take all the power the Ontario hydro electric system can spare, and proceed at once to get all the Ontario portions of the national lines equipped for electric operation.

Paul Mercier, for Westmount-St. Henri, Montreal, stated that his constituency suffer severely from the dense smoke from locomotives, and that great benefit would doubtless ensue in connection with public health and child welfare if Mr. Deslauriers' resolution were adopted.

Hon. W. C. Kennedy, Minister of Railways, stated that he had discussed railway electrification with the Canadian National Rys. management, and that the management is keenly alive on the subject. It is, however, felt that the expenditure necessary to introduce large scale electrification at present would be unduly large, but he assured the members that the management is interested and sympathetic, and when the time is opportune, proper action will be taken.

Mr. Deslauriers then withdrew his motion.

Freight and Passenger Traffic Notes.

The White Pass and Yukon Route has transferred its Vancouver offices from 603 Hastings St. West, to 211 Winch Building.

The C.P.R. s.s. Empress of Russia carried 500 tons of British Columbia potatoes to Hong Kong recently, for re-shipment to Manila.

The Canadian National Rys. and the G.T.R. announce that tickets issued between Quebec and Montreal reading via C.N.R. or G.T.R., will be honored on either railway.

The C.P.R. Trans-Canada Limited train from Montreal and Toronto to Vancouver, will resume running on May 21. The running time will be 92 hours from Montreal, and 88 from Toronto.

The C.P.R. will, a press report states, in conjunction with the Minneapolis, St. Paul and Sault Ste. Marie Ry., resume operating trains 13 and 14, between Vancouver, Minneapolis, St. Paul and Chicago, on June 24.

Annapolis Valley, N.S., apple growers report recently that 6,204 carloads representing 1,395,900 barrels of apples of the 1921 crop have been shipped to Halifax for export, and that about 15,000 barrels were still to be shipped.

The Canadian National Railways will, it is said, make very little change in the times in which the train service in the Quebec areas is concerned this summer, but the summer train service will be put in operation May 10, instead of June 25, as heretofore.

P. Mooney, Assistant General Freight Agent, Canadian National Rys., Quebec, is reported to have said April 6, that way freight was heavy on the C.N.R. Lines, and that shipments of timber products had increased 25% since January, on lines under his jurisdiction.

The Atlantic, Quebec and Western Ry., and the Quebec Oriental Ry., which give connection between the Canadian National Rys. at Matapedia, and Gaspe,

are reported to have carried on an uninterrupted service during the winter, and that on only one occasion did the Gaspe train fail to make connection with the C.N.R. Ocean Limited at Matapedia.

The Delaware and Hudson Co., which operates a through train from Windsor St. Station, Montreal, to the Grand Central Station, New York, has put in operation a new and accelerated time table for the New York Limited. The train leaves Montreal at 9 p.m., instead of 8.20 p.m., and arrives in New York at 7.30 a.m., as heretofore.

The Edmonton, Dunvegan and British Columbia Ry., operated by the C.P.R., put into effect recently, a through tariff on live stock from all points on its line to Calgary, Alta., and Winnipeg, which reduced rates 2c. per 100 lbs. Heretofore the custom was to bill shipments of live stock from points on the line to Edmonton, where they were rebilled to destination.

The Northern Navigation Co.'s passenger traffic on the upper lakes will be opened May 2, when the s.s. Hamonic will leave Sarnia, Ont., for Port Arthur and other ports, to be followed by the Huronic on May 6. The Noronic will be put into service later in the season. Special trains will be operated between Toronto and Sarnia, in connection with the steamships.

The Chicago, Milwaukee & St. Paul, the Chicago & Northwestern, the Chicago, Rock Island & Pacific, and the Chicago, Burlington & Quincy have placed in effect home-seekers' rates of a one way fare, plus \$2. for the round trip, effective on the first and third Tuesdays in each month until November. Tickets will be good for 21 days, and liberal stopover privileges will be granted.

The Alberta and Great Waterways Ry. shipped out during the winter the catch of three fishing companies operating on Buffalo Lake, 80 miles east of Cheecham, Alta. Forty-two teams were employed in transporting the fish to the railway. The total shipments are not reported, but one of the companies is said to have shipped 1,260,000 lbs. of whitefish, requiring 63 cars for its transportation.

Railway Rolling Stock Orders and Deliveries.

The C.P.R. has bought one 80,000 lb. scale test car for its Western Lines.

Canada Creosoting Co. has ordered 120 standard tie cars from Canadian Car & Foundry Co.

The New York Central Lines are reported to have ordered 75 switching locomotives and 16,000 freight cars.

The C.P.R. has received 2 steel sleeping cars from its Angus shops, Montreal, the frames having been built by National Steel Car Corporation.

The G.T.R. has given an order to the National Steel Car Corporation for rebuilding 250 refrigerator cars, including new underframes.

The Midland Ry. Co.'s Chairman announced at the annual meeting in London, Eng., recently, that negotiations for amalgamation were proceeding with the London & Northwestern Ry., and five other companies, and that the total combined capital would be \$527,000,000.

Edgar R. Mills, Night Locomotive Foreman, Canadian National Rys., Brandon, Man., writes:—"I greatly enjoy reading Canadian Railway and Marine World each month."

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Editorial Notes.

Exaggerated Advertising.

Exaggeration in advertising should be avoided by railways as well as by any other advertisers. For years Muskoka has been advertised as the "Highlands of Ontario," while as a matter of fact Lake Muskoka is only 739.7 ft. above sea level and Lakes Rosseau and Joseph 742.2 ft. The Muskoka district is not even as high as some points between Toronto and Lake Simcoe; the Toronto and York Radial Ry's crossing of the Holland River being 764 ft. above sea level, and that railway rises to 989 ft. at Jefferson, while the G.T.R. Toronto-North Bay line rises to 1,002 ft. at 26.3 miles north of Toronto. These figures are dwarfed by many other places in Ontario, of which only a few need be noted, viz:—the highest point in the province, Tiptop Hill, near Michipicoten, 2,120 ft.; Dundalk, on the C.P.R., Toronto-Owen Sound line, 1,706 ft.; Orangeville Jct., 1,613 ft.; Orton, Wellington County, 1,528 ft.; Orangeville, 1,395 ft.; Hillsburg, 1,405 ft.; Caledon station C.P.R., 1,356 ft.; Fergus, 1,355 ft.; Cataract Jct., 1,252 ft.; Stratford, 1,211 ft.; and Guelph, 1,143 ft. Algonquin Park has been, and is being, persistently advertised as 2,000 ft. above sea level, but Algonquin Park station is only 1,418.9 ft. above, and the Highland Inn, close to the station, is only a few feet higher, while the summit on the G.T.R. line through the park, 17.8 miles farther west, is only 1,605 ft. The natural beauty and the healthfulness of Muskoka and Algonquin Park are sufficiently great in themselves to prove irresistibly attractive, and there is no necessity for exaggeration, and nothing to be gained by it in the long run.

Gross Discrimination Proposed.

At least one member of the House of Commons, W. M. McQuarrie, New Westminster, B.C., has a badly perverted idea of how publicly owned utilities should be carried on, and how competing privately owned ones should be treated, as evidenced by a question he asked in the House of Commons recently, as to whether the Government intends to make arrangements to have all mails carried by the Canadian National Rys. where possible. The Postmaster General replied that on Dec. 13, 1920, the then Minister of Railways issued instructions that the Post Office Department should see that the Canadian National Rys. and the C.P.R. were fairly treated in connection with the mail service, and that neither be given an unfair advantage, and added that in every case the Department is governed by the requirements of the postal service in the territory served by the railway, and that any further intention on the part of the Government will be announced in due course. We cannot imagine for a moment that the established policy will be deviated from. To act on Mr. McQuarrie's suggestion would be a gross outrage.

Excessive Railway Building.

The Toronto Globe, in discussing the railway situation, says:—"One cause of our troubles is that railway building was carried on in advance of the needs of the country." But the Globe was one of the principal advocates of the building of the National Transcontinental and the Grand Trunk Pacific lines, for neither of which was there any necessity, as long

before they were conceived the Canadian Northern Ry. had commenced its transcontinental line, which, with the C.P.R., would have given all the accommodation required for some years to come.

Government Steamship Losses.

When considering what the Canadian Government Merchant Marine lost in operation in 1921, it should be borne in mind that the United States Shipping Board's Chairman stated recently that the U.S. Government is losing \$50,000,000 a year on a fleet of 1,442 steel ships, of which only 421 are in operation.

Freight Rates and the Crowsnest Pass Agreement.

Hon. J. A. Stewart, Lanark, Ont., asked in the House of Commons April 19:—Is it the intention of the Government to introduce legislation at this session to continue the provisions of the Railway Act, 1919, sec. 325, sub-sec. (5), or in any way further suspend the freight rate provisions of the Statutes of Canada 60-61, chap. 5, passed June 29, 1897, which would become operative on and after July 6 next, or to repeal or vary or in any way amend said chap. 5?

Premier King replied:—The subject of freight rates is being referred for consideration to a committee of the House, and is receiving the consideration of the Government. Should it be found necessary or desirable to introduce legislation at this session, intimation to this effect would be given in due course.

The Minister of Railways gave notice April 24 that he would move in the House of Commons that notwithstanding that the regulation of railway rates is a matter within the jurisdiction of the Board of Railway Commissioners, it is advisable that a select special committee be appointed to make enquiry into the question of railway transportation costs, it having been disclosed by recent conferences held between the Government and the chief executives of the various railways with respect to the reduction of freight rates that the representatives of the railways deem it inadvisable immediately to reduce rates on basic commodities because of the expiration, on July 6 of the suspension of the Crowsnest Pass agreement; that, in the circumstances, it is advisable to afford opportunity to all interested parties to submit their views upon the subject matters of the enquiry to the said committee, with particular regard to the effect of rates established by the Crowsnest Pass agreement upon Canadian National Rys. and other lines, as well as upon agricultural development and Canadian industry generally; and that the said committee shall have power to send for persons, papers and records, including the minutes and evidence taken before the committees of this House in previous sessions, to examine witnesses under oath, and to report from time to time.

Railway Lands Patented.—Letters patent were issued during March for Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Canadian Northern Ry.	485.67
Canadian Pacific Ry. grants	9.19
Canadian Pacific Ry. roadbed and station grounds	6.25
Total.....	501.11

The G.T.R.'s Ottawa Station Assessment.

The Supreme Court of Ontario, Appellate Division, heard arguments 29 and 30, on the City of Ottawa's appeal against the Ontario Railway and Municipal Board's decision with respect to the assessment of the G.T.R.'s central station in Ottawa by the city. The Canada Atlantic Ry. Co., control of which was acquired by the G.T.R. Co. in 1904, had leased from the Crown the lands upon which the present central station stands, and undertook to make sufficient provision to allow other railways to use the station for passenger purposes. Under this provision the C.P.R. Co., and the Ottawa and New York Ry. Co. obtained access to the station about 1898. In 1907 the Canada Atlantic Ry. Co. made an agreement with the Dominion Government in regard to the erection of a new station, and in the same year made an agreement with the city, under which the city was to give the railway a fixed assessment for 20 years of \$150,000 on a central union passenger station and the lands used in connection therewith. The agreement provided that any part of the station "not used for railway purposes," should be assessed in the ordinary way and that any of the lands "used for other purposes than passenger train terminals or passenger business, or purposes incidental thereto," should cease to enjoy the benefit of the fixed assessment and be assessed at their actual value. Matters went along for a number of years, and upon the notice of assessment for 1922 being served in 1921, the G.T.R. Co. appealed, objecting to the assessment of four portions of the station, viz., those occupied by the Canadian National Express Co. and the Dominion Express Co. adjoining the train shed, and the portions occupied by the restaurant and the Canadian Express Co., the main building. These assessments amounted altogether to \$98,000, in addition to the fixed assessment of \$150,000. The city's court of revision affirmed the assessment, and this was confirmed on appeal to the county judge. The company appealed to the Ontario Railway and Municipal Board, which ordered the items named to be struck out of the assessment. The city's main contention was that the agreement which had been made went beyond the powers given in the Ontario statutes allowing the city to fix an assessment, and also that the building adjoining the train shed, occupied by the Dominion Express Co., had not been shown in the original plans of the station approved of by the city, and, therefore could not be included in the fixed assessment, even if used for purposes within the meaning of the agreement. The G.T.R. Co. contended that accommodation for express and restaurant purposes is an ordinary and proper accessory of a passenger station and comes within the description of a central union passenger station, and the words "passenger purposes," used in the statute. Judgment was reserved.

Canadian Northern Ry. Subsidies. — The Minister of Militia and Defence stated in the House of Commons, April 3, in answer to W. Irvine, Calgary East, Alta., that the first cash subsidy was paid to the C.N.R., by the Dominion Government, Sept. 7, 1900, and that the total amount of cash subsidies paid to the C.N.R. by the Government was \$31,870,016.56.

Canadian National Railways' Insurance.

The Minister of Railways gave the following information in the House of Commons on March 29, in answer to E. M. Macdonald, Pictou, N.S. The following insurance is carried on the railway properties named:—Canadian Northern Ry., \$112,590,338. Grand Trunk Pacific Ry.: \$22,822,720.00; effective under general fire schedule at Feb. 9, 1922. Canadian Government Rys.: No insurance is carried on former Canadian Government railway lines such as the Intercolonial and, latterly, the Transcontinental.

The insurance was placed on the following dates:—Canadian Northern Ry.: Dec. 1, 1919, and additions made since to schedule of insurance. Grand Trunk Pacific Ry.: Feb. 9, 1921, for one year, continued on basis of pro rata additional premiums until Dec. 1, 1922, when Canadian Northern Ry. general schedule will also expire.

The insurance was placed with the following companies and for the following amounts: — Canadian Northern Ry.: Grand Trunk Pacific Ry.: Union Assurance Society of London, Eng., 20%; Western Assurance Co. of Canada. Mackenzie, Ltd., Montreal.

The insurance was placed through the following brokers:—Canadian Northern Ry.: Toronto Insurance and Vessel Agency. Grand Trunk Pacific Ry.: Hare & Cornhill Insurance Co., 37%; Lloyd's of London, 43%.

The Minister of Militia and Defence stated in the House of Commons, on April 3, in answer to E. M. Macdonald, Pictou, N.S., that the amount of annual premium payable on the \$112,590,338 insurance carried on the Canadian Northern Ry. property is \$506,656.52. The amount of annual premium on insurance carried on Grand Trunk Pacific Ry. property is \$362,098.65.

Inspection of Railway Steam Boilers.

The Board of Railway Commissioners issued a circular April 11, respecting general order 330, re inspection of railway steam boilers, and enclosed a draft order requiring all railway companies to show cause why the recommendations of the Board's Mechanical Expert, as set forth in the draft, should not be put into full force and effect. The draft is as follows:—

"In pursuance of the powers conferred upon it, and for the further carrying out of general order 330 re the inspection of railway steam boilers, other than locomotive boilers: it is hereby ordered that all railway companies under the Board's jurisdiction file with the Board's Chief Operating Officer, within 30 days from this date, a list showing the numbers of all stationary boilers owned by them; and also file from time to time with the Board's Chief Operating Officer a list giving the numbers of any additional stationary boilers that may be purchased, built or leased by the said railway companies."

Quebec wants Railway Divisional Headquarters. — The Quebec Board of Trade's council has passed a resolution urging upon the Minister of Railways that the headquarters of one of the projected "divisions" of the Canadian National Rys. administration be established in Quebec City.

Railway Earnings.

Canadian National Railways.

Following are total operating revenues total operating expenses, and net operating revenues or deficits, for the Canadian Northern Ry. System, Grand Trunk Pacific Ry., and Canadian Government Rys., the last including the Intercolonial Ry., Prince Edward Island Ry. and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government:—

	Revenue	Expenses	Net deficits
	1922	1921	1921
Jan.	\$8,210,401	\$10,433,564	\$2,223,163
Feb.	7,650,743	10,026,572	2,375,829

	\$15,861,144	\$20,460,136	\$4,598,992	\$5,850,056
Decr.	\$5,138,188	\$6,389,252	\$1,251,064	

Approximate gross earnings for March, \$9,956,702, and for two weeks ended Apr. 14, \$3,778,175, against \$10,539,861 and \$4,399,544 for same periods 1921 respectively.

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1922, compared with those for 1921. The discrepancies between these figures and those issued by the Dominion Bureau of Statistics are owing to the fact that the Bureau is, at its request, furnished with figures by the C.P.R., including the Esquimalt & Nanaimo Ry., and the Montreal & Atlantic Ry. earnings, as well as the C.P.R. ones. The figures supplied the Bureau are exclusive of certain income items which are included in figures supplied Canadian Railway and Marine World:—

	Gross	Expenses	Net	Decreases
	1922	1921	1921	1921
Jan.	\$11,337,975	\$10,854,498	\$483,477	\$157,948
Feb.	11,303,693	10,649,205	654,488	158,904

	\$22,641,668	\$21,503,703	\$1,137,965	\$316,852
Decr.	\$4,592,749	\$4,275,897	\$316,852	

Approximate gross earnings for March, \$13,589,000, and for two weeks ended Apr. 14, \$5,689,000, against \$14,466,000 and \$6,262,000 for same periods 1921.

Grand Trunk Railway.

Approximate gross earnings for January, \$7,339,113; February, \$7,171,691; March, \$8,420,021, and for two weeks ended Apr. 14, \$3,252,311, against \$6,402,543 for January, \$5,732,242 for February, \$7,916,196 for March, and \$3,473,306 for two weeks ended Apr. 14, 1921.

Electric Haulage in Mines.—Under the Nova Scotia Coal Mines Regulation Act, 1918, the Minister of Public Works was authorized to make regulations respecting the use of electricity in mines. The general regulations affecting coal mines were made by the Minister of Public Works under the act of 1908 as amended by the act of 1915. Under these acts there was a general regulation as to the use of electricity, which has now been revoked, and a new section has been inserted dealing fully with the use of electricity in mines for haulage and all other purposes.

C.P.R. Lectures.—W. L. Payn, of the C.P.R. Publicity Department, is giving a series of lectures in the West of England on Canada. They are illustrated by moving pictures of Canadian scenes, etc. At a recent lecture at Panzance, Cornwall, the chairman was Captain F. D. Lugg, justice of the peace and county councillor, and at one time C.P.R. Marine Superintendent in London.

C.P.R. observation cars will, it is stated, be used on the Italian State Rys., for sight seeing, by the delegates taking part in the International Economic Conference at Genoa. These cars were operated on the railways in the Austrian Tyrol prior to the war and later sold to the Italian Government.

Bureau of Railroad Time Service.—A press report states that W. F. Hayes has been appointed General Time Inspector, Bureau of Railroad Time Service, vice W. G. Ball, deceased, with O. H. Pyper in charge at Winnipeg.

The Pennsylvania Rd. has authorized the buying of 190 passenger cars, 35 combination baggage and passenger cars, and 25 combined baggage and mail cars, of all steel construction.

The Minister of Railways' Statement on Government Owned Railways.

The Minister of Railways and Canals, Hon. W. C. Kennedy, made the following statement in the House of Commons, April 11:—When the Department's estimates were presented to the House on a recent occasion, at the request of the former minister (J. A. Stewart) and the leader of the Opposition I withdrew them for the moment in order that I might later present the annual statement. I am now in a position to present to the House the annual statement of the Minister of Railways with respect to the operation of the nationally owned railways of Canada. The period under review is the 12 months which ended Dec. 31, 1921, the calendar year now being the fiscal year of all Canadian railways, including the government lines, whose year formerly ended on March 31. Although a year of depression in trade, with decreased tonnage and less travel, and with reduced rates when contrasted with the previous year, the nationally-owned roads were able, largely owing to drastic curtailment of expenditures, to make an improved showing over 1920.

As the government-owned railways are still being operated in two groups, by two separate boards, though with such co-ordination of operation as has been possible under separate management, it is again necessary to make separate statements concerning the operations of the Canadian National lines, and of the Grand Trunk lines. But before dealing with the separate reports, I would like to say that seemingly the outstanding feature of 1921 operation was the improvement in the position of the Canadian National-Grand Trunk combination. Those roads comprise approximately 52% of the railway mileage of Canada, and in 1920 they did 52.21% of the railway business of the country as reflected in the gross earnings of the transcontinental lines. During 1921, a year of depressed trade and falling railway revenues, the Canadian National-Grand Trunk lines increased their percentage of gross earnings from 52.21 to 54.22%. Applying these percentages to gross earnings of the transcontinental lines, it means that the nationally-owned lines increased their proportion of the available railway business and improved their position as carriers during the year to the extent of about \$3,500,000.

Canadian National Railways. — The operated mileage of the Canadian National lines at Dec. 31, 1921, was 17,338. During 1921, 173 miles of new line were turned over to the operating department for permanent operation and, in addition, 65 miles were turned over for operation on behalf of the construction department, a total of 238 miles. The mileage comprises the following units:—

Intercolonial Ry.	1,670
Prince Edward Island Ry.	276
Branch lines, including the leased	
St. John & Quebec Ry.	515
	2,461
Transcontinental Ry., including Lake	
Superior Branch	2,007
Hudson Bay Ry.	214
	2,221
	4,682
Canadian Northern Ry. System	9,900
Grand Trunk Pacific Ry.	2,756

Canadian National Railways 17,338

The average mileage operated in 1921 was 17,064. The gross earnings were \$126,691,455.72, an increase of \$1,049,703.41 over 1920, notwithstanding decreased traffic to the extent of 4,000,000

tons of freight and 1,715,625 passengers. The National system is said to be the only transcontinental system in America whose earnings in 1921 from the increased freight and passenger rates established in Sept. 1920, were not entirely offset by the loss in tonnage and passengers. Operating expenses were \$142,784,357, a decrease of \$19,700,365, leaving loss on operation of the system of \$16,092,901 for the year, compared with \$36,842,970 for 1920, or an improvement in the operating result of \$20,750,068. It is claimed on behalf of the management that this reduction was not made at the expense of the property, and that deferred maintenance and betterments made during 1919 and 1920 were reflected in 1921 by providing more economical operating conditions, while increased efficiency of the working forces enabled more work to be done by fewer employees.

The year saw a big slump in railway traffic following the decline in trade which set in during the closing months of 1920. There was a decline in the movement of all commodities, with the exception of wheat. The grain movement of that season continued into January and February and kept the national lines as a whole from very seriously feeling the loss in total traffic until March, when instead of the increase which this month usually shows over January and February, there was a serious decline in car loadings. The drop continued through April, reaching the lowest levels in the first two weeks of May. June and July showed very little improvement, and it was not until half way through August that any pronounced upward tendency was shown. That month a surplus of \$47,231 on operation was recorded. In September it grew to \$504,174, in October to \$1,036,130, and in November it was \$734,149. In December the loss was \$1,114,794. What seems to have happened is that, as there was no car shortage, the grain crop of last season was handled as it was harvested, and traffic was restricted to the autumn months which ordinarily was spread over much of the winter. This would seem to account for the light traffic of the first couple of months of the current year.

As members will no doubt be interested in knowing the loss on individual lines, I will hand in with other detailed figures at the conclusion of my remarks, a statement showing the individual deficits for 1921, as contrasted with 1920. From this it will be seen that the Canadian Northern was able to cut its loss by about \$10,000,000, the Intercolonial by \$2,500,000, the Grand Trunk Pacific by \$6,000,000, while the Transcontinental, the loss on which had been almost \$3,000,000, has a deficit of less than \$500,000. The increase in deficit of certain of the branch lines, especially those more recently acquired, was due to the necessity to bring these roads up to Canadian National branch line standard.

The greatly improved showing of the Grand Trunk Pacific is attributed to the fact that for a full year it has been operated as an integral part of the Canadian National System, and is one of the results of co-ordinated operation of these western lines under one management. By that co-ordination, the loss of \$10,000,000 on a gross of \$14,000,000 in 1920 was turned into a loss of \$4,000,000 on a gross of \$16,000,000 in 1921.

Conforming to standard railway accounting, this year's statement shows tax accruals, which swell the net operating deficit by \$1,500,000, after which non-operating income (car rentals, rental of joint facilities, express, mails, elevators, etc.) is taken into account. This in turn is affected by deductions from gross income (hire of equipment, joint facilities, etc.) which brings us to the net deficit, \$15,896,018, before taking fixed charges into account.

In the case of the Canadian Northern it will be seen that the fixed charges are split to show those due the public, who invested in securities before or since the taking over of the roads, and those due the Government on loans and advances. The difference between these two classes of fixed charges is that the interest due the public is paid—by the Government—and the interests due the Government is not paid, but becomes an added liability of the railway to the Government. It is, however, not compounded.

The Grand Trunk Pacific fixed charges are shown as those due the public, interest due the Government, and in addition, interest which has accrued on receiver's certificates and interest due the G.T.R. Those due on receiver account are for advances of all kinds rendered necessary to meet deficits and other obligations since the Minister of Railways was appointed receiver in March, 1919. Those due the G.T.R. are on account of loans which that company made to the Grand Trunk Pacific and subsidiaries, and also on account of interest on loans by the Government to the Grand Trunk Pacific and guaranteed by the G.T.R., all of which are interest charges against the Grand Trunk Pacific.

It has been submitted by the management that, inasmuch as large sections of the national lines serve the newer portions of the country, and thus assist in their development, and as a considerable portion of the advances made by the Government has been for maintaining the property and carrying it through what might be called the pioneer stage, interest on such advances should be suspended for a certain definite period, and that the fixed charges be limited for the present to interest payable to the public. On the other hand, it has been alleged that our railway accounts are misleading because in the case of the Intercolonial and the Transcontinental, interest on capital account has not been charged up and compounded annually. Matters of this kind will be referred to the incoming administration for consideration and report to the Government.

The total increase in fixed charges, both Canadian Northern and Grand Trunk Pacific, from \$33,194,243.96 in 1920 to \$40,777,915 in 1921, reflects the increased interest charges during the year, to which I shall refer in a moment. After these fixed charges are taken into account, the total deficit for 1921 amounts to \$56,673,934 as against \$67,505,059 for 1920, and which was erroneously stated at the time to be \$70,331,734, owing to the fact that available figures were incomplete when the Minister made his announcement. I have endeavored to have the figures I am using today as exact as possible.

Mr. MEIGHEN: There was a correction made to \$69,593,441. I understand that now it is given as only \$67,000,000 odd.

MR. KENNEDY: I am now giving the correct figures. The Minister in his statement last year gave the figures as \$70,331,734, which was later corrected to \$69,000,000. That is due to the fact that the figures were incomplete at that time, and that was also one of the reasons why I asked him to wait for my statement. The auditors, G. A. Touche & Co., have completed their work on the Canadian Northern Ry. accounts and the management has their certified balance sheet, so that the figures with respect to the Canadian Northern are final and complete. Marwick, Mitchell & Co. are still working on the Grand Trunk Pacific books, and G. A. Touche & Co. on the Canadian Government Rys. accounts at Moncton. However, they expect to complete their audit in a few days, and the management feels that the accounts as submitted may be regarded as final.

During 1921, advances were made by the Government to the railways in the national system as follows:

Canadian Government Rys.	\$5,792,896.48
Canadian Northern Ry. \$64,649,245.24	
Less repaid from proceeds of securities ...	27,927,119.40
	36,722,125.84
Grand Trunk Pacific Ry.	9,270,500.33

A total of \$51,785,522.65

The advances for the year were applied on construction and betterments, equipment, repayment of loans (including equipment trust obligations) operating deficits and fixed charges. The total advances to Canadian Northern Ry. Co. and Grand Trunk Pacific Ry. Co. to Dec. 31, 1921, are as follows:

	Canadian Northern	Grand Trunk Pacific
Total advances to Dec. 31, 1920	\$214,366,123.04	\$72,209,803.33
Advances during 1921	36,722,125.84	9,270,500.33
Total advances to Dec. 31, 1921	251,088,248.88	82,480,303.66

The above figures represent cash advances only and do not include accrued interest due the Government, which, in the case of the Canadian Northern, amounts to \$35,191,210.81, and, in the case of the Grand Trunk Pacific, to \$14,729,238.80, of which \$6,741,381.26 was prior to the appointment of the Minister of Railways as receiver, in March, 1919, and \$7,987,857.54 since.

During 1921, an issue of \$25,000,000 Canadian Northern Ry. 6½% 25-year sinking fund bonds guaranteed by the Dominion was disposed of, the proceeds going to the Government in repayment of advances. These bonds, which, plus exchange, brought \$26,228,163.03, together with a balance of \$1,466,044.16 from the bond issue of December 1920, and a payment of \$232,912.21 on account of series B equipment trust issue, make up the \$27,927,119.40 referred to a moment ago as having been repaid the Government. There were also retired during the year \$2,000,000 5% Duluth, Rainy Lake and Winnipeg Ry. bonds guaranteed by the Canadian Northern Ry. Co. and \$3,650,000 Canadian Northern Ry. 5% guaranteed notes. These were provided for out of an issue of \$25,000,000 Canadian Northern Ry. 7% 20-year bonds, sold in the New York market in Dec. 1920.

Wages, Fuel and Other Operating Costs.—I would now like to refer briefly to certain features of the year's operations. Wages and fuel still remain the principal charge upon railway revenues. The total pay-roll in 1921 was \$88,755,060, of which \$82,381,597 was chargeable to operation; the balance, being for betterments, was chargeable to capital. The national railways used 3,544,200

tons of coal, about 300,000 tons less than in 1920, and the coal bill was \$21,391,215. When operating revenues amount to \$126,691,455, and wages and fuel combined require \$103,642,575, the balance, roughly, \$23,000,000, is of course insufficient to meet other operating charges totalling \$39,000,000. For that reason, the operation ratio in 1921 was 112.70. In other words, it took 112.7c. to earn \$1. In 1920, the ratio was 129.32. That year wages took 78.61c. of every revenue dollar, locomotive fuel 18.79c., and other expenses 31.92c. In 1921, the distribution was, wages 65.03c., locomotive fuel 16.88c., and other expenses 30.79c.

Out of every dollar spent in 1921, 23.63c. went into maintenance of way and structures and 22.09c. into maintenance of equipment. Transportation by rail, (superintendence, train movement, station employes, yards, terminals, telegraphs, etc.) absorbed 50.19c., and transportation by water, 0.08c., (car ferries and Grand Trunk Pacific steamships). The Traffic Department (soliciting, etc.) 1.45c., general (general officers, law, insurance, etc.) 2.16c., while transportation for investment (the cost of moving the railway's own materials for betterments, new construction, etc.) amounted to 1.39c.

Operating costs were high in Jan. and Feb. 1921, due to the higher wage scale which was adopted in Sept. 1920, retroactive to May 1, the result of the Chicago award. When traffic commenced to fall away forces were reduced and by the end of April the staff showed a reduction from 60,500 in 1920 to 51,000 in 1921. This staff reduction was maintained until the end of the year. It ran nearly 10,000 below 1920 through May, June and July, averaged about 6,000 less in August, September and October, and about 5,000 less in the last two months of the year. The reduction of operating expenses by \$20,000,000 is a welcome change, as in recent years it has been all the other way. Operating expenses of 1920 increased by more than \$37,000,000 over 1919; those of 1919 increased by \$27,000,000 over 1918.

The total pay-roll, including betterments, was \$88,755,060 in 1921, against \$105,109,808 in 1920, a decrease of \$16,354,748. The reductions in number of employes and of the rates of pay from July 16, 1921, is estimated to account for \$12,775,000 of this, and the balance would be betterments. It has been customary to quote for comparative purposes the increase in the average railway wage, which grew from \$713 in 1915 to \$1,633 in 1920. In 1921 the average wage was \$1,471.33, but the comparison is of little use in contrast with full employment years, as in 1921 decreased train service caused lessened mileage per man in the running trades, and part-time work in shops with permanent force, rather than full time with reduced force, materially decreased the average wage of the mechanical staff, while rigid curtailment of overtime was another factor. While this explanation shows the 1921 average wage to be of little use in comparison with other years, the fact remains that on reduced time, the average wage last year was still double what it was in 1915.

In accepting the reductions which the Canadian railways, acting in unison, made effective from July 16, 1921, the railway brotherhoods recognized the present labor situation and also accepted the principle of following in the defla-

tion stage the U.S. precedents which built up the war time wage scale. At present negotiations are under way looking to a modification of some of the working conditions that the railways feel to be difficult of application, resulting in excessive wages in some classes and the placing of expenses on the railways which are claimed to be unduly burdensome. It is recognized that railway wages must provide for a proper standard of living, but they should have reasonable relation to the importance and value of the work performed, and to wages generally. The management informs me that the labor situation has greatly improved; that the spirit of railway labor is better than it was; that labor has become more efficient and is doing more work and better work. I am glad to give expression to the management's views in that regard.

Self-propelled Cars.—A problem which in recent years has confronted railway managements is the question of providing suitable service on branch lines, at a cost not out of proportion to the earnings and capable of meeting in many cases motor car competition. For this the self-propelled gasoline car seems to be the most suitable. The Canadian National Rys. have been active in obtaining experience with this plan of operation. Much will depend upon the attitude of railway labor towards the self-propelled car, which could take care of branch line services, if expenses of operation are not made too costly in the matter of wages. In this effort to cut excessive costs, and yet provide reasonable service, the co-operation of railway labor is invited. As a matter of fact, these branch lines suffer not only from heavy costs of operation, but from the competition of the motor car and motor truck, a competition which is increasingly felt each year by all railways.

Deflation of Prices.—While the trend in prices of materials and supplies is generally downward, the movement is slow, and prices continue greatly in excess of pre-war figures. Of course a drop in prices is not immediately reflected in operating expenses, due to the necessity to keep on hand large stocks of fuel and other supplies, which have to be charged out at purchase price until new stock begins to be used. The management estimates the reduction in the expenditure in 1921 to have been \$1,550,000; reduction on account of materials and supplies generally, \$1,300,000, and on fuel \$2,216,175. The average price of coal, which was \$3.65 in 1916, and \$7.40 in 1920, was \$6.10 in 1921. Coal purchases during 1921 amounted to 3,483,085 tons. Of this 2,505,389 were Canadian coal, costing on the average \$5.71, or \$14,320,504.53; and 977,696 U.S. coal, at an average price of \$6.47, and totalling \$6,324,450.94.

Coal Purchases.—The management states that in 1921 it did not purchase for the Intercolonial Ry. or ship to the Intercolonial Ry. east of Montreal any U.S. coal; that on the other hand, it took delivery of coal produced in the Maritime Provinces in 1921 to the extent of 1,184,015 tons. In addition to the coal taken by rail in the Maritime Provinces, it moved 281,959 tons of Nova Scotia coal up to Levis by water. It also took in through the port of Quebec, by water, 90,865 tons of Nova Scotia coal, and railed some of it as far west as Cochrane, Ont. The coal taken in by water at Levis and Quebec is included in the total of 1,184,015 mentioned. The

total quantity of U.S. coal purchased for use at Toronto and east during 1921 was 160,000 tons. Coal consumption on the Intercolonial in 1921 was about 20% less than in 1920. The management has now accumulated nearly four months' stock of coal, and eastern officials have been instructed that sufficient reserve has been secured and the railway is, therefore, no longer in the market except for daily requirements.

Rolling Stock.—After the very heavy purchases of rolling stock and motive power in 1918, 1919 and 1920, it was not necessary to go into the market for equipment of any kind during 1921.

Construction and Betterments.—No work was done on eastern lines in the construction of new branches during 1921. All such work was confined to western lines. A number of branch lines and extensions were under way prior to the war, on which work was suspended, and the Government has since provided the National Railways management with money to go ahead with certain of these lines along which settlers were in bad way for railway facilities. A detailed statement of this construction work will be included with those which will appear as an appendix to these remarks.

The construction and betterment programme for 1922 is necessarily curtailed. There is in the west alone construction projected which would entail an expenditure of \$25,000,000 to bring to completion. In view of the financial condition of the country and the impending general re-organization of National Railways' direction and management, it is felt to be better to confine construction and betterments for the present to the minimum and leave to the new board to advise as to what is essential or necessary in the matter of extensions. Briefly, this year it is proposed to finish active lines, up to the point to which track has been laid, at an estimated expenditure of \$1,286,164, with ballast, fence, telegraph line and buildings, but to make no extensions to any of them beyond the point where track is already laid. Details of this work will be given in connection with the estimates.

Grand Trunk Railway System.—I will now deal with the G.T.R. System which extends from Portland, Me., to Chicago, with an operated mileage of 4,776, of which 3,612 comprise what are known as the G.T. Canadian Lines. The New England lines, as the eastern U.S. lines are known, extend from Portland, Me., to Norton Mills, Vt., on the International Boundary, with an operating mileage of 172, while 992 miles embrace the operated mileage west of the Detroit and St. Clair rivers, in Michigan, Illinois and Indiana, between Port Huron, Detroit and Chicago.

In addition, there is operated under separate management, but controlled by the G.T.R. Co. of Canada, the Central Vermont Ry., with an operating mileage of 613, extending from New London, Conn., to Montreal, of which 463 is operated in the United States.

	1921	1920
Operating revenues, all lines, including Central Vermont	\$109,097,557.58	\$113,223,934.52
Operating expenses	104,725,039.93	108,884,828.58
Net revenue from railway operation	4,372,517.65	4,339,105.94

After taking into consideration railway tax accruals, uncollectible railway revenue, hire of equipment, joint facility rents and non-operating income items, the gross income, before deducting fixed charges, was in 1921 \$3,573,443.34,

against \$7,498,393.30 in 1920. The fixed charges for 1921 were \$19,245,583.68, against \$14,025,637.07 in 1920, making a net loss for 1921 of \$15,672,299.34, as against a net loss for 1920 of \$6,527,243.77. The net deficits for 1921 and 1920 are apportioned as follows:—

	1921	1920
Canadian lines	\$7,386,170.97	\$3,155,892.06
Western lines	4,797,177.55	1,935,155.94
New England lines	1,881,093.84	990,869.03
Central Vermont	1,607,856.98	445,326.74
	\$15,672,299.34	\$6,527,243.77

The increase in the net income deficit of 1921 over 1920 of \$9,145,155.57 is due principally to variation in amount received under the guarantee of the U.S. Government following the return of the U.S. units of the system to corporate control on March 1, 1920, and to an increase of \$5,219,946.61 in interest on funded debt. The increase in fixed charges was caused by the inclusion of a full year's interest on guaranteed stock, which ran from May 21 only in 1920, and increased interest on government loans and new issues.

In addition to the results as shown for the system comprising the Canadian lines, the Western lines, the New England lines and the Central Vermont, there are certain stock controlled subsidiary companies, the net results of whose operations do not wholly enter in the system net income. These companies are: Chicago, New York & Boston Refrigerator Co.; International Bridge Co.; Montreal Warehousing Co.; Terminal Warehouse Registered; Oshawa Ry.; Rail & River Coal Co.; Thousand Island Ry.; Montreal & Southern Counties Ry.; St. Clair Tunnel Co.; Grand Trunk Milwaukee Car Ferry Co. The net income of all these companies for 1921 was \$453,118.68, compared with \$613,639.66 in 1920. The amount taken into the G.T.R. accounts as dividends from these subsidiary companies was \$127,000 in both 1921 and 1920. The accumulated undistributed surplus of these subsidiaries was \$918,986.21 in 1921, compared with \$934,423.49 in 1920.

At Dec. 31, 1921, there was on hand locomotive and car stock, owned by the G.T.Ry. System, including the Central Vermont, as follows: Locomotives of all kinds, 1,503; passenger service cars of all kinds, 1,210; freight service cars of all kinds, 47,312; company's service cars of all kinds, 2,545.

The outstanding obligations as at Dec. 31, 1921 and 1920 respectively, of the G.T.R. System, including the Central Vermont Railway, bearing interest were as follows:—

	1921	1920
Government loans	\$73,702,154.42	\$21,340,808.62
Other obligations	354,583,462.32	338,434,369.72
Total	\$428,285,616.74	\$359,775,178.34

Because of the fact that the operations of the units of the railway system in the U.S. were subject to a guarantee by the U.S. Government in operating results for eight months in 1920, no proper comparison can be made for the system with the results of the operations for the 12 months of 1921. Comparisons, however, can fairly be made of the operations of the Canadian lines for the two years. These will be found in detail in the statements which form an accompanying appendix.

Revenue passengers carried on the Canadian lines in 1921 were 11,609,762, compared with 12,206,977 in 1920, a decrease of 4.89%. Revenue tons of freight handled in 1921 were 21,687,749, compared with 26,322,423 in 1920, a decrease of 17.61%. The 21,687,749 compared

with 26,322,423 in loss in tonnage was distributed over all commodities, excepting products of agriculture, but was most noticeable in coal, both anthracite and bituminous, which together constitute between 25 and 28% of the total tonnage. The average number of employees on Canadian lines in 1921 was 29,127, compared with 32,260 in 1920, and 24,457 in 1917. The average wage in 1921 was \$1,574.66, compared with \$1,664.54 in 1920, and \$914.80 in 1917. Of the total operating expenses of \$71,179,292.80 in 1921, \$42,149,952.50, or 59.22%, was the amount of the payroll. The corresponding figures in 1920 were: operating expenses, \$76,213,815.16; pay-roll, \$49,567,436.72; per cent. of operating expenses, 65.04. Total hours worked, including betterments, ordinary and joint facility operations, in 1921, was 68,545,640, compared with 82,178,337 in 1920. At rates in effect prior to the McAdoo award, the employees would have received, in 1921, \$23,374,063.24, compared with \$45,865,171.10 actually paid, an increase of 96.2%.

The decision of the U.S. Labor Board, known as the 12½% decrease, which came into effect July 16, 1921, produced to Dec. 31, 1921, on G.T.R. Canadian lines a saving of \$3,035,112.06. Had the decision been effective throughout the full year, the difference in wage charges would have been \$6,306,198.88.

The G.T.R. System, exclusive of the Central Vermont, contracted for 2,795,000 net tons of coal during the coal year ended March 31, 1922, the aggregate cost, including freight and duty, being \$15,288,900, or, \$5.50 a ton. Of this amount, 2,675,000 tons had been delivered to March 31. The amount bought for Canadian lines was 2,030,000 tons at an aggregate cost, including freight and duty, of \$11,672,700, or \$5.75 a ton.

During the year ended Dec. 31, 1921, there was added to the investment account of the G.T.R. System \$26,772,057.15, apportioned as follows:—Canadian lines, \$24,790,901.01; Western lines, \$1,550,513.95; New England lines, \$44,277.94 (Cr); Central Vermont, \$474,920.13. Of the above total \$20,550,000 was for new equipment; \$2,100,000 for improvements to equipment; \$1,150,000 for increased weight of rail; \$800,000 for sidings, yards and spur tracks; \$350,000, investment of G.T.R. and Central Vermont in affiliated companies, and the balance, \$1,500,000, in miscellaneous roadway, buildings, structures, etc.

The G.T.R. System accounts for the year ended Dec. 31, 1921, have not been audited by an outside firm of chartered accountants, as is the case with the rest of the roads embraced in the National system. The auditing has been done by the company's own auditors.

The Estimates.—It is not necessary to do more at this stage than outline the requirements of the railways so far as the estimates are concerned, and to leave detailed explanation for the consideration of the various items in committee. Briefly, the amount to be voted on account of the railways for the fiscal year ending March 31, 1923, as provided for in the estimates, is \$97,220,000, compared with \$179,065,760 last session. This includes both Grand Trunk and Canadian National lines. For operating deficits \$21,123,827 is provided for 1922, against \$23,129,369 for 1921. The actual operating deficit on the Canadian National lines in 1921, as already stated, was \$16,092,901. Interest charges due the public require \$33,571,438. Last year

this item was \$35,871,195. For betterments \$30,261,286 is provided, against \$60,077,828 last year. Pending the organization of the new board and adoption of its policy as to necessary extensions, and also having in mind the general financial position of the country, the construction and betterments programme has been restricted to minimum requirements. Refunding securities in the hands of the public, for which \$39,241,700 was necessary last year, calls for \$11,129,910 this year. This refunding does not add to corporate capital indebtedness, but changes the form, the usual practice being to retire a maturing issue with a fresh issue bearing the Government's guarantee. Where securities are retired by government loans, the liability of the railway is transferred from the public to the Government. It is not necessary this year to provide for refunding securities in the hands of the Government, for which \$11,148,533 was included last year. The actual cash for operating deficits, interest charges to the public, and betterments, which is required to be provided for the current year is \$84,956,552, against \$119,078,392 last year.

Freight Rates.—In the speech from the Throne it was stated that conferences had been arranged between the railway authorities with respect to the reduction of rates upon basic commodities. A number of these conferences have been held, but, because of the uncertainty of the entire rate situation, the executives of the various railways feel that it is inadvisable, at this time, to reduce rates on basic commodities in view of the fact that the suspension of the Crowsnest Pass agreement ceases on July 6 next, and the Crowsnest Pass scale of rates again becomes effective on the commodities named in the Crowsnest Pass subsidy legislation of 1897; further, general order 308, of the Board of Railway Commissioners, dated Sept. 9, 1920, does not extend beyond July 1. The Government feels that the matter is of such great moment and of so much importance to the people of the country, who are not only interested in lower freight rates, but concerned as owners of more than 22,000 miles of Canadian railways, that the entire question should be placed before the members in such a way as to enable them to obtain the fullest possible information. With this in view, I propose, at an early date, to ask the House to appoint a special and representative committee to examine into the question of rates, with power to summon the executives of the various railways and others, to place before the committee all available information for the consideration of its members. It would then be for the committee and for the House to take such action as, having regard to all the circumstances, shall commend itself to the wisdom and judgment of Parliament.

Reorganization.—The first step in the reorganization of the railways will be the establishment of a single representative board of directors for the unified control and co-ordinated operation of the government-owned lines, now directed and controlled by two separate boards and two different managements. This board will be thoroughly representative and will include in its number the most competent railway men, men of wide practical experience and training, and possessed of expert knowledge in the various departments of railway activity. I am aware that there has been criticism of the Government because the new board has not already been appointed.

We realize that, for the time being, we might conceivably save some money by the immediate termination of dual control and dual management; on the other hand, we also realize that by unwise or hasty selection of this most important body we might easily, in the long run, lose a great deal more.

It is well to bear in mind that it is intended to turn over to this board properties in which the public and the Government have invested \$1,582,500,000, (and this does not take into consideration cash subsidies amounting to \$41,000,000, nor land grants). Last year our railway executives spent \$343,458,420, made up as follows: Grand Trunk (operating), \$104,725,040; Canadian National (operating), \$142,784,357; cash voted in estimates, not including deficits, \$95,949,023. Total \$343,458,420. The total expenditure of the Dominion on consolidated fund account of 1919-1920 fiscal year was \$303,843,930, and in 1920-1921, \$362,600,000. It will be seen that the new Canadian National Rys. board will have the spending of more money than was expended by the Dominion on consolidated revenue fund account in 1920, and almost as much as was spent in the fiscal year ending March 31, 1921. Before turning these properties over, or entrusting any board with an expenditure which equals or may exceed the ordinary expenditures of the Dominion, we are bound to know that the men to whom this vast responsibility is entrusted, and in whom this great confidence is to be reposed, are eminently qualified to successfully discharge such important duties. I am free to confess that in the short time thus far at our disposal, and with the necessarily limited investigation it has been possible to give the matter, we are not yet in a position to announce who will compose this board. In an undertaking of this magnitude, it is above all essential that we be prudent and careful. When we turn over these valuable railway properties with a view to giving government ownership and operation a fair trial, it is of the utmost importance that we place them in capable and honest hands, and in the hands of men who, as regards component parts of the system, will administer them without fear or favor, without thought of politics, and in the general public interest. For that reason, we prefer to be careful and prudent, adopting good business methods, and, in the final analysis, the country will benefit by it.

We are impressed with the necessity for bringing about the unification of the system as quickly as may be possible with due regard to the public interest. We keenly realize the magnitude of our responsibility. We know what is expected of us, and when we appoint our board we wish it to fulfil on behalf of the Government and the people of Canada those same high expectations. We propose to appoint this board under provisions of existing legislation to which, up to the present time, no effect has been given. This legislation provides for a single board of directors and for the inclusion of any lines of railway which may from time to time be vested in, or owned, controlled or occupied by His Majesty. When this legislation is brought into effect it automatically abolishes the present Canadian Northern board, and the Canadian Grand Trunk board, which succeeded the English directors in May last. The new board will be given the direction and control of the Grand Trunk Ry. properties, the Canadian Northern Ry., the Grand

Trunk Pacific Ry., the Transcontinental Ry., and the Intercolonial and Prince Edward Island Ry. and branch lines. I have mentioned these lines specifically so that there may be no question or misunderstanding as to where any or all of them stand so far as general direction and control is concerned. The board will be asked to examine fully for itself the existing situation, and after it has done so to make such recommendations as in its opinion will tend to the highest efficiency in the operation of these railways, without respect to political or any considerations other than the best and most approved railway practice. On their advice and recommendation will depend the division of the immense mileage into suitable operating districts or divisions, with regional headquarters which it is hoped will enable local or district matters to receive the consideration of officials most capable of understanding local requirements. Briefly, what will be aimed at will be centralization of general direction and control and decentralization in matters of local detail. As to this, I have had opportunity to consult the gentlemen who at present are operating and managing the roads, and while there are natural differences of opinion as to how the various lines might best be grouped for economic management and operation they are unanimously of the opinion that a regrouping and rearrangement is necessary if improved results are to be obtained. They agree that the large mileage should be divided into units, each with its own headquarters and under the direction of a general manager who, while subject to the lines of policy laid down for his guidance and direction by the board at general headquarters, should have much wider powers on all matters pertaining to his own particular division or district than has recently been the case so far as the present two divisions of the Canadian National system are concerned. It will be for the new board, however, to advise just what form of administration is most suitable. It is the intention of the Government that the board in the exercise of its several duties and functions shall be free from interference, political or otherwise.

Upon the new board will devolve also the task of selecting and developing an executive composed of the best men in the existing systems, and such others as may be necessary, in order to combine the most suitable talent available for the management of the railways, and in order that economies may be effected which are desirable and necessary in the interests of successful operation and management. It is hoped to build up a distinctly Canadian National personnel and in this the board will receive such co-operation and support from the Government as should secure for it, from the employees, the same loyal and faithful service which generally characterizes the relations of the average railway man with his own particular road. The Government and the board will want the good-will and co-operation of the employees, and we will wish every employee to feel that he will have, under government ownership, the same opportunities of advancement to even greater responsibilities and greater rewards than would have been possible under former restricted conditions. Such of the older officials and employees as have given long service, and who of necessity may have to be retired, will receive the benefit of superannuation.

Just one other point. There has been

such criticism of the statements presented by the Canadian National Rys. management, and also concerning the Grand Trunk, as to impair parliamentary and public confidence in the figures and statements which have been put out from time to time. Naturally, any confirmation or verification of accounts, or investigation or justification of managerial methods and practice is a matter to be dealt with by the incoming board, to whom these properties are being turned over, rather than by the outgoing. The Government is most anxious that as far as the financial affairs of these railways are concerned, not only Parliament, but the general public, may have confidence in any statements which may be issued by the new board. To that end, it is proposed to supplement the work of co-ordination by an investigation of the financial affairs and business methods generally of the railways passing under the control of the new board. This is a usual business precaution in the nature of a stocktaking on the occasion of a change of administration.

Canadian Government Merchant Marine.—I expect, after the Easter recess, to be in a position to make a statement to the House concerning the operation of the Canadian Government Merchant Marine during 1921. Heretofore, that has been done by the Minister of Marine, but the late Government decided that the responsibility of the Minister of Marine and the Marine Department, should cease with the completion of the construction programme. As the ships are being operated in conjunction with the National Railways, and directed by the same board, and to a certain extent by executives common to both the railways and the merchant marine, on the Minister of Railways devolves the task of presenting the report of the operations for last year. I understand that the figures are now complete, and I hope, therefore, to present the report when we take up the Canadian Merchant Marine estimates.

Before taking my seat, I would like, following the usual practice, to hand in, for publication in Hansard, copies of the various statements which I have endeavored to analyze in the course of my remarks. I would request the consent of the committee to have them printed as an appendix to the statement I have just concluded.

Statements.—The House having given its unanimous consent, the Minister handed in the following statements:—

Grand Trunk Ry.—Comparison of results of operations of G.T.R. system, including Central Vermont Ry. for the years 1920 and 1921. Comparison of the principal and interest and the funded debt of the G.T.R. System, including the Central Vermont, for the years 1920 and 1921, showing the increase in principal and interest charges in 1921 over 1920. Comparison of the results of the operations of certain stock controlled subsidiary companies, the net results of whose operations do not wholly enter the net income of the G.T.R. system. Comparative operating and statistical information in respect of G.T.R. Canadian lines for the years 1920 and 1921. Statement showing for the G.T.R. System, including the Central Vermont, the locomotive and car stock on hand Dec. 31, 1921. Statement for the G.T.R. System, including the Central Vermont, showing the additions to investment during 1921.

Canadian National Rys.—Mileage statement; comparison of operating re-

sults, 1921 and 1920; operating results by months for 1921; comparison of operating deficits for 1921 and 1920; income and fixed charges for years 1921 and 1920; comparison of payroll showing amount of operating revenue paid in labor, and average number of employees, 1921 and 1920; comparison of traffic 1921 and 1920, exclusive of electric lines; comparison of train mileage, 1921 and 1920; details of equipment on hand, Dec. 31, 1920, deliveries, retirements and position at Dec. 31, 1921; betterments carried out in 1921, and some of the larger works it is proposed to carry out during 1922; summary of construction carried out in 1921.

MR. MEIGHEN, leader of the Opposition, in the discussion which followed, asked what was meant by the statement that no further construction would be done this year, except "in cases where construction had already proceeded to the point where track was laid," and was informed by the Minister that it meant that no rails are to be laid this year on new lines. Mr. Meighen also asked what was meant by the statement that an investigation was to be conducted, and the Minister stated that the investigation into railway affairs would be conducted by the new board of directors in charge of the consolidated railway property, and that if it should be considered advisable to also have an investigation by a committee of the House, "very well."

J. A. STEWART, Lanark, Ont., who was Minister of Railways for a short time in the Meighen Government, traced the development of the present railway situation, and complained of delay exhibited by the new Government in placing its consolidation programme in operation. He excused the Meighen Government's failure to carry out its co-ordination policy by stating that when it was finally in a position to do so, it found itself in the midst of a general election, and it was felt that it would have been unwise to complicate the situation by the appointment of a new board. He referred to H. J. Logan, Cumberland, N.S., as having made a very strong argument in support of the return of the Intercolonial to political control, but he was pleased to see that the King Government had seen fit to leave that road in the consolidated National system. He then attacked the Liberal party on its past railway policy, blaming it for all the railway ills, supposed and real, from which the country is suffering; he said it had been charged that the Conservative Government had encouraged the construction of the Canadian Northern into territory occupied by the Grand Trunk Pacific for the express purpose of destroying the latter road, and then gave a lot of figures and historical data to show that Sir Wilfrid Laurier and other Liberal leaders had supported the Canadian Northern venture fully as much as the Conservative leaders.

D. D. McKENZIE, Cape Breton, N.S., stated that while a Conservative Government had been in control of the railway situation for 10 years and had accomplished nothing, it expected a Liberal Government to solve the railway problem in its entirety in 10 weeks. He flatly stated that he had no faith in Government ownership and operation of railways, and that he considered the acquisition of the G.T.R. a colossal blunder. He blamed the Conservative party for all of Canada's railway troubles, and between him and Mr. Stewart the railway problem became a secondary considera-

tion in the discussion, serving merely as an instrument for the resurrecting of political differences of long standing.

MR. MEIGHEN emphasized the fact that the improvement in Canadian National operation had been effected before the change in Government took place. He said that the Liberal policy in connection with the railways was exactly the policy as mapped out by his Government. He defended the delay in getting all the Government railways together under the one management by stating that the G.T.R. arbitration proceedings held up action in that connection. He mentioned the disappointing results secured on the G.T.R. in 1921, and said: "We knew that some time would be required on the part of the former officers of the G.T.R., and on the part of some of the officers of the Canadian National Rys. to prepare the way for amalgamation, to prepare the line immediately to be pursued when the amalgamation would take effect. Consequently, we were anxious that as little delay as possible should intervene between the control of the G.T.R. board proper, and the G.T.R. board as appointed by the Government. The G.T.R. appointed its board about the end of May or the first of June 1921. The G.T.R. retained, and necessarily retained, on the board, temporarily at least, certain of its high officials. The reason for that was manifest, and the justice of it no one would dispute. The Government board, therefore, only operated with part of the G.T.R. board, the Government appointees, from before the middle of May 1921 until the end of that year; consequently the less favorable showing of the G.T.R. last year is in no way attributable to the fact that there was a Government board in control as opposed to the old board." Mr. Meighen gave credit for the improved showing in Canadian National operation last year to the management of the lines and said that the Government would do well to reflect as to whether or not it is probable that there are some good men on the board. In connection with the portion of the Minister's speech dealing with freight rates, he ridiculed the idea of a parliamentary committee, and said that the Minister's statement was merely an admission of "mental and moral bankruptcy" on the whole question. He concluded by reaffirming that the King Government's policy was but the policy of his own Government, and he taunted the members for the Maritime Provinces in connection with their pre-election promises to their constituents to have the Intercolonial divorced from the National system and returned to direct operation and control by the Railways Department. He said that according to the election promises of Liberal members, one railway policy came from British Columbia, another from the prairies, and another from the Maritime Provinces, but that all had been scrapped and replaced by the policy he had laid down.

Grand Trunk Pacific Ry. Taxation in Prince Rupert.—The ratepayers of Prince Rupert, B.C., voted recently in favor of accepting the G.T.P. Ry. management's proposals respecting the assessment of the company's properties there. The city, it is estimated, will collect \$80,000 a year in taxes.

Ontario Provincial Police Officers seized 360 bottles of high grade spirits on the C.P.R. Montreal-Chicago express train at Smith's Falls, Ont., March 16. No arrests were made.

Canadian Pacific and Canadian National Railways' February Earnings and Expenses.

The C.P.R.'s gross operating revenue for February was \$11,303,693, compared with \$12,768,986 in Feb. 1921, and operating expenses were \$10,649,205, compared with \$11,955,594 in Feb. 1921, leaving net earnings of \$654,487, compared with \$813,391 in Feb. 1921. While operating expenses showed a gratifying decrease from Feb. 1921, the operating revenues decreased in greater proportion, leaving net earnings decreased by \$158,904.

The Canadian National Rys., including the Canadian Government Railways, Canadian Northern and Grand Trunk Pacific, gross operating revenue in February was \$7,650,742, compared with \$10,148,421 in Feb. 1921, and operating expenses were \$10,026,571, compared with \$13,135,420 in Feb. 1921, making the operating deficit \$2,375,829, compared with \$2,986,998 in Feb. 1921. While a very material decrease in gross operating earnings took place, the decrease in operating expenses was greater, with the result that the deficit was reduced by \$611,169.

C.P.R. gross earnings for February were not large; the month is short and never one of heavy traffic, and the rate reductions which have gone into effect have materially affected gross earnings. The point worthy of note in any analysis of the C.P.R. February earnings is that operating expenses remained high in comparison with those of preceding months, with the result that the net was the smallest for any February for many years. The next smallest net was in Feb. 1920, when it was \$713,873; in Feb. 1916 it was \$2,294,342. The January net was the smallest for that month for many years. The February results, taken in connection with the January ones, indicate that the progress made in getting operating revenue and expenses back into a proper relationship has been severely arrested, and consideration of this fact makes evident the folly of talking about large rate reductions before reductions in operating expenses are made. In our April issue, pg. 195, we pointed out how moderate has been the return secured by the C.P.R. on the value of its property used in the public service, and we also pointed out the inadvisability of attempting to further contrast that return by restrictive regulation and legislation. We say "and legislation" advisedly; under the regulative scheme which has obtained in Canada for years past, the return earned by the company has been what may be called fair to both the company and the public, but with a proposal which practically amounts to taking the matter of rate regulation out of the hands of the Board of Railway Commissioners and giving it to a parliamentary committee, it is difficult to predict what will happen.

With a decline in C.P.R. net earnings of \$316,852 for January and February, compared with the corresponding months of 1921, it cannot fail to be evident that rate reductions before expenses are reduced would be not only ill-advised, but a practical impossibility. In view of the fact that all material prices have ceased their precipitate decline, with some prices, indeed, now increasing, it would seem that the only means of reducing railway operating expenses is by a reduction in wages. It is probable that

any effort to reduce expenses in this direction would meet with strenuous opposition, and, judging from past action, that no reduction in expenses will result in this direction unless and until action has been taken on the U.S. roads. To expect a large rate reduction before counterbalancing wage reductions have taken place is to expect the impossible from the railways. Regulation has, in the past, given railways a chance to provide facilities with which to carry on transportation economically and efficiently, and it would be sorry day for Canada if regulation, or legislation, or both, were to assume a narrow and restrictive character, resulting in the enforcement of false economy in railway operation, which would, in turn, ultimately increase transportation costs.

While the February results show that at the present rates and with present levels of operating expenses, the C.P.R. is not in a position to make large rate reductions in any portion of the country, they also show that under present conditions the Canadian National Rys. management is not getting a fair show. In the autumn of 1921 the monthly results on the National lines, based on a good flow of traffic, and on rates which gave the C.P.R. a fair return, were such as to afford some encouragement to believers in the Canadian National Rys. venture, but with the rate reduction of Dec. 1, 1921, in effect, with no change in wage scales, and with traffic seasonally reduced, the results are discouraging. There is some room for congratulation in the reduction of the deficit mentioned above, and under the conditions the results have been as good as could reasonably be expected. It is the conditions which are at fault; the relationship as between rates and expenses in the Canadian railway industry should be such that the National roads would earn their operating expenses at this time and in their present operating position.

It may be asked what this relationship as between railway rates and operating expenses should be, and with no hesitation we express the opinion that it should be such that the C.P.R. would be able to show an annual operating ratio of but little over 70. Under those conditions, the National lines would be past the day of operating deficits, and the taxpayers of the country would be relieved of a large portion of their liability on capital account. It must not be lost sight of that, in a growing country like Canada, new facilities needed for the provision of adequate transportation are necessary, and it will be well if the credit of the corporate roads remains high so that the necessary new capital for such facilities can be secured on the most favorable terms. It is but a few short years ago that the C.P.R.'s operating ratio was where it ought now to be, and the railway industry in Canada will not be on a proper basis till that operating ratio approaches its former level. We repeat that any attempt to reduce railway operating revenues before their expenses are reduced to compensate, would be a serious mistake; it would mean, undoubtedly, lower transportation charges for a time, but in the final analysis it would result in greatly increased transportation costs. If investigation discloses that railway operating expenses, and particularly railway wages, can be reduced without

working an injustice in any quarter, it will be then, and not till then, time to discuss rate reductions seriously.

Reduction in Lake and Rail Rates on Grain.

A reduction in lake and rail freight rates on grain and grain products of 5½c. per 100 lb. on grain for domestic consumption at destination and 1c. per 100 lb. on grain for export, applicable between the head of the Great Lakes and points in eastern Canada and the eastern U.S., was announced by the C.P.R. and the Canadian National Rys. on April 1. The reductions in export rates from Fort William, Port Arthur and Westfort, Ont., lake and rail, are as follows: on flour, to Baltimore, Md., and Boston, Mass., from 27c. to 26c. per 100 lb.; to Halifax, N.S., from 28c. to 27c.; to Montreal, from 26c. to 25c.; to New York, Philadelphia, Quebec, St. John, N.B., and West St. John, N.B., from 27c. to 26c.; on grain and grain products, to Baltimore and Boston, from 28c. to 27c.; to Halifax, from 29c. to 28c.; to Montreal, from 26c. to 25c.; to New York, Philadelphia, Quebec, St. John and West St. John, from 28c. to 27c. The export rates were effective April 20.

The reductions in domestic rates, lake and rail, from Fort William, Port Arthur and Westfort, Ont., are: on grain and grain products, to Baltimore, Md., from 38½c. to 33c.; to Boston, Mass., Brunswick Me., Ellsworth, Me., and Hartford, Conn., from 40½c. to 35c.; to New York and Philadelphia, from 38½c. to 33c., and to Providence, R.I., from 40½c. to 35c. The reductions in the domestic rate were effective April 29.

The all rail rate on grain moving east was adjusted on Jan. 1, and these reductions in the lake and rail rates represent an adjustment to bring them into the proper relationship with the all rail rates.

Rights of G.T.R. Strikers of 1910.

A motion, of which notice had been given by W. A. Boys, South Simcoe, Ont., was moved in the House of Commons April 10, as follows:—That immediate steps should be taken by the Government to restore the pension rights and status of all employes and ex-employes of the G.T.R. who were deprived thereof owing to participation in a strike on the system in 1910, to the end that all such may secure their just rights pursuant to the terms and true intent of the settlement made between the parties.

Premier King said:—"The member in whose name the resolution stands is not in the House. I regret his absence, because I desire to make a statement on the subject of the resolution. However, he will be able to read my remarks in Hansard and that will perhaps serve the same purpose. There is no need for this resolution, inasmuch as the Government has already taken steps in the direction proposed. The Government has been negotiating with a view to seeing that a long standing injustice should be remedied without further delay: If it is not possible to effect by negotiation what we hope and believe will be attained by negotiation, then the Government will bring in the necessary legislation to see that the injustice that was done to G.T.R. employes involved in the strike of 1910, in virtue of the terms and conditions of its settlement not having been complied with, is duly remedied."

Among the Express Companies.

The Canadian National Ex. Co. opened an office at McDiarmid, Ont., April 1.

The Canadian National Ex. Co. has made Beaverbrook, N.B., an open office.

The Canadian National Ex. Co. has opened offices at Dona, Ont., and St. Martin, Man.

The Canadian National Ex. Co. has closed its office at Tashota, Ont., the place becoming a star point.

J. E. Stevens has been appointed Foreign Freight Agent, American Ex. Co., Montreal, vice G. H. Magrane, transferred to Boston, Mass., in similar capacity.

The Ottawa South Municipal Association has decided to ask the Board of Railway Commissioners that additional territory in Ottawa South, Ont., be included within the express delivery radius.

The Dominion Express Co. dispatched two live deer recently, from Newcastle, N.B., to Uniontown, Pa. The animals were caught in the wilds of New Brunswick and were shipped to a park near Uniontown, in charge of an experienced guide. They arrived in first class condition.

G. H. Magrane, Foreign Freight Agent, American Ex. Co., Montreal, was entertained at dinner by the local staff, April 12, and presented with a travelling bag, on leaving for Boston, Mass., where he has been transferred as Foreign Freight Agent.

The Board of Railway Commissioners passed order 32,235, March 16, refusing the National Dairy Council of Canada's application for a reduction in express rates on butter from Silverdale and Ren-ton, Ont., to Hamilton, Ont., the case having been heard in Ottawa, Sept. 20, 1921, when the applicants and the express companies were represented.

The Interstate Commerce Commission recently approved a revised schedule of charges for express shipments between United States and Canadian points, submitted by the American Railway Express Co., effective April 20. It is stated that the new schedule was necessitated by the fact that express rates in Canada generally, had become higher than those in the U.S., and through rates on international shipments consequently had to be modified. The changes are said to be comparatively small in most cases, and the general system of class rates apply exclusively to miscellaneous commodities and merchandise in comparatively small parcels, as against bulky and regular shipments which are ordinarily transported under special commodity rates.

Express Class Rates between Canadian and United States Points.

The Interstate Commerce Commission has, no the application of the American Railway Express Co., on its own behalf and on behalf of other express companies, removed its suspension of the tariffs on traffic between points in the U.S. and Canada, which were found to be justified in so far as they affect the charges or divisions accruing for that part of the transportation between U.S. points and the international boundary. For some years the express companies have maintained tariffs of through express rates between Canadian and U.S. points, which were based, generally speaking, upon a combination of the local

rates to and from the border points. When the express rates were revised in Canada in Sept. 1919, by the Board of Railway Commissioners, these through international rates were thrown out of line, because it was not possible at that time to revise the international tariffs on the basis of the new Canadian rates. General increases were also made on two or three occasions in the U.S. rates, and these changes were reflected in the international tariffs by means of percentage increases. On Feb. 9, 1921, the rates in Canada were again advanced by the Board of Railway Commissioners, and as a result of this last increase, together with certain advances permitted by the Interstate Commerce Commission in the American Railway Ex. Co.'s rates, it was found necessary to reissue the international block tariffs in order to bring them into line and put them on a proper basis. Work on the revised tariffs was started last summer and on Nov. 15, 1921, the revised tariffs were filed with the Interstate Commerce Commission and the Board of Railway Commissioners, covering some 1,600 different block tariffs first class express rates per 100 lb., applying between all points in Canada and the U.S., to become effective Jan. 1, 1922, the southbound and northbound rates being contained in different tariffs. The exceptions to the official express classification governing international traffic covering the table of graduated charges for shipments weighing less than 100 lb., and scales of rates applicable to second class matter, currency, etc., were also filed to come into force at the same time. On Dec. 31, 1921, the Interstate Commerce Commission suspended the tariffs until May 1, 1922, and the matter was again heard at New York, Jan. 23, when W. C. Muir, Vice President and General Manager, Canadian National Ex. Co., and G. F. Snyder, Dominion Ex. Co., appeared on behalf of their respective companies. As a result of the hearing the Interstate Commerce Commission ordered the removal of its suspension, and approved the tariffs as filed, making them effective Apr. 20, 1922.

The reasons for revising the tariffs were, in order that the express companies could get, within Canada, and the U.S., the full benefit of the increases authorized by the Board of Railway Commissioners and the Interstate Commerce Commission; and to readjust the rates so as to eliminate the inconsistencies caused by the various percentage increases.

Telegraph, Telephone and Cable Matters.

The Commercial Cable Co. is offering for sale at New York, N.Y., one of its cable repairing steamships, 270 ft. long, 40 ft. beam, 24 ft. moulded depth, 1,012.92 tons net.

Canadian National Telegraphs during 1921 erected 230 miles of new pole line, and over 7,300 miles of new wire. The company is gradually extending and increasing its facilities.

C. E. Davies, General Traffic Superintendent, and E. Kenward, Superintendent of Railway Service, Canadian National Telegraphs, attended the American Railway Association, Telegraph and Telephone Division, annual convention at Richmond, Va., March 21 to 23.

The Western Union Telegraph Co. will, it is reported, reopen its cable office at

Canso, N.S., shortly. The office had been in operation for about 30 years, until it was closed during the war, and the staff and a considerable portion of the equipment were transferred to North Sydney, N.S.

The Canadian National Telegraphs' sixth general conference of traffic officials, was held at Toronto, April 14 and 15, when traffic managers and sub-chiefs from the various offices from Moncton to Edmonton, met the head office and division officials for a general discussion of traffic problems.

Canadian National Telegraphs have opened offices at Arundel, Breakyville, Britannia Mills, Flamand and Ville Lambert, Que.; Kabina, Mattice and Tannin, Ont.; Muir, Man., and Lake Lenore and Mantario, Sask., and have closed offices at Les Eboulements, Que., Beardmore, Pass Lake and Thor Lake, Ont., Libau, Man., Horburg, Alta., and Albreda, B.C. The name of the office at Chaleurs, Que., has been changed to New Richmond.

The cable ship Restorer, which, prior to the war, was always stationed at Esquimalt, will, it is stated, be returned there in the near future. Owing to the docking accommodation at Esquimalt being required for war purposes, the ship was transferred temporarily to Seattle, and arrangements made for her temporary registration under the U.S. flag. British officers are always employed on this ship, and it is believed that this will necessitate her ultimate transfer to a British port.

The Minister of Marine, in reply to a question in the House of Commons recently, regarding experiments, stated to be proceeding by the British Admiralty, with what is known as wireless beacons, with the object of replacing lighthouses, stated that the experiments now being carried on with a view to utilizing wireless stations as aids to navigation, are being carefully watched by his department, and any developments that appear to be of value will be promptly taken into consideration.

R. W. Ball, heretofore Commercial Supervisor, has been appointed District Commercial Superintendent, District 2, Canadian National Telegraphs, Montreal, vice L. S. Humes, deceased. He was born at Toronto, Sept. 24, 1886, and has spent his entire business career with the Great North Western Telegraph Co., and its successor, Canadian National Telegraphs. He was educated at Kingston, Ont., and entered G.N.W.T. Co.'s service there as telegraph learner, and later served at Montreal and Toronto. In Aug. 1912, he was appointed local manager, G.N.W.T. Co., Regina, Sask., and in 1915 was transferred to a similar position at Calgary, Alta., remaining there until he was attached to the head office staff in Feb. 1921.

British Railway Passenger Traffic Decreases.—Traffic statistics of British railways for Dec. 1921, show a decrease of 10.8% in passengers carried, exclusive of season ticket holders, a decrease of 8.7% in ordinary passenger receipts; of 8.1% in season tickets issued; and of 14.8% in tons of freight carried, compared with 1920.

Burglarizing a Car.—William Davis, a negro tramp, was sentenced to a year imprisonment recently at Kamloops, B. C., for breaking into a sealed car containing sugar and syrup, breaking off some of the packing boards, and lighting a fire inside the car.

Electric Railway Department

Winnipeg Electric Railway's Franchise Negotiations.

In connection with the negotiations which have been in progress for some time between the Winnipeg Electric Ry. Co. and the city council upon railway matters in general, among them being an extension of franchise, A. W. McLimont, Vice President, wrote the city clerk April 4, as follows:—As the city council is aware negotiations have been proceeding since May, 1921, between the company and a sub-committee of the council with a view of disposing of the main outstanding questions between the city and the company. These negotiations have proceeded very harmoniously and a point was arrived at where the company indicated its willingness to meet the city upon all the questions involved and also to make certain desirable extensions to its street railway system, but advised the committee that as the carrying out of these various matters involved the expenditure of large sums of money it was impossible for the company to undertake them without co-operation on the part of the city. We informed the committee that the co-operation desired was for the council to agree to postpone its option to purchase the street railway for a sufficient period of time to permit the company to float a satisfactory security; that we are advised by our bankers that to provide such a security would mean that the city should agree that the earliest period it would exercise its privilege of purchasing the street railway would be 1937. As the matter is now about to come before the council, we think it advisable to formally state our position. We therefore beg to advise the council that in order to obtain the necessary funds to carry out the settlement of outstanding matters and the programme of extensions, improvements and betterments above referred to and more particularly set out hereafter, it is necessary that the council should agree to postpone the first period at which the city may acquire the street railway utility from 1927 to 1937.

If the city will postpone the date as above outlined the company would be in a position to arrange for payment of all outstanding taxes; payment to the city of the proper amount due for paving charges; payment to the city of such sums as may be found to be due to the city in respect of damages caused by electrolysis; completion of the work now in hand to carry out recommendations of Prof. Featherstonhaugh; completion of the work of removing span wire poles; undertaking to place wires underground, according to such plan as may be agreed upon between the city and the company; completion of grounding of secondaries; actively proceeding with and completion of the adoption of joint use of poles in accordance with joint pole agreement.

The company also will agree to make the following extensions:—Talbot Ave., from present terminus to Panet Road; to extend street car line down Notre Dame and connect up with Provencher Bridge; to extend the Academy Road line to Assiniboine Park; to extend Notre Dame Ave. West line to Keewatin St.; to extend McGregor St. line; to extend Sargent Ave. line 3,000 ft.; to make changes on Osborne St. necessitated by widening thereof; enlarge St. James sub-

way so as to permit of double track operation; to instal such necessary bus service as may be agreed upon between the company and the city in localities where the same is necessary.

I want to draw council's attention to the necessity of dealing with this matter without delay, on account of the benefit to be obtained by the people of Winnipeg, the city authorities and the company if our plan for extensions and other work can be started upon at the opening of this season's construction period when employment for Winnipeg workmen will be beneficial. If the council will make a favorable decision, our plan, which involves—making financial arrangements; ordering and obtaining materials on a satisfactory delivery schedule; obtaining labor to do the work, could be put into effect, and employment would be given in time to benefit the present unemployment conditions; our obligations to the city could be arranged; the extensions of track and car service outlined could be started upon this year and the majority of the localities concerned would not have to go through another winter period without them.

While not desiring to unduly hurry the council, I feel it is my duty to point out that any delay in deciding this matter will necessitate postponing for at least 12 months carrying out the plans herein mentioned. In view of the benefits that will accrue to the citizens at large from the expenditure of the large sum of money involved, and the employment that will be provided; in view of the benefit to the city from the moneys it will receive from the company, and in view of the fact that the company would be put in a position to plan intelligently for the future, I request the council's early consideration and favorable action.

The matter came before a city council special committee April 7, when Mayor Parnell made a lengthy statement, in which he favored the granting of a 10-years extension of the franchise; and Alderman Fowler argued that the city could take over, operate and pay for the company's entire system within the city, and own it free from debt within 30 years, and that without an increase of fares. The committee decided to send Mr. McLimont's letter to the city council.

Mr. McLimont subsequently issued a statement in reply to Alderman Fowler's observations, as follows:—"In expressing his opinion that the city should buy the street railway in 1927, Ald. Fowler in voicing his opposition to the company's application, gave as his main reasons that the citizens could not continue to pay the heavy cost of financing the street railway, that the method of financing adopted by the company was excessively expensive, that in connection with the recent sale of preference stock the company gave away a large amount of common stock as a bonus and sold the preference stock at a discount, that the cost of financing fell on the car riders, and that the car riders were expected to provide a return upon the capital stock of the company. When he made these statements, Ald. Fowler should have known, because he is the chairman of the city's

committee on finance, and is familiar with the existing arrangements between the city and the company, that the words 'fair return,' as used in computing what a proper street railway fare should be, have nothing whatever to do with the amount of capital stock or bonds or any other securities, but mean a fair return (or fair rate of interest) on physical value of the street railway property used in serving the car riders, and nothing more. The agreement entered into between the city and the company, July 27, 1921, with which Ald. Fowler is familiar, and by which all litigation with reference to fares was settled, absolutely protects the car riders against possible excessive costs of financing, and fixes the fares to be charged during the remaining period of the franchise, and further provides that they may be varied from time to time as conditions permit. If the parties cannot agree, then they may refer to arbitration, and the arbitrators will fix just and reasonable fares on the basis of the value of the company's property devoted to transportation purposes and not on any capitalization, bond issue, or other basis. Ald. Fowler's reference to the heavy cost of financing in relation to the question of fares is entirely misleading. The company is not entitled to ask for a fare that will do more than pay operating costs and a reasonable return upon the value of the property. It is immaterial to the car riders whether the capital stock is \$1,000,000 or \$50,000,000—the return is based upon the physical value of the property. This is clear, and moreover, the city is safeguarded on this point by the fares agreement entered into with the company last July. To illustrate, assuming the property employed in the traction utility is valued at \$10,000,000, then it is this amount, and this amount only, that is to be taken as the basis for fixing reasonable fares. It is immaterial to the car riders or the city what the bonded indebtedness or the issued capital stock or other securities may amount to. As to Ald. Fowler's suggestion that the city should take over the road, and his prediction that it could be operated without any increased charge to the car riders, I would like to ask if the company is only permitted to earn, as it is, a reasonable return on the physical value of the property used for transportation purposes, and if the company is unable to pay any dividends to its common shareholders, and there is now a large amount of shareholders' money invested in the street railway upon which no return is being made, how could the City of Winnipeg under municipal operation expect to make the favorable showing which Ald. Fowler claims it could make?"

The matter again came before the City Council April 10, and after some discussion was referred back to the committee for a detailed examination and report. The special sub committee held its first sitting for this purpose April 13, at which Mr. McLimont, and E. Anderson, K.C., were present for the company.

A report by Price, Waterhouse & Co., upon the company's financial status was laid before the City Council, April 17, and referred to the special committee

which is dealing with the franchise negotiations. The report was not made public, but a press report says it shows that for 1920 the net profits were \$846,633 and for 1921 \$807,080. To comply with the Public Utility Commissioner's judgment \$75,000 a year is deducted, leaving balances of \$771,633 and \$732,080. A return of 8% which the Commissioner decided the company to be entitled to amounts to \$751,818 and \$768,075 for the two years, leaving a surplus of \$19,814 for 1920, and a deficit of \$35,995 for 1921.

Electric Railway Finance, Meetings, Etc.

Brantford Municipal Ry.—Operations for 1921 are reported to show a surplus of \$174.06, after payment of all operating expenses; te payment in full of interest on bonds and debentures; the provision of a sinking fund; the retirement of a debenture of \$6,250, and the writing off of \$1,497.47 for depreciation.

British Columbia Electric Ry. and allied companies.—

	Feb. 1922	Feb. 1921	8 mos. to Feb. 22, 1922	8 mos. to Feb. 28, 1921
Gross	\$821,828	\$838,682	\$6,921,985	\$6,764,438
Expenses	573,119	578,870	5,014,124	4,851,181
Net	248,709	259,812	1,907,861	1,913,257

Calgary Municipal Ry.—The electric car line operated by the Calgary, Alta., Municipal Ry., to the C.P.R. Ogden shops, is about six miles long, and its operation is reported to have resulted in a loss to the city during 1921 of \$21,426.25, the greatest portion of the loss being in the operation of special cars for the accommodation of the men at the C.P.R. shops. The following figures give the revenue, expenses and loss on the regular hourly service, and also the special car shops cars:—

	Regular line.	
Cost of operation	\$24,568.50	
Revenue received	20,304.14	
Net loss	\$4,364.36	
Ogden special cars.		
Cost of operation	\$40,233.60	
Revenue	23,071.71	
Net loss	\$17,161.89	
Total cost of operation	\$64,802.10	
Total revenue received	43,375.85	
Total net loss	\$21,426.25	

Cape Breton Electric Co.

	Feb. 1922	Feb. 1921	2 mos. to Feb. 28, 1922	2 mos. to Feb. 28, 1921
Gross	\$42,620	\$49,079	\$96,424	\$108,488
Expenses and taxes	52,073	50,692	114,892	105,057
Net	9,453*	1,613*	18,468*	3,431
Interest	5,495	5,687	11,357	11,422
Deficits	14,948	7,299	29,825	7,991

*Deficits.

Edmonton Radial Ry.—A press report states that the net profits of the various public utilities in Edmonton, Alta., for January and February were \$102,149, against \$58,486 for the corresponding months of 1921. The Edmonton Radial Ry. showed a profit of \$7,343 for Jan. and Feb. 1922, against a loss of \$17,123 in 1921.

Montreal Tramways Co. on April 11 declared a regular dividend of \$2.50 a share for the quarter ended March 31, payable on May 1.

Regina Municipal Ry.—The Regina, Sask., City Council on April 8 considered the estimates for 1922, which contained an estimated surplus of \$3,732.53 for Regina Municipal Ry. in comparison with a deficit of \$18,080.94 for 1921. The estimated receipts for the year are put at \$372,000 and the operating expenses at

\$265,000. The estimated net operating receipts would meet the fixed charges and leave the surplus mentioned.

Sherbrooke Ry. & Power Co.—A special meeting of shareholders was called to be held at Montreal, April 22, to consider a bylaw empowering the directors to issue \$1,000,000 of 18-year 6% second mortgage bonds, to be a mortgage upon the property and other assets, subject only to charges already created by the company's outstanding bonds. The trust deed is to be created in favor of George Parent, K.C., and C. E. Taschereau, notary, both of Quebec, as trustees for the bondholders. A sinking fund will be provided.

Winnipeg Electric Railway.

	Mar. 1922	Mar. 1921	3 mos. to Mar. 31, 1922	3 mos. to Mar. 31, 1921
Gross	\$464,901	\$495,209	\$1,436,335	\$1,461,563
Expenses	316,527	380,533	637,491	1,105,159
Net	148,374	114,676	798,844	356,404
Surplus after fixed charges	65,427	56,083	216,620	181,200

Quebec Railway, Light, Heat & Power Co.'s Annual Meeting.

The Quebec Ry., Light, Heat & Power Co.'s report for the calendar year 1921 is given fully on page 35 of this issue. Its outstanding features are increases of \$203,423.81 in gross earnings, of \$113,428 in operating and maintenance expenses, and \$89,995.81 in net earnings, an improvement of 120,684.34 over 1920.

The proceedings at the annual meeting, and the subsequent directors' meeting, showed the control of the company had passed to interests headed by E. A. Robert, President, Montreal Tramways Co., who was not previously a director, but has succeeded Senator L. C. Webster as President, the latter becoming Vice President, the former Vice President, Senator D. O. L'Esperance, remaining as a director, the only other members of the former board who were re-elected being J. N. Greenshields, K.C., and C. G. Greenshields, K.C. The following former directors were not re-elected, C. A. Lavigne, T. J. Stewart, M.P., P. Galibert, L. J. Tarte, A. Picard, Hon. J. Tessier, and Brig.-Gen. A. E. Labelle. The board as now constituted consists of E. A. Robert, President; Senator L. C. Webster, Vice President; A. C. Barker, New York, N.Y.; K. B. Thornton, Ltd. Col. J. E. Hutcheson, N. G. Valliquette, J. N. Greenshields, K.C., C. G. Greenshields, K.C., Montreal; Senator D. O. L'Esperance, Hon. A. Turgeon, and Hon. G. E. Amyot, Quebec. The company's principal officials are W. J. Lynch, General Manager; Arthur Lemoine, Secretary, and R. A. Wilson, Treasurer.

The retiring President, Senator Webster, welcomed Mr. Robert to the board and assured him of hearty co-operation. Mr. Robert said that his position was a rather difficult one at the moment, but that he might make a statement in a short time, after he had gone into the various phases of the situation with the management. He added that the company was in the best financial shape it had been in for years, and expressed the hope that he would be able to report further development during 1922.

Immediately after the annual meeting, a special meeting of shareholders authorized the directors to apply to the Dominion Government for supplementary letters patent to empower the company to convert its 100,000 shares of common capital stock, with a par value of 100 each, into 100,000 common shares with-

out nominal or par value.

On April 14, Lt. Col. J. E. Hutcheson, General Manager, Montreal Tramways Co., accompanied by another of the new directors, K. B. Thornton, and by D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co., visited Quebec, and inspected the company's lines, rolling stock, etc.

Change of Rule of the Road in Nova Scotia.

The Nova Scotia Legislature has passed an act amending the Revised Statutes of 1900, chap. 81, by striking out the word "right" and inserting instead the word "left" in sec. 3, subsection 5. The effect of this is that the rule of the road is brought into conformity with that obtaining in most of the other provinces. The new rule will be brought into operation at an early date.

The electric railways operating in Halifax, Sydney, Glace Bay, New Glasgow and Yarmouth will be affected by the new rule. The Cape Breton Electric Co. advises us that the changes to be made on its lines in Sydney, Louisbourg and Glace Bay will not be expensive. The company has 4 safety or one-man cars which it will be necessary to remodel so that the entrance and exit at either end will be on the right instead of the left. The Nova Scotia Tramways & Power Co. advises that the cost of changing its rolling stock, etc. will amount to \$41,840, as follows:—24 safety cars, \$12,000; 6 sweepers and plows, \$10,000; 12 two-man cars, \$2,400; 8 crossovers, \$16,000; 24 switch boxes, \$240; overhead wiring on special work, \$1,200. The Yarmouth St. Ry. advises that its expenses in connection with the change will be very slight.

Montreal Tramways Co.'s Track Expenditures.—The Montreal Tramways Co. has applied to the Quebec Public Service Commission for relief in respect to \$381,000 over-spent upon maintenance and renewal of tracks. Under the contract with the city the Montreal Tramways Commission allowed the company \$2,147,000 for maintenance and renewals during 1921, and the company overspent this by \$381,000, largely on account of the council's decision to change the level of St. Catharine St., after the Commission's appropriation had been made. The company contends that this over expenditure should be allowed by the Commission out of last year's gross receipts, and before any surplus is paid to the city in rentals. The city contends that this amount should be carried forward and financed in the following year in the same manner as a municipal corporation did. Arguments was heard by the Quebec Public Service Commissioners April 18.

Detroit United Railways Purchase.—Detroit, Mich., ratepayers voted, April 17, on the agreement recently entered into between the city council and the Detroit United Ry. Co., for the purchase by the city, of all the lines in the city, not already taken over, for \$19,850,000. The purchase price also covers certain real estate. About a third of the qualified ratepayers voted, the bylaws being carried by 55,658 to 12,198 votes. One bylaw confirms the agreement to purchase, and the other provides for raising \$2,770,000, the cash consideration of the bargain. The balance is to be paid in half yearly instalments of \$500,000, with 6% interest, to July 1, 1931, the final payment to be made Dec. 31, 1931.

Ontario Hydro Electric Railway Legislation.

A bill respecting the construction and operation of municipal electric railways, introduced in the Ontario Legislature, March 16, by the Premier, is to be cited as the Municipal Electric Railway Act, 1922, 4 George 5, chap. 31, sec. 1, amended. The latter is the Hydro Electric Railway Act of 1914, and the bill now under consideration proposes to repeal the whole of that act, section 2 of the Hydro Electric Railway Act 1915; sections 2, 3, 4 and 8 of the Hydro Electric Railway Act, 1916; sec. 32 of the Statutes Law Amendment Act, 1917; sections 8 and 9 of the Hydro Electric Railway Act, 1919, and sections 2, 3, 4, 5 and 6 of the Hydro Electric Railway Act, 1920. The effect of the bill, if passed as introduced, would be that with the exception of bylaws confirmed by the several amending acts, the whole of the hydro electric railway legislation heretofore in operation would be repealed.

The bill, outside the short title section, and the repealing section, contains 27 sections, of which a number are taken in whole or in part from the Hydro Electric Rys. Act, 1914, and amendments. It provides that two or more municipalities in any area supplied with electric power by the Hydro Electric Power Commission of Ontario, may apply to the Commission, which will, at the cost of such municipalities, report upon the cost of constructing and equipping and providing for the operation of an electric railway in such municipalities; the practicability of the undertaking and its economic value to the locality to be served by it. Such municipalities may enter into an agreement with each other for the construction and operation of such railway, to be operated by electrical power or energy supplied by the Commission. The agreement is to set forth the location of the projected line, the proportion of the cost to be borne by each contracting party, provision for the issue of debentures; the terms for power; provision for construction by the Commission, or by the municipalities, and the entrustment of the operation of the line to an association known as the Municipal Electric Railway Association. The agreement may also provide for the construction of a railway upon any right of way acquired by the Commission for power purposes; for the purchase or lease of any steam, electric or street railway already in existence, capable of forming part of the projected railway, or for securing running rights over the same; and for the extension of the railway into any adjoining municipality with the consent of the corporations parties to the agreement. Before submission of the bylaws to the ratepayers, the municipalities are to enter into agreements with the Commission for power, and construction. The provisions are to apply to lines purchased or leased. The bylaws are to be submitted to a vote of the ratepayers of the several municipalities interested. In the event of any municipality failing to pass a bylaw, the other municipalities may assume the cost, provided it does not exceed 10% of the estimate cost of construction and equipment. Debentures are to be deposited with a trust company. As soon as practicable after the passing of the bylaws, the representatives of the several municipalities interested are to be called together by the head of the corporation making the largest contribution for the purpose of forming a Muni-

icipal Electric Railway Association, either for the purpose of building and operating the railway, or for the purpose of operating only. The association is to consist of five persons, to hold office for five years. A corporation contributing over 25% of the cost of the line shall nominate one member, and a corporation contributing over 50% of the cost shall nominate two members; the other members being elected by vote based on the estimated cost of construction. The association is to be incorporated, and to have power to appoint officers and to pay them salaries as follows:—chairman, \$4,000; vice chairman, \$3,000; other members \$2,000 a year. The association is to operate the railway and report annually to the municipalities. A number of other sections deal with the association's power to issue bonds and debentures; to provide a sinking fund; to assume a bond issue in case of purchasing a railway; to fix tolls and charges at such rates as will provide for the cost of maintenance and operation, the cost of renewals, the payment of interest and principal, and the formation of a sinking fund. Surplus funds may be retained by the association to meet the cost of branch lines, or increased equipment, etc., and the municipalities are to be called upon to meet deficits. The association may make an agreement with the Commission for the operation of the lines for five years, renewable for further five year periods.

The bill was read a first time March 16, and had not been dealt with further up to the time of writing, April 19.

Customs Duty on Intersections for Railways.

As stated in Canadian Railway and Marine World for April, pg. 205, when the Customs Board sat in Ottawa, March 18, to consider the application from Canadian Steel Foundries Ltd., Montreal, in regard to tariff item 390, which specified the duty on switches, frogs, crossings, and intersections for railways, the applicants' counsel contended that the whole layout constitutes an intersection, and should be assessed under the item.

G. Gordon Gale, Vice President, and General Manager, Hull Electric Co., and President Canadian Electric Railway Association, agreed with the Toronto Transportation Commission's contrary contention, and obtained the Board's permission to file evidence from electric railway companies which are members of the Association, and which were not represented at the hearing, and might wish to present their views, and he issued a circular to member companies asking their views, and as a result of the replies, submitted the following memorandum to the Board on March 28:—(1) The electric railway companies, members of the Canadian Electric Railway Association have used the term "intersection" in connection with the track work referring to the individual pieces where one line of rail actually intersects or crosses another line of rail. (2) The expression "intersection" has also been used in a general way in relation to the streets, that is, a point where one street intersects or crosses another street. (3) An electric railway track layout at street intersections is composed of straight and curved rails, provided for by tariff item 388, fish plates and tie plates provided for by tariff item

389, and switches, frogs, crossings and intersections provided for by tariff item 390. (4) The application for a new interpretation of the term "intersection" is an attempt to establish a meaning for this expression which is not used by street railway companies, and in the opinion of these companies the Board's interpretation should continue as set forth in paragraph 3 above.

Canadian Railway and Marine World is officially advised that the Board of Customs, at a meeting in Ottawa, on April 11, declared as follows:—"Track layouts for use on street railways at street intersections are not entitled to entry under tariff item 390, as intersections for railways, departmental ruling being sustained." This decision sustains the Toronto Transportation Commission's contention.

Regulation of Public Vehicles on Ontario Highways.

The Ontario Minister of Public Works introduced a bill in the Legislature to regulate the operation of public vehicles, which was read a first time March 20. It provides for the repeal of the act passed in 1920 with a similar title, and for placing under the Public Highways Department the regulation of all traffic for hire on the highways. It provides that no person shall conduct the business of a public carrier of freight or passengers on the highways except under a license from the Department. This license may confer exclusive or limited rights; the annual license fee, to be fixed by the Government, is to be in addition to any fee fixed by the Motor Vehicles Act or any other act; and the business is to be carried on under such regulations made from time to time by the Government. The number of persons to be carried, and the tonnage to be carried by each vehicle is to be fixed by the license; the tolls to be charge for passengers and freight are to be fixed by the Department, and revised from time to time. The Department is authorized to operate a public vehicle service on any public highway, and may retain exclusive privileges therefore; the cost of vehicles and equipment to be met out of any money voted by the Legislature or that purpose. The licenses granted to individuals or companies shall not be transferred except with the Department's approval. A number of sections deal with the necessary equipment of the licensed vehicles, and the manner of their operation, and provide for inspection by the Department's officers. Trailers are forbidden. Every vehicle is to be insured as a safeguard against claims of passengers, etc., and bills of lading are to be used. Where exclusive rights are granted a penalty of not less than \$25 or more than \$100 a day is provided for violation of such rights, and a general penalty of \$10 for the first offence, \$20 for the second, \$30 for the third and \$50 for every subsequent one is provided in respect of the bill's general provisions. Any profits of a provincially owned service, together with the amount of the penalties received under the general provisions of the act, are to accrue to the highway improvement fund account.

Burlington Bascule Bridge.—The newly erected bascule bridge carrying the highway and the Hamilton Radial Ry. across the canal at Burlington Beach, Ont., was opened for traffic April 10.

Electric Railway Wages, Working Conditions, Etc.

Cape Breton Electric Co., C. C. Curtis, Manager, issued the following bulletin to trainmen March 21:—"It is with the deepest regret that I am obliged to announce a reduction in wages, which will become effective April 1. I had hoped that in spite of tremendous snow expenses during the winter and the very serious business depression through which we are passing, it might still be possible for us to maintain the scale of wages in effect since May 1, 1921. This now, however, seems impossible. All divisions of the railway department in January took in as gross earnings \$19,522, compared with \$32,416 in Jan. 1921, and estimated revenue for Jan. 1922 of \$29,713. Operating expenses, without any allowance for taxes, depreciation, interest charges, dividends, reserves, etc., were \$39,276, compared with \$32,774 in Jan. 1921, and estimated in Jan. 1922 of \$26,963. This means that in Jan. 1922 the railway department failed by \$19,753 to earn its ordinary day to day operating expenses. In February, due to similar conditions, gross revenue was about \$7,000 less than anticipated, and expenses over \$6,000 more than expected, with the result that day to day operating expenses were \$14,772 more than the revenue taken in. For the two months of January and February, therefore, day to day operating expenses were \$34,525 greater than the revenue received. For the whole company, including all departments, in the two months of Jan. and Feb. 1922 we failed by \$29,825 to pay interest charges on our bonded indebtedness. As you are all fully aware, riding on the cars has fallen off tremendously and there seems no immediate prospect of any great improvement. In Jan. 1922 we carried 39.8% less passengers than in Jan. 1921; in Feb. 1922, 32.8% less than in Feb. 1921, and up to March 21, 25.2% less than for the corresponding period of 1921. Of course some of this decrease was due to snow conditions, but there seems every reason to feel that the riding will continue at a low ebb for some time at least. On and after April 1, 1922, wages of trainmen, all divisions, will be as follows per hour: 1st six months, 35c.; 2nd six month, 36c.; second year, 38c.; third and fourth year, 40c.; fifth and six year, 42c.; seventh and thereafter, 44c. This represents a reduction of only 2c. an hour, and, though I fully appreciate that no one likes to get a reduction in wages, this seems very mild as compared with some others which have been made in other industries, representing as it does a cut of only 4 or 5%. Similar reductions will be made in the case of most other employees, although, as a general rule, monthly men will not be reduced at this time. As you all know, daily men, with overtime, have often received higher total wages in a month than their boss, who was working the same number of hours, but who had no overtime payments. In this, as in all other things, we are doing our best to treat every single employee with absolute fairness and justice. Once more, I wish to impress upon all of you that nothing but absolute necessity forces us to reduce wages. I know you will all accept this in the spirit in which it is announced, secure in the knowledge that I will at all times, both now and in the future, do everything in my power to make your work pleasant, profitable and generally

more satisfactory than it could be with any other company."

Canadian Railway and Marine World is advised that the trainmen appear to be quite pleased that the reduction made was so small. This makes two wage cuts which have been made by the company, the first one having been put into effect May 1, 1921, at which time all employees, daily men, monthly men and officials were cut approximately 8 to 10%. The cut at that time was also accepted by everyone with a fine spirit, they being convinced that it would not have been made unless absolutely necessary. Prior to May 1, 1921, wages of trainmen per hour were as follows:—1st six months, 40c.; 2nd six months, 42c.; second year, 44c.; third and fourth year, 46c.; fifth and sixth year, 48c.; seventh year and after 50c.

Dominion Power & Transmission Co.— A majority report of a board of conciliation, dated March 31, and signed by J. M. Godfrey, chairman, and F. Bancroft, representing the men; and a dissenting report dated April 3, signed by F. H. McGuigan, the representative appointed for the company by the Labor Department, have been filed, with reference to the differences between the D. P. & T. Co., the Hamilton St. Ry. Co. and other subsidiary companies, and various classes of employees represented by Local 700 International Union of Steam and Operating Engineers, and Divisions 107 and 108, Amalgamated Association of Street and Electric Railway Employees of America. The majority report states that the difference had to do almost entirely with wages, as E. P. Colman, the company's General Manager, expressed his willingness to adjust the minor matters in dispute. The men asked for an increase of 10% and the company made reductions varying from 12% to 13½%. During the hearings a conference was held at which the men abandoned their claim for an increase, and the company offered to reduce the decreases put in force, but it was not possible to bring the parties to an agreement. After hearing both sides of the case, a schedule was drawn up which was recommended for adoption for 12 months from April 5, 1922, and the majority report recommended that the scale of wages paid up to the time the reductions were put in force by the company, be paid up to April 5. The suggested wage schedule for motormen and conductors on all the electric lines is as follows per hour, compared with the former rates:—

	Suggested	Former
First 6 months	38c.	40c.
Second 6 months	40c.	42c.
First year	38½c.	40c.
Second year	43c.	45c.
Third year	50c.	52c.

The rates of wages of other employees to be scaled down on the same basis, which is a 4% reduction. F. H. McGuigan reviewed a number of points in the case as presented, upholding the company's position and expressed his inability to agree in his colleagues' recommendations.

We were advised April 12 that the company had informed the Labor Department that it cannot accept the recommendations of the majority report.

The second board of conciliation, which deals with the differences as to wages between the D. P. & T. Co., and its subsidiaries, and its employees being mem-

bers of the Canadian Electrical Trades Union, Hamilton branch, presented a unanimous report dated April 3, and signed by J. M. Godfrey, Chairman; F. H. McGuigan, appointed by the Department of Labor to represent the company; and J. G. O'Donoghue, representing the men. It stated that the employees applied for an increase of 4c. an hour, while the company had put into effect a reduction of 12½% on Feb. 15. A conference was arranged at which an agreement was effected under which the scale of wages in force prior to Feb. 15, is to continue for six months from March 1, and thereafter subject to 30 days notice on either side, to be retroactive to Feb. 15. We were advised April 10 that the agreements necessary under this report were being drawn up for signature, the terms having been settled.

The day employees on April 17, adopted a resolution favoring a strike unless the company would accept the majority report of the board of conciliation; and at a general meeting held the same night, this resolution was confirmed by the remainder of the employees. This decision was conveyed to the company, and E. P. Coleman, General Manager, is reported to have stated that the letter was so impertinent that it would not be replied to. A delegation of employees waited on Mr. Coleman, April 19, and offered to accept a lower rate of wages than that recommended by the majority report, and were advised that a reply would be given by the directors on April 20, when an offer, which was stated to average 4% reduction for power house employees, and 8% for motormen and conductors, was made. This was submitted to a vote of the employees, Apr. 22, which decided in favor of acceptance.

London St. Ry.—We are officially advised that the Ontario Railway and Municipal Board, after considering the London St. Ry. Co.'s employees application, came to the conclusion that it was really made under the Industrial Disputes Investigation Act, 1907, passed by the Dominion Parliament, and that the Board has no authority in the premises, consequently no order was issued.

Some negotiations have taken place since March 30, the company having been approached by the employees, but nothing resulted, the company adhering to its decision to reduce conductors and motormen's wages by 3c. an hour as from March 1 to the following figures:—1st year, 40c.; 2nd year, 43c.; 3rd year, 45c. The Dominion Labor Department was approached as to the appointment of a board of conciliation, but it is stated that there was some irregularity in the procedure. The men held a meeting April 9, and decided to strike if aboard of conciliation, which was to be formally applied for, did not satisfy them. The local union made a formal application on April 13 to the Labor Department for the appointment of a board.

Nipissing Central Ry.—A notice was posted in the car house at North Cobalt, Ont., recently, informing the railway's employees that they will be required to pay the ordinary fare when travelling on the line, except when actually engaged on duty. The men claim that the working agreement provides for free transportation at all times, and arranged to send a deputation to North Bay, to interview W. A. Griffin, the Superintendent.

ent, on the matter. The line is operated by the Timiskaming & Northern Ontario Railway Commission for the Ontario Government.

Ottawa Electric Ry. Co. — Negotiations between the company and the employees with respect to the new wage schedule which the company proposed to put into effect May 1, have not resulted in a settlement. A meeting was held in the company's offices March 27, when Major F. D. Burpee, Manager, called the men's attention to the bulletin issued on Feb. 27 and published in Canadian Railway and Marine World for April, and stated that the company was financially unable to continue the existing wage scale after May 1. The extraordinary increases in wages during the past six years were accepted by the company on the recommendation of various boards of conciliation, because of the exceptionally high cost of living due to conditions caused by the war, and that it had never been the company's intention that such wages should be continued. As the cost of living has dropped the company expects that wages will be reduced in proportion. He acknowledged the receipt of a draft of an agreement which accompanied a letter received from the men's representatives on March 23, but said that as the company's revenue was not sufficient to continue the existing wage rates the company could not seriously consider the draft agreement which called for a heavy increase in operating expenses. He advised the committee to consult with their organization and if they were prepared to discuss the decrease of wages announced by the company he would be ready to meet them at any time. A general discussion took place and the committee stated they would report the result of the interview to their organization, and that unless instructed to return and discuss the decrease of wages, they would apply to the Labor Department for a board of conciliation under the Industrial Disputes Act. The men subsequently applied for a board of conciliation on the ground of "increase of wages and reduction of hours," instead of "reduction of wages," an error which was afterwards corrected. It is said that G. D. Kelly will be the company's representative, and that C. J. Tulley will act for the men.

The Winnipeg Electric Ry. Co. gave notice to its employees on April 1, that it desired to terminate the wage agreement in force as at April 30, with a view to a modification of its terms, and intimated that its officials were prepared to meet representatives of the employees to discuss the terms of a new agreement. Some negotiations are reported to have taken place between the management and representatives of the union, upon the company's proposal to reduce wages by 3½c. an hour. The employees met on April 12, and unanimously decided not to accept the reduction. The management also proposes to make some changes in the working conditions, but these changes are said to be of little importance.

Soft Pedal.

Curate (referring to a slightly intoxicated fare) — "Conductor, do you allow drunken men on these cars?"

Conductor (in a whisper) — "It will be all right, sir, if you don't get too noisy."

Electric Railway Projects, Construction, Betterments, Etc.

British Columbia Electric Ry. — A press report states that a contract has been let to W. Greenlees, Vancouver, for the substructure, and to J. Coughlan & Sons, Vancouver, for the superstructure of a bridge across the Vedder River on the company's Chilliwack line, in replacement of the bridge destroyed by floods in Oct. and Nov. 1921. (March, pg. 150.)

Calgary Municipal Ry. — The City Council recently authorized the purchase of a quantity of steel rails for relaying and subsequently received tenders for them at \$78.60 a gross ton delivered at Calgary. A press report of April 15, stated that R. A. Brown, Superintendent, has closed a deal with the Moose Jaw, Sask., City Council for the purchase of 160 tons of rails at \$33.77 a gross ton. These rails were bought by Moose Jaw City Council some years ago for an extension of an industrial railway, and have not been used. W. Coms, Assistant Superintendent, was in Moose Jaw, April 15, closing up the matter and arranging for the shipment of the rails. They will enable the Calgary City Council to build the entire East Calgary extension, provide passing tracks for the North Center St. line, and leave 38 tons over for repairs, in addition to having been able to purchase them at a price very much below that asked in the lowest tender. (March, pg. 150.)

Grand River Ry.-Lake Erie & Northern Ry. — We are officially advised that an appropriation has been made for the construction of a joint passenger station at Galt, for both these railways. The work is to be gone on with at an early date, but the plans and specifications are not yet completed. The station will be built on the south side of Main St., near the Iroquois Hotel. The building will be 100 x 34 ft., brick and stone being the principal materials. The foundation and walls will be designed to carry a two storey building, but it is proposed to erect only one storey at present. (Aug., 1921, pg. 434, and Oct. 1921, pg. 548.)

Grand River Ry.-Lake Erie & Northern Ry. — A press report states that a joint station will be built on Main St., Galt, Ont., during the summer for use by both lines. (Aug. 1921, pg. 434, and Oct. 1921, pg. 548.)

Hamilton St. Ry. — A press report states that track repairs will be done on Locks, Wentworth, Margaret and King St. west, during this year. These are among the streets upon which new track is to be laid as agreed on between the company and the city council when the recent increase in fares was granted (Jan., pg. 42.)

Kingston, Portsmouth & Cataraqui Electric Ry. is, we are officially advised, replacing the 60 lb. rails on some 3,800 ft. of its track in Kingston, Ont., with 90 lb. A.S.C.E. rails, which are on hand. (Mar., pg. 150.)

Kitchener & Waterloo St. Ry. — We are officially advised that the Kitchener, Ont., Light Commissioners' Street Railway Department has bought 230 gross tons of 80 lb. rails, A.S.C.E. section, 60 lb. lengths, in the United States; and 1,530 twin steel ties, from the Sarnia Bridge Co. This material is required for the construction of a mile of double track on King St. E. for which the voters on Jan. 2 authorized the issue of \$63,000 of debentures. A press report states that a contract has been let to the Standard Paving Co., for

building the extension on King St. East. (March, pg. 150.)

London & Port Stanley Ry. — A press report states that the London Railway Commission has secured another contract for the provision of terminal accommodation for a line of coal barges at Port Stanley. The Commission is reported to have authorized the expenditure of \$20,000 for a coal landing device, to be erected as soon as the necessary agreements are entered into.

The erection of a new terminal at London, which has been under discussion, is not to be settled for some time, according to a press report. The Board of Railway Commissioners has under consideration the terms upon which the G.T.R. will transfer some property on Richmond St. to the London Railway Commission for terminal purposes. (April, pg. 206.)

Montreal Tramways Co. — The Montreal City Council's executive committee had a conference April 6 with the Montreal Tramways Commission to arrange for street paving and track relaying for the season, so that the work may be done jointly, or at least in such a way that neither would have to undo the work of the other. The city council proposes to expend \$1,500,000 on street paving this year.

The question of the construction of a car line to the Mountain Park has been given considerable discussion of late by the city council. The suggestion is to build a line up Shakespeare Road, and round by the park rangers' house on Mount Royal at an estimated cost of between \$90,000 and \$100,000. The matter was discussed by the city council's executive committee April 6, when, it is stated, there was an understanding that the line could not be built this year. (April, pg. 206.)

Ontario Hydro Electric Railways, Essex Division. — We are officially advised that the Hydro Electric Power Commission of Ontario is endeavoring to complete the rebonding of a considerable portion of the old Sandwich, Windsor & Amherstburg Ry., and is erecting approximately six miles of overhead wire to be used by the electric trolley busses that have been ordered to serve settled sections of Walkerville and Windsor. The Commission is contemplating renewing the track construction on Ouellette St., Windsor, as well as making extensive betterments on short sections of track on various portions of the lines. Plans are under way for building a new substation in the vicinity of Canard River. (Feb., pg. 97.)

Oshawa Ry. — We are officially advised that it is proposed to improve the passenger tracks from Avenue St. to Alexander St., Oshawa, Ont., 8,025 ft., by replacing the present 56 and 70 lb. rails with 80 lb. rails; and that it is also contemplated to put in a passing track on Simcoe St., between Metcalfe and John Sts.; to extend the tracks into Lakeview Park, and to add a shelter and platform there. The company contemplates buying 6,000 ft. of feeder cable wire for use from the power house along the back freight line. (Jan., 1921, pg. 36.)

Ottawa Electric Ry. — We are officially advised, with respect to press reports as to possible track extensions, that the city's street railway committee has not yet consulted with the company as to what extensions or new lines would be required under a new franchise. A line

on Bronson Ave., as an alternative to the extension of the Gladstone line has been spoken of and the people in Gloucester Tp. have asked for an extension there, but it is not at all likely that anything definite will be settled for some time. (April, pg. 206.)

Windsor, Essex & Lake Shore Rapid Ry.—We are officially advised that it is proposed to do some paving work on the line in Kingsville, Ont., and to build a siding into the company's terminals at Leamington, during this year. The company is buying 3,000 oak ties for use in the work. (Feb., pg. 97.)

Winnipeg Electric Ry.—In connection with the franchise negotiations at present in progress between the company and the city, the question of track extension is a prominent one. A number of suggestions for extensions have been made, particulars of which are given under "Winnipeg Electric Ry. Franchise Proposals" on another page of this issue. (March, pg. 150.)

Electric Railway Freight and Passenger Rates.

British Columbia Electric Ry. Co.—In a discussion upon electric railway matters, recently, W. G. Murrin, Assistant General Manager, intimated to the Vancouver City Council, that a reduction to the former 5c. fare is out of the question. He stated that all the lines in the city show a decreasing revenue; the net profit for 1920-21 being only 3.03%, showing that even the 6c. fare is insufficient for profitable operation.

Levis County Ry.—The general committee which has studied the electric railway situation in municipalities served by this railway, reported to the Levis, Que., City Council, March 25, suggesting that the company be permitted for the next 15 years to have a 10c. fare, 25 tickets to be sold for \$2.25 for adults, and \$1.25 for children under 16 years of age.

London & Port Stanley Ry.—The London, Ont., City Council, April 18, passed on to the London Railway Commission a request to restore the old summer rate of 30c. from London to Port Stanley, on the London & Port Stanley Ry., and to lengthen the period during which commutation tickets can be used between these points. The rate was increased, with the consent of the city council, to 50c. in 1919.

P. Pocock, Vice Chairman, London Railway Commission, is reported to have stated that the summer fare will not be reduced as requested by the council, but that the Commission is applying to the Board of Railway Commissioners for authority to put in force a 75c. return fare between London & Port Stanley, at the close of the summer season.

London St. Ry.—The Ontario Legislature gave a first reading on March 28, to a bill, introduced by R. L. Bracklin, to enable the company to charge an increased fare. The bill provides that notwithstanding anything contained in any agreement or bylaw, or in any general or special act of the Legislature, the company may, for the unexpired term of its franchise, charge 5c. for adults, 3c. for children between 5 and 12 years of age; children under five years in charge of adults to be carried free. It also provides that the following shall be carried free, viz.: police constables in uniform, firemen in uniform, or wearing badges,

going to or returning from a fire; health and water inspectors and city detectives, wearing badges.

St. Thomas Municipal Ry.—We are officially advised that the city council has authorized an increase of fares on the St. Thomas, Ont., Municipal Ry. The cash fare is 5c. as heretofore, but the sale of 6 tickets for 25c., available at all hours, has been abandoned. Strips of 5 unlimited tickets are sold for 25c., and 10 children's tickets are sold for 25c. as heretofore.

Winnipeg Electric Ry.—A press report states that the city council will ask for a reduction of fares if the reduction of wages proposed by the company goes into effect on May 1.

Mainly About Electric Railway People.

R. A. Brown, Superintendent, Calgary Municipal Ry., has had his salary for this year fixed by the city commissioners at \$2,900, a reduction of \$189.72.

G. Gordon Gale, Vice President and General Manager, Hull Electric Co., and President, Canadian Electric Railway Association, addressed the Hull, Que., Rotary Club, of which he is President, on April 6, on electrical energy, its origin and application, the address being illustrated by motion pictures.

H. F. Macdonald, who was, from July 1911 to June 1915, Accountant, Timiskaming & Northern Ontario Ry., Toronto, has been appointed Auditor, Windsor, Essex & Lake Shore Rapid Ry., Kingsville, Ont., and assumed his duties Apr. 10. J. L. Baird, Accountant and Assistant Secretary-Treasurer, who has been acting as Auditor, remains in the former capacity.

Alfred Piddington, formerly of the Quebec Bank, who died in Montreal April 1, and was buried at Quebec, was an uncle of G. Gordon Gale, Vice President and General Manager, Hull Electric Co., and President, Canadian Electric Railway Association.

H. D. Scully, General Manager, and one of the directors of Canadian Brill Co., Preston, Ont., has resigned these positions.

Electric Railway Notes.

Montreal Tramways Employees' Union passed a resolution April 6, protesting against the adoption of daylight saving there.

The St. Thomas, Ont., Municipal Ry. put in force a new time table recently, which is reported to have resulted in increased passenger travel.

The British Columbia Electric Ry. Co. was reported recently as expecting to have one-man cars in operation on all of its Vancouver Island lines by April 15.

The Levis County Ry., which has not been operated for some months, report states, resumed operation on April 12. It has only six cars available for service, the others having been burned.

The Quebec Ry., Light & Power Co. announced early in April that it would begin the operation of trailer cars on its lines in Quebec City at the end of April, the first route to be used being the Champlain Market and St. Sauveur line.

The Hull Electric Co. recently proceeded against Patrick Riopelle and Joseph Mullen, alleging that they had

stolen a fare box. The case was heard at the Hull, Que., Assizes, March 22-24, and resulted in a verdict of acquittal, the evidence of identity not being considered sufficient.

Calgary, Alta., Municipal Ry. had to suspend service April 10, owing to a very heavy fall of snow, which accompanied a very high wind. The service was resumed on April 12 after hard fighting to get the lines cleared. This was the first time for many years that service had to be suspended on account of weather.

The heavy sleet and wind storm of March 30 did extensive damage to the London & Port Stanley Ry.'s pole line between London and Port Stanley, Ont. In order to carry on traffic the London Railway Commission borrowed a steam locomotive from the G.T.R., and provided a partial service until the power lines were restored.

The Quebec Public Service Commission on April 25 heard applications respecting the difficulties between the Levis County Ry. and the municipalities within which it operates. The Lauzon Town Council objects to the Commission's jurisdiction in the matter, a point which will have to be decided before the general applications are heard.

Niagara, St. Catharines & Toronto Railway Purchase Negotiations.

A deputation from municipalities interested in the proposed purchase under the hydro radial railway project, of the Niagara, St. Catharines & Toronto Ry., from the Dominion Government, waited on the Minister of Railways at Ottawa, March 30, and stated that the roadbed is in need of extensive repairs, and that its condition is holding up municipal street improvement plans. The deputation asked that the Government should cause the necessary improvements to be made. The Minister is reported to have promised the usual consideration.

The St. Catharines, Ont., City Council, on April 3, considered a report of its railway committee recommending that the question of the renewal of the company's franchise be again taken up, and that negotiations respecting it be opened with the Minister of Railways. This was agreed to and the committee was authorized to keep in touch with the hydro radial railway situation, with special attention to the option the Hydro Electric Power Commission of Ontario has on the line.

It was reported April 12, that a meeting of the representatives of the various municipalities served by the railway would be held in St. Catharines on an early day, to endeavor to adopt a standard form for a franchise for all. The suggestion is that a renewal of the franchises be given the company, in consideration of the making of improvements and extensions.

Grain Elevator Overages.—The Minister of Trade and Commerce stated in the House of Commons, April 3, in answer to W. T. Lucas, Victoria, Alta., that the total amount of overages received by the Government from terminal elevators, during the crop year 1920-1921, was 98,455 bush., and 671,078 lb. of mixed grain. The total value was \$130,524.06. Accounts were rendered for this amount, but no payments had been made.

The Canadian Electric Railway Association's Meeting at Quebec, June 1, 2 & 3.

Since a preliminary draft of the programme for the Canadian Electric Railway Association's annual meeting, to be held at Quebec on June 1, 2 and 3, was



Thomas Ahearn,
President, Ottawa Electric Railway, and Honorary
President, Canadian Electric Railway Association.



G. Gordon Gale,
Vice President and General Manager, Hull Electric Co., and President, Canadian Electric Railway Association.

given in Canadian Railway and Marine World for April, the Association's officials, particularly G. Gordon Gale, President; Major F. D. Burpee, Vice President, also chairman of the papers com-

mittee; W. J. Lynch, chairman, entertainment committee; and R. Mayne-Reade, chairman, exhibits committee, all of whom have been devoting a large amount of time to the work, have perfected the arrangements and we are now able to give the revised programme for the meetings, which will be held on the second floor of the Drill Hall on Grand Allee, while exhibits will be displayed on the ground floor.

May 31, Wednesday.—Starting at 3 p. m. Meeting of executive committee; preliminary meeting of associate members; registration at Chateau Frontenac.

June 1, Thursday.—9 a.m. Registration at Drill Hall. 9.30 a.m. Addresses of welcome by the Lieutenant Governor of Quebec Province, Sir Charles Fitzpatrick, and Mayor Samson of Quebec City, to be followed by an inspection of the exhibits.

Business session. Minutes of last annual meeting; President's address; re-

Canadian Electric Railway Association.

Honorary President, Thomas Ahearn, President, Ottawa Electric Railway.

Honorary Vice President, George Kidd, General Manager, British Columbia Electric Railway.

President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Vice President, Major F. D. Burpee, Manager, Ottawa Electric Railway.

Treasurer, A. Gaboury, Superintendent, Montreal Tramways Company.

Executive Committee, E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electric Co.; W. S. Hart, Managing Director, Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Auditor, H. E. Weyman, Manager, Levis County Railway.

Secretary, L. E. Moreland, Chief Clerk, Hull Electric Co., Hull, Que.

Official Organ, Canadian Railway and Marine World, Toronto.

June 2, Friday.—9 a.m. Inspection of exhibits.

10 a.m. Paper on Motor Buses and Trackless Trolleys, by D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co. Discussion to be led by M. W. Manz, Ohio Brass Co.



George Kidd,
General Manager, British Columbia Electric Railway, and Honorary Vice President, Canadian Electric Railway Association.



Major F. D. Burpee,
Manager and director, Ottawa Electric Railway, and Vice President, Canadian Electric Railway Association.

erintendent of Rolling Stock, Montreal Tramways Co. Discussion to be led by M. W. Manz, Ohio Brass Co.

11.30 a.m. Moving pictures, "The Ro-

mance of the Rail and Power," by Canadian Westinghouse Co.

12.30 p.m. Inspection of exhibits.

2.30 p.m. Paper on Welded Track Joints, by E. B. Entwistle, Loraine Steel Co. Discussion led by W. F. Graves, Chief Engineer, Montreal Tramways Co.

3.30 p.m. Moving picture exhibit, by National Saffy League and Dominion Wheel & Foundries Ltd.

4.30 p.m. Trip to Quebec Bridge, by steamboat, for members, associate members and ladies. Light refreshments will be served.

6 p.m. Inspection of exhibits.

9 p.m. Reception and ball at Chateau Frontenac. Tickets \$2.

June 3, Saturday.—9 a.m. Inspection of exhibits.

10 a.m. Unfinished business, and election of officers.

To be followed by a trip to Montmorency Falls and Ste. Anne de Beaupre, and, for those who desire it, a trip to the Saguenay.

Exhibits by Manufacturers.

As stated in previous issues, exhibits of electric railway supplies, etc., will be shown, for the first time, in connection with the meeting, and the whole ground floor of the Drill Hall on Grand Allee will be devoted to them. R. Mayne-Reade, chairman of the exhibits committee, has displayed great energy, and spent a large amount of time, in arranging for the location of spaces, dividing of them off, decoration of the hall, the supply of d.c. current, and the innumerable details involved. Through his courtesy, Canadian Railway and Marine World is able to give a diagram of the ground floor of the Drill Hall, showing the exhibit spaces, and also considerable information about most of the exhibits. The following are the numbers of the spaces allotted up to April 19, the names of the exhibitors, the principal things they will exhibit, and their representa-

valve, circuit breakers and parts for operating same, accessories and repair parts of street railway motors, showing coils and photographs of installations and equipment. G. F. Foot, Assistant to Manager of Sales; T. F. Dryden, Manager, Toronto office; H. T. Gibbs, Sales Engineer, and H. A. Cooch. The Canadian Westinghouse Co. will also provide a film entitled "The Romance of the Rail and Power," which will be shown as a moving picture on June 2, at 3.30 p.m.

4. Ohio Brass Co., Mansfield, Ohio. P. A. Hinds, Canadian Representative.

5. Taylor Electric Truck Co., Troy,

Corporation, Toronto. Armature coils, car seats, electric car heaters, gear cases, pneumatic door and step mechanism, tail light signs, trolley catchers and retrievers. F. J. Neale and D. M. Galloway, Vice Presidents; W. E. Foreman, Sales Manager; A. F. McLachlin, Montreal representative. National Pneumatic Co., Philadelphia, Pa. Messrs. Casey and Paul, Nichols-Lintern Co., Ohio. North center of hall.

11. Canadian Car & Foundry Co., Montreal. O. C. Rehfsuss, Mechanical Engineer.

12. Witherow Steel Co., Pittsburg, Pa. Rolled tie rods. W. C. Emory, Metallurgist.

14. Canadian Street Car Advertising Co., Montreal. A. S. Laing.

15. Don M. Campbell, railway equipment, Preston, Ont.

17. Southam Press Ltd., Montreal. Tickets and transfers, posters, hangers, booklets. W. W. Southam, Manager. R. B. Cairns, representative.

South Center of Hall.

18. Canadian Cleveland Farebox Co., Preston, Ont. Models of fareboxes. M. C. McElligott, President and General Manager; L. L. McElligott, Vice President and Secretary; E. M. Ross, Superintendent.

Universal Lubricating Co., Cleveland, Ohio. C. B. Arthur, President; H. H. Lytle, and M. C. McElligott, Canadian representative.

19. Canadian National Carbon Co., Toronto. A. M. McKenzie, General Sales Manager.

20. Standard Underground Cable Co. of Canada, Hamilton, Ont. R. M. Dewhurst, Assistant Manager of Sales; H. C. Barber, Manager, Ontario district; G. Kirlin, Manager, Eastern district.

21. Canadian Brill Co., Preston, Ont., and J. G. Brill Co., Philadelphia, Pa.

22. Eugene Philips Electrical Works, Montreal. R. H. Balfour.



The Drill Hall, Quebec.

N.Y. John Taylor, President.

6. Ottawa Car Manufacturing Co., Ottawa, Ont. Trolley wheels, trolley harps, journal brasses, motor bearings, controller fingers, seats, trolley ears, cross over switches, toggle springs, step treads, sash and anti-rattlers, no-staff brake, car fittings and trimmings. W. H. McIntyre, Manager; F. S. Beattie, Superintendent, Car Department.

7. Canadian General Electric Co., Toronto. W. G. Gordon, Railway and Traction Engineer.

8. Lyman Tube & Supply Co., Montreal.—Anti-climbers, ball and roller bearings, brakes, car destination route and

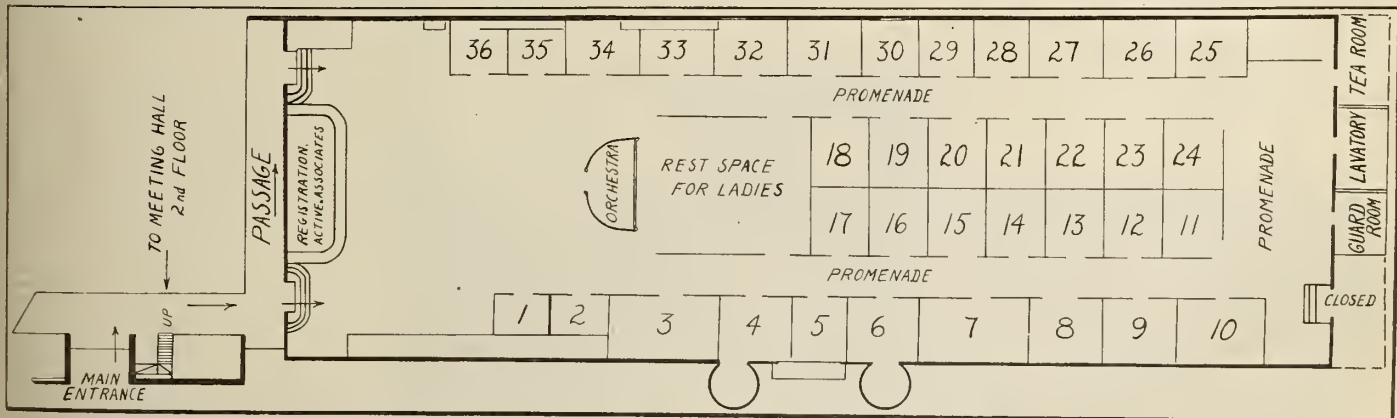


Exhibit Spaces in Drill Hall at Quebec, in connection with Electric Railway Association's Annual Meeting.

tives' names. Where full data is not given, it is owing to the fact that the exhibitors have not supplied it in time for this issue.

North Side of Hall.

1. Canadian Railway and Marine World, Toronto, the Canadian Electric Railway Association's official organ. Acton Burrows, Proprietor; A. A. Burrows, Business Manager.

2. Electric Traction, Chicago, Ill. C. L. Van Auken, Editor and Business Manager.

3. Canadian Westinghouse Co., Hamilton, Ont. Accessories for safety cars, showing door opening engine, engineer's

route number signs, car lighting fixtures, car signal system, carbon brushes, cord connectors, commutators, slotting files and truing stones, foot gongs, gears and pinions, gear cases, griplock chain, hand strap covers, headlights, life guards, lightning arrestors, mechanical ties, oilers, rattan for snow sweepers, roll and block chain, sand traps and valves, steel tubing, trolley bases, trolley catchers, trolley cord, trolley wheels. Hugh Millar, Managing Director; H. M. Fierro, Sales Engineer.

9. Dominion Wheel & Foundries Ltd., Toronto. F. J. Neale, Vice President.

10. Railway and Power Engineering

24. Canadian Steel Foundries Ltd., Montreal. Track manufactures, switches, mates and crosses. W. H. Horwood, Sales Manager; O. C. Rehfsuss, Mechanical Engineer; J. I. Reid, General Superintendent.

South Side of Hall.

25. Hunter Joint Block Co., Ottawa, Ont. Mr. Hunter.

27. United States Steel Products Co., Montreal. Sections of street railway rails and special trackwork. A. W. Allyn, Manager, Steel Department; E. B. Entwistle, General Manager Lorain Steel Co., and W. B. Gresham, Manager, Lorain Department, New York.

28. C. E. A. Carr Co., Toronto. C. E. A. Carr.

29. Dawson & C^o., Montreal. J. A. Dawson.

30. J. A. Everell, Quebec. Silent conductor, for electric railway cars, to announce streets and stations. R. MacMahon.

31. Northern Electric Co., Montreal. R. F. Jones.

32. Sarnia Bridge Co., Sarnia, Ont. International steel twin ties. R. M. Norton, President; H. B. Fenton, Vice Presi-

sident; H. H. Norris, Managing Editor.

36. Electrical News, Toronto. W. R. Carr, Ph.D., Managing Editor.

D.c. current will be installed in the

Drill Hall, for the use of those who wish to have moving exhibits, and who have been located on the north side of the hall.

Snow and Ice Plough for Toronto Bus Routes.

The Toronto Transportation Commission's operation of buses, as described in Canadian Railway and Marine World's recent issues, has been facilitated greatly during this winter by the use of an ice and snow removing machine, an illustration of which is given herewith. While the 1921-22 winter has been a comparatively open one in Toronto, there have been a few severe storms, when large quantities of snow accumulated on the roads, and one particularly bad one, which resulted in the disruption of the street car service and left the streets in a very icy and almost impassable condition. The double bladed plough shown was, however, used with good effect during and after these storms, with the result that the bus service suffered no interruption.

The plough's most distinguishing feature are its two blades for the removal of snow and ice. The front blade, supported by the A frame at the front of the truck, may be raised and lowered vertically from the driver's seat, by manipulation of the wheel adjacent to the steering wheel, a corner of this raising and lowering wheel being shown in the illustration. The raising and lowering is done by means of gearing in the quadrant, (to one extremity of which the chain is attached), meshing with worm gearing at the end of the rod extending from the wheel. The front blade may be set at any angle desired.

The blade under the center of the truck may be raised and lowered by the manipulation of the wheel at the center, over the blade. The shaft on which this raising and lowering wheel is mounted has a worm cut on it, which engages the gearing seen, causing the blade to rise or lower as the wheel is turned.

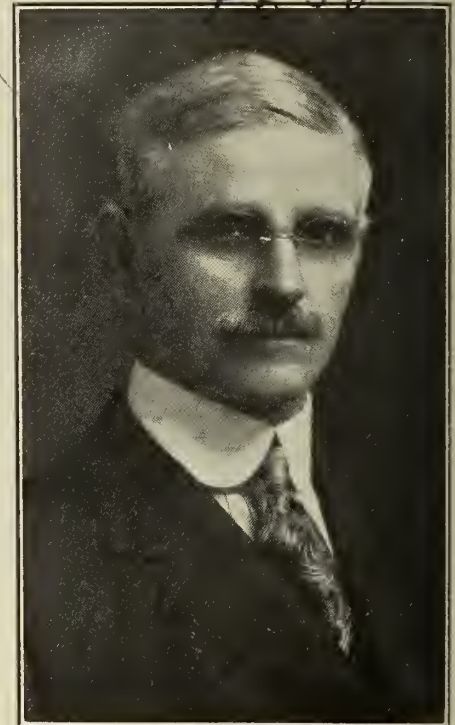
tionally low, 80 to 1.

In operation in heavy drifts, the leading blade is set a little higher than the following one, so that the first one will remove the greater part of the surface



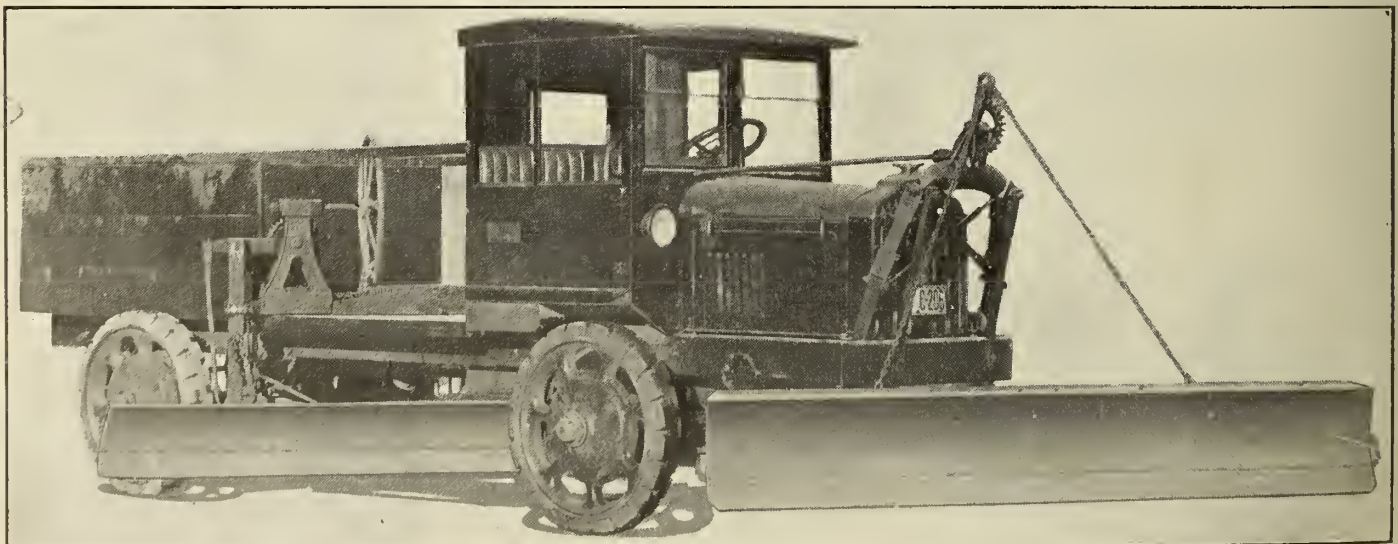
W. J. Lynch,

General Manager, Quebec Railway, Light, Heat, and Power Co., and Chairman, Entertainment Committee, Canadian Electric Railway Association.



R. Mayne-Reade,

Superintendent, City Division, Quebec Railway, Light, and Power Co., and Chairman Exhibits Committee, Canadian Electric Railway Association.



Snow and Ice Plough for Toronto Bus Routes.

dent.

33. Ontario Safety League, Toronto. J. F. H. Wyse, General Manager.

34. Vickers Limited, London, England, and Montreal. R. S. Griffith, Agent and Importer.

35. Electric Railway Journal, New York, N.Y. L. W. Seeligsberg, Vice Pre-

sident. The tractor on which the blades are mounted is of a heavy and rugged design, driven by a 50 h.p. engine, and with the drive transmitted to all four wheels. Five speed transmission is employed. An automatic differential lock is employed, ensuring even application of power to all four wheels. The gear ratio is excep-

tionally low, 80 to 1. snow, leaving to the second one the task of removing the tightly packed snow, and ice. While ploughs similar to this are employed on bus routes in New York City, we are informed that this is the first of this kind to be used in Canada. It was supplied by the Packard Ontario Motor Co., Toronto.

The Toronto Transportation Commission's Activities.

As stated in Canadian Railway and Marine World for April, pg. 202, the Toronto Transportation Commission applied to the City Board of Control on March 15, for sanction no. 3, to authorize the issue of debentures for \$13,542,000 to provide for its construction and rehabilitation programme for 1922. After a conference with the commissioners, and the Commission's General Manager, H. H. Couzens, the Board decided to authorize the issue of debentures for \$10,000,000, the question of issuing further debentures for the balance asked for being deferred for consideration later.

The Commission plans to go ahead aggressively with the rehabilitation started in 1921, and work will be started immediately on the completion of the track layouts at the St. Clair, Danforth and Russell car houses. Work was started on April 15 on rehabilitation of the track on King St. from Sherbourne St. to Spadina Ave., and on April 19 started on rehabilitation of the track on Bloor St. from Lansdowne Ave. to Spadina Ave.; on Gerrard St. from Pape Ave. to Greenwood Ave., and on Parliament St. from Gerrard St. to Winchester St. Work will begin shortly on rehabilitation of tracks on York St. from Queen St. to Front St., and on Church St. from Queen St. to Bloor St. Later in the season, the work will be done on Queen St. between Yonge and Shaw Sts., and on Dovercourt Road, from College St. to Hallam Ave. All of the foregoing work is classified as rehabilitation, which means that the tracks will be completely renewed, from subgrade to rail. Details of the types of track structure adopted by the Commission, and varying according to traffic density and other considerations, were given fully in preceding issues of Canadian Railway and Marine World. In addition to the foregoing, the installing of special work and intersections where necessary throughout the city is being carried on, and work has been begun on the construction of a loop at Queen St. and Kingston Road, in the east end of the city.

To facilitate the hiring of men necessary for rehabilitation work, the Commission opened an employment office, which has been placed under the direction of Dr. S. G. Mills, formerly senior medical officer of the 13th Reserve Brigade at Shorncliffe, Eng. Preference in employment is being given returned soldiers and married men.

An important extension will be undertaken in the near future, when a double track line will be built from Sunnyside to Jane St., near the Humber River, at the west end of the city. It will be located south of the Lake Shore Road, or Toronto-Hamilton highway, and it is expected that details of the transaction involving the acquisition of the right of way will be settled by May 1. This extension will be brought within the single fare zone as soon as completed.

The Commission has bought about 10 acres of land, bounded on the north by Eglinton Ave., on the east by Yonge St., on the west by Duplex Ave., and on the south by Berwick Ave., as a site for large car houses, which will be used for cars operating on Yonge St., and it is probable that when they are ready for occupancy the present Yorkville car house will be closed.

Plans are nearing completion for machine shops, to cost in the neighborhood

of \$1,000,000 and to be located at Davenport Road and Bathurst St. It has not been decided when tenders will be called for and construction begun.

In connection with new equipment, it is said that the intention is to order about 250 new double truck cars similar to those obtained in 1921, but at the time of writing (April 20), details had not been settled. The rehabilitation of rolling stock operated formerly by the Toronto Ry. Co. is described fully in another article in this issue, and as therein stated, this work is about completed. An important addition to equipment was made recently by the purchase in the United States of 8 differential dump cars, with single end tower and control, and 18 cu. yd. capacity. Their tilting bodies are divided into 3 compartments, each with its own side doors, so that different kinds of material may be hauled in the same car at the same time. Their traversing and tilting mechanism is electrically operated by a small motor, which is automatically controlled by a reversing switch.

The Commission removed to its new offices in the old Board of Trade Building, at the corner of Yonge and Front Sts., from the old offices at 229 Yonge St., April 8. The building has been named the Public Utilities Building. The Commission has also acquired adjoining properties on both Yonge and Front Sts., viz., 37, 39 and 41 Yonge St. and 10 and 12 Front St., and has a frontage on Yonge St. of 185 ft. and on Front St. of 170 ft. The old Board of Trade Building has been thoroughly overhauled, provided with a new layout and made as fireproof as possible, and the Commission is occupying the whole of it, except the ground floor. It is contemplated to build a wing 64 x 114 ft. and 10 stories high on Front St., and when the plans are fully carried out the Toronto Transportation Commission and the Toronto Hydro Electric System will both be housed in the combined buildings.

Brandon Municipal Railway May Cease Operating.

There is reported to be some talk in Brandon, Man., of discontinuing the street car service. At a recent meeting of the city council T. Boden, Superintendent, presented a report dealing with the position of the railway, which is stated to have shown that for the years 1913 to 1920 the railway just paid operating expenses, and that for 1921 there was a loss of nearly \$15,000 in operating due largely to the higher cost of power.

Brandon Municipal Ry. has 9.90 miles of single track, and has 10 closed cars, 10 open cars, and 1 sweeper. The capital outstanding consists of a bond indebtedness of \$450,000. The following figures show the operations for the calendar year 1920:—

Passenger revenue	\$44,016.40
Miscellaneous transportation	400.00
Other than transportation	802.75
	\$45,219.15
Operating expenses	50,379.99
Loss on operation	\$5,160.84
Interest on funded debt	21,000.00
Interest on floating debt	667.45
Reserves and special charges	10,759.43
Total loss	\$37,587.72
Car mileage	261,512
Fare passengers carried	809,024
Transfer passengers carried	26,000

Manitoba Public Utilities Commission Abolished.

As stated in Canadian Railway and Marine World for April, pg. 205, the Manitoba Legislature passed a resolution March 14, censuring the Government for not having put into effect a resolution of the Legislature, passed April 28, 1921, directing the winding up of the Public Utilities Commission's affairs and the transfer of the Commissioner's duties to the Provincial Secretary's Department. Following this vote the Premier tendered the Government's resignation, but an arrangement was made under which the Ministers would continue in office until estimates could be passed, and certain routine business completed. The estimates contained \$12,765 for the Public Utilities Commission, and on March 22, P. A. Talbot proposed that this amount be reduced to \$6,000 and that the office closed immediately, but further consideration was adjourned. The matter came up again, March 27, when a sum not exceeding \$42,265 was voted for salaries, supplies and expenses (Public Utilities Commission) in connection with the Attorney General's Department for nine months ending Aug. 1922. It was under discussion again on April 29, when the estimate for the continuation of the office was eliminated, and discussion followed as to whether or not legislation would be introduced to repeal the act under which the Commissioner was appointed. It was finally determined that the office of Public Utilities Commissioner be abolished. The Attorney General's Department is reported to have notified the Commissioner, P. A. Macdonald, to cease operations under the act on May 31. The act providing for the appointment of a commissioner has not been repealed.

Jurisdiction Over British Columbia Electric Railway.

The bill for the amendment of the Vancouver, Fraser Valley and Southern Ry. Co.'s act of incorporation, which is the British Columbia Electric Ry. Co.'s application to bring its entire undertaking under the jurisdiction of the Dominion Government, was read a first time in the House of Commons, April 5, and a second time on April 7, after which it as referred to the railway committee.

The bill is being opposed by the Union of Canadian Municipalities, the Union of British Columbia Municipalities, and the British Columbia Government, as well as by municipalities within which the B.C. Electric Ry. operates, with the exception of the City of Victoria. It is stated that while the Victoria City Council is not opposing the bill its attitude is not one of sympathy with the provisions. The position taken by the Union of Canadian Municipalities is that the bill, if adopted by Parliament, would void provincial and municipal control of highways and traffic and place the company and its subsidiaries for the future under the Board of Railway Commissioners of Canada's jurisdiction. Agreements and contracts between the companies concerned and the municipalities served, covering tramway, service, fares, rates for electric light, power and gas would be immediately abrogated and the municipalities would thereafter be compelled to go to Ottawa for a decision on matters which are of purely local concern.

Marine Department

General Shipbuilding Matters Throughout Canada.

Canadian Vickers Ltd., Montreal.—The dredge which is under construction at this yard for the Marine Department's service in the St. Lawrence River, and which was ordered before the war, is approaching completion. It was intended originally to utilize the dredge in the deepening of the channel between Quebec and Montreal, but it is now reported that it may not be used for this work, at any rate for the present, but may be assigned to work elsewhere. The original contract price was \$850,000.

Six ships which are being overhauled for the George Hall Coal Co., were expected to be completed and handed over for operation about the end of April, or early in May.

Davie Shipbuilding & Repairing Co., Lauzon, Que.—A Montreal press dispatch of April 19 states that the suit between this company and the French Government had been settled out of court.

Dominion Government Shipyard, Sorel, Que.—The Minister of Marine gave the following information in the House of Commons, April 13, in answer to questions by R. B. Hanson, York-Sunbury, N.B. There have been no actual dismissals of employees at Sorel shipyard since Dec. 29, 1921. The services of a number of employees were discontinued temporarily since that date; the names of the persons whose services have been discontinued have been filed with the Clerk of the House. A number of persons have been taken on as employees at the shipyard since Dec. 29, 1921, their names being given on a list which has also been filed with the Clerk of the House.

Dougherty & Dowkes, Owen Sound, Ont., have built a small steamboat on the site of the old drydock during the winter, for fishing service about Pyette's Point. She is 45 ft. long, and 10 ft. beam. A 4-cylinder gasoline engine is to be installed.

W. R. Menchions & Co., Vancouver, B.C., launched a power boat for Powell River Co., April 11. Her dimensions are, length 132 ft., breadth 19 ft., draft 8½ ft. She is equipped with engines of 200 h.p., driving twin screws, and developing a speed of about 15 knots. She is to be used between Vancouver and Powell River, and another boat of a similar type, but somewhat smaller, is now under way, by the same builders and for the same owners.

Port Arthur Shipbuilding Co., Port Arthur, Ont.—The keel of the freight steamship which this company is building for the Mathews Steamship Co., Toronto, was, according to a Port Arthur press report of April 3, expected to be laid during April, and it was also stated that the ship will be ready for launching in August, and will be named Mathews-ton.

Prince Rupert Drydock & Shipbuilding Co., Prince Rupert, B.C.—The Minister of Marine gave the following in the House of Commons April 3, in answer to R. J. Manion, Fort William and Rainy River, Ont.:—No claims are outstanding against the Canadian Government Merchant Marine ships built at Prince Rupert. There are, however, claims by out-

side creditors outstanding against the Prince Rupert Dry Dock & Shipbuilding Co., the contractors for building the ships. The Marine Department is not definitely advised as to the exact amount of these claims. They are represented as amounting to between \$430,000.00 and \$450,000.00. The Attorney General of British Columbia has requested settlement on behalf of the community and in the hope that satisfactory arrangements for continuing the enterprise at Prince Rupert might be made possible. The Attorney General of B.C. is not acting for the B.C. Government.

Reid Newfoundland Co., St. John's, Nfld.—The s.s. Portia, which has been undergoing repairs in the company's dry-

Dominion Marine Association.

Honorary President, A. A. Wright, President, Tidewater Shipbuilders, and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

President, T. R. Enderby, Operating Manager, Canada Steamship Lines, Montreal.

First Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Second Vice President, G. J. Madden, George Hall Coal Co. of Canada, Ogdensburg, N.Y.

Executive Committee, The President, First and Second Vice Presidents, and W. E. Burke, Canada Steamship Lines, Montreal; Yvon Dupre, Sincennes-McNaughton Line, Montreal; M. J. Haney, Canada Steamship Lines, Toronto; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transports, Montreal; Honorary members, L. L. Henderson and A. A. Wright, Montreal.

Counsel, Francis King, K.C., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

dock, was completed April 10. Extensive repairs to bottom plating and frames were undertaken, and several new plates were placed, as well as a new section of the keel, and a new smoke stack.

Smith & Rhuland, Lunenburg, N.S., launched the schooner Mahaska, March 28, for W. C. Smith & Co. Her dimensions are,—length overall 133 ft., length on water line 108 ft., beam 25.8 ft. She will have a spread of canvas of 2,235 yards, and it is possible that she will be one of the entrants for the annual fishing schooner race.

Victoria (B.C.) Shipowners Ltd.—The Minister of Marine stated in the House of Commons March 24, in answer to questions by W. Duff, Lunenburg, N.S., respecting wooden sailing ships built at Victoria, in which the Government is interested, that one named S. F. Tolmie has been completed, net tonnage 1,497.08. Construction has been suspended on two hulls, and part of the material is on the building site for another hull. The Finance Department advanced and expended \$639,131.49 on the four ships to the end

of Feb. 1922. This amount was not apportioned to each ship, but applied to the four. The advances are secured by mortgages and the Government is still interested in the ships. There is no market at present for their sale.

Capt. M. D. Harbord, President, has resigned and is reported to have stated that he was leaving the company on account of pressure of private business and of lack of tangible success in his efforts to right the company's affairs. The company was formed to build 4 wooden barquentines under special aid from the Dominion Government, but got into financial difficulties before the completion of the first ship. Efforts have been made to persuade the Government to continue the shipbuilding and grant increased aid, but up to the present no decision on the matter has been announced.

Yarrows Ltd., Victoria, B.C., did the following repair and overhaul work during March:—Cameron-Genoa Mills Co., tug Des Brisay, repairs to bottom caused by being submerged; Canadian Government Merchant Marine, Canadian Freighter, cleaning, painting and sundry repairs; Canadian Observer, cleaning, painting and sundry repairs; Canadian Prospector, drydocking, cleaning, painting and sundry repairs; Canadian Transporter, cleaning, painting and sundry repairs; Dominion Government, Madge, docking, cleaning, painting and sundry repairs; Restless, cleaning, painting, caulking and general repairs; Imperial Oil Ltd., Calgarolite, survey, Government inspection, general repairs and boiler work; Talaralite, general overhaul, drydocked, cleaned and painted; A. O. Lindvig, Romulus, docking, cleaning, painting and sundry repairs; Pacific Construction Co., tug Burrard Chief, repairs to hull and boiler, due to collision; Union Steamship Co. of British Columbia, Cowichan, alterations to interior, new baggage trunk installed and steam hoists fitted.

Gyroscopic Stabilizer for Passenger Ships.—It is reported that the U.S. Shipping Board is to have a gyroscopic stabilizer installed on one of its passenger steamships in the trans-Atlantic service. It is claimed that the instrument will allow of the removal of the bilge keels, and save approximately 2,000 h.p. The instrument is 12 ft. in diameter, weighs about 100 tons, and will make about 850 revolutions a minute. The estimated cost of the installation is \$150,000.

Lancastrian Steamship Co. has been incorporated under the Ontario Companies Act, with \$40,000 authorized capital, and office at Toronto, to build, own and operate ships and to carry on a general navigation and transportation business. The provisional directors are:—J. A. Kent, G. M. Jarvis, and A. K. Russell, Toronto.

The Canadian Navigators Federation, Eastern Division, held its annual meeting at Halifax, N.S., March 22. Officers were elected as follows:—President, L. A. Doyle; Vice President, W. Matthews; Treasurers, M. T. Murphy; Secretary, W. A. McInnes; Solicitor, L. A. Forsythe.

Esquimalt Drydock Construction.

Hon. S. F. Tolmie, Victoria City, B.C., said in the House of Commons, April 3:—"Before the orders of the day are called, I would like to direct the attention of the leader of the Government to an article appearing in the press this morning to the effect that work on the Esquimalt drydock has been ordered stopped. In that connection I will read a wire from the Associated Boards of Trade of British Columbia, dated Victoria, March 31, as follows:—'Whereas it has been brought to our notice that the Federal Government has ordered the suspension of work on the building of the Government drydock at Esquimalt; also we understand that the work on the floating drydock at the Wallace shipyards, North Vancouver, has been discontinued by order of the Government; and exceedingly

ported to be a telegram from myself to the secretary of some organization in Victoria with regard to this matter. I should like to make it plain that I have not sent any communications at all; possibly the message referred to was sent by one of my colleagues and the press has got the Kings mixed. But the substance of this telegram attributed to me indicated that the matter was receiving the attention of the Government. We have thought it advisable to have a report on the situation as it affects the dry docks of Victoria and Vancouver before proceeding further with the work. The matter is under consideration."

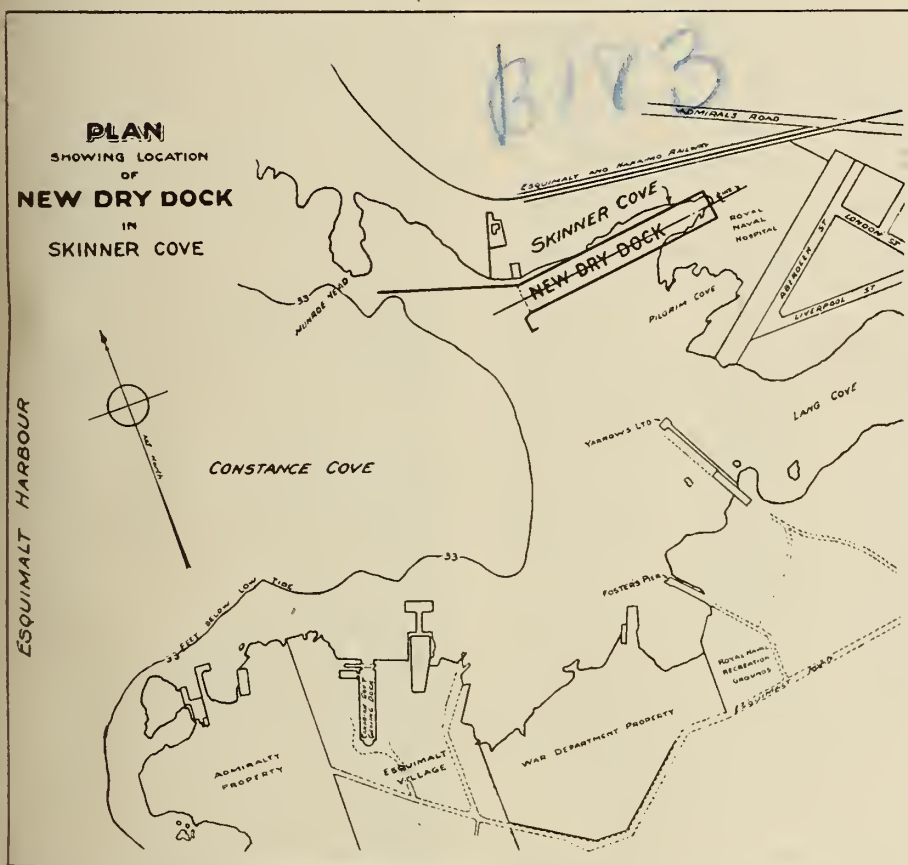
Canadian Railway and Marine World is officially advised that the general contractors, P. Lyall & Sons Construction Co., who commenced work on the dry-

two inner stops to allow it to be divided into two berths, 400 and 750 ft. long respectively, if desired, and a landing wharf, 800 ft. long, adjoining.

The stoppage of the work has caused great dissatisfaction in Victoria and Esquimalt, which culminated in the sending on April 13, of a delegation consisting of Hon. John Hart, British Columbia, Minister of Finance; H. C. Hall, K.C., W. M. Ivel and T. Booth to Ottawa to protest against it and to urge resumption.

P. Lyall Construction Co.'s directors, on March 31, passed the quarterly dividend of 1% due April 10, one of the reasons given being that the Dominion Government had not provided in its estimates for the continuance of work on the Esquimalt drydock. Officials of the company stated that an item had been included in the estimates up to the last moment, and that there is a possibility of it being inserted in the supplementary estimates, but this was not regarded as being tangible enough to warrant a declaration of a dividend under present conditions. It was also stated that if the Government fails to provide for the carrying on of the work, it will constitute a basis for a substantial claim by the company.

The sites of the existing drydock at Esquimalt, and of the other one on which construction has been started, are shown in the accompanying plan.



regretting that the Government has seen fit to stop both of these important works, especially seeing that at Esquimalt they have already expended approximately \$1,500,000; therefore be it resolved that this meeting request the Government to immediately reconsider their decision in order that these important and necessary works for the development of the ports of Victoria and Vancouver be proceeded with as rapidly as possible.' This telegram clearly indicates that the matter is one of great importance not only to the ports mentioned, but also to the great shipping interests of the Pacific Coast. I should be very glad indeed, therefore, to receive from the leader of the Government some statement as to what the Government intends to do in this connection."

Premier King replied:—"I saw in this morning's paper the dispatch to which my hon. friend has referred. I also noticed a communication which was re-

dock about a year ago, discontinued it on March 31, under the Public Works Department's instructions, up to which date they had about 350 men employed. All the dredging on the site of the wharf and entrance channel had been completed and the inner half of the dock site had been enclosed by a cofferdam, in which excavation work has been proceeding for some months. An outer cofferdam, to enclose the balance of the work, was also under construction. The excavated material has been used to build the rubble mound for the landing wharf cribs to be placed on and to reclaim seven acres of land adjacent to the landing wharf for machine shops, industrial sites, etc. The rubble mound for the landing wharf was about completed and the five timber cribs sheeted with reinforced concrete, of which the wharf will be composed, were almost ready to be placed on the mound. The plans provide for a dock 1,150 ft. long, and 135 ft. wide, with

Welland Ship Canal Construction.

The Minister of Railways and Canals gave the following information in the House of Commons April 10 in answer to questions by T. L. Church, North Toronto:—Approximately 70% of the total work on the new Welland Ship Canal remains to be done. This comprises the completion of sections 1, 2, 3, 4 and 5; the construction of secs. 6, 7, 8 and 9; the lock gates, superstructures of bridges and minor details. Approximately 30% of the total work has been completed. This comprises 63% of the work on secs. 1 and 2; 51% of the work on secs. 3 and 4; 72% of the work on sec. 5. The gross amount expended to March 31, 1922, was \$30,588,026.07, less credit for cash received on account of plant and materials, etc., from contractors for secs. 1, 2 and 5, \$1,149,761.25; less further amount to be paid by contractors for secs. 1, 2 and 5 in accordance with their contracts on account of plant, etc., \$952,883.11, and less estimated value of plant, etc., to be taken over by contractors for secs. 3 and 4, \$2,151,655.88, making the net expenditure upon work done to March 31, 1922, \$26,333,725.83, which sum includes other redeemable assets.

If ample funds are available for the prosecution of the work, it will be ready for traffic during 1927. It is the Government's intention to finish the canal as soon as circumstances will permit. The work to be done this year will be the construction of locks on secs. 1, 2 and 3 and excavation upon secs. 1, 2, 3, 4 and 5.

St. Lawrence Transportation Ltd. has been incorporated under the Quebec Companies Act, with \$20,000 authorized capital, and office at 10 St. Jean, Montreal, to carry on general transportation business, and to own and operate ships. The incorporators are: L. J. A. Michaud, J. A. Harnois, J. E. Bedard, Quebec, Que.

Ocean, Coast, Lake and River Steamship Officers for 1922.

The following appointments, made by Canadian navigation companies, for their various steamships and tugs, have been reported to Canadian Railway and Marine World, since those mentioned in our last issue. The first column contains the names of the ships, the second, those of the captains, and the third, those of the chief engineers:—

Boston & Yarmouth Steamship Co., Yarmouth, N.S.
 Prince Arthur F. K. Crosby C. J. Tooker
 Prince George A. W. McKinnon E. C. Lynch
 Butler Freighting & Towing Co., Victoria, B.C.
 Grainer W. B. McCartney H. McIlroy
Canadian National Rys. Car Ferry Service, Moncton, N.B.

Prince Edward
 Island J. L. Read J. K. Sutherland
 Scotia No. 2 J. P. Brophy J. Anderson
 L. R. Maquire C. Campbell
Canadian National Rys. Car Ferry Service, Vancouver, B.C.

Canora J. Brown J. E. Blackaller
Germania J. Colbourn R. Thorpe
Sebastian J. McKiernan D. Martin
Canadian Pacific Ry. British Columbia Coast Steamship Service, Victoria, B.C.

Charmer O. Rogers B. F. Osborn
Otter ———— R. Woolcock
Princess Adelaide R. Hunter J. M. Green Shields
Princess Alice S. H. Ormiston R. Moffatt
Princess Beatrice A. Thompson A. Gordon
Princess Charlotte T. O. Griffin J. A. Heritage
Princess Ena T. Cliff W. Neilson
Princess Louise T. Rippon J. Petticrew
Princess Maquinna E. Gillam A. Alexander
Princess Mary W. Boyce W. Harris
Princess Patricia W. Gilchrist W. B. Anderson
Princess Royal C. Sainty J. E. Hill
Princess Victoria R. Bennett W. E. W. Oliver
Canadian Towing & Wrecking Co., Port Arthur, Ont.

A. F. Bowman B. Burke H. McElroy
James Whalen W. Nuttall J. Keenan
Cascade Freighting & Towing Co., Victoria, B.C.
Cascade H. G. Kinnaird G. B. Williams
Crescent Shipping Co., Victoria, B.C.

Leebro Jas. Hunter A. Lees
Export Steamships Ltd., Montreal.
Trevisa P. V. Mahoney J. Robertson
Georgian Bay Tourist Co. of Midland, Midland, Ont.

Midland City J. Oulette S. Beatty
Georgetown Steamship Co., Pictou, N.S.

Magdalen W. Hubley G. Jollimore
Glen Steamships Ltd., Midland, Ont.

Glenarm A. E. Laking W. Smith
Glendowan L. Pregent L. Butler
Glenfarn A. Beatty J. A. McChristie
Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C.

Prince Albert H. E. Nedden G. F. Davis
Prince George D. Donald R. Knox
Prince John J. McKernan H. G. Milvain
Prince Rupert W. S. Morehouse W. E. Baillie
Great Lakes Transportation Co., Midland, Ont.

Glenbrae P. Beatty J. B. Polding
Glencairn M. Stalker M. Dedman
Glenfinnan W. Taylor J. Silverthorne
Glenisla J. Tindall P. Eagles
Glenlivet C. E. Scott R. Sinclair
Glenlyon A. A. Hudson E. Hurl
Glenmavis A. McKay R. Knight
Glenorchy F. Burke G. Price
Gleneshe W. A. Lavigne D. Sinclair
Glenstriven J. A. Brown G. D. Murphy

Hudson's Bay Co., Winnipeg, Man.
Athabasca River E. B. Haight J. Sutherland
Lady Kindersley G. Foellmer G. R. Priestman
Liard River A. A. Deacon W. Venables
Mackenzie River L. Morton C. Ozol
Weenusk A. J. Currie E. Glenn

Imperial Oil Ltd., Toronto (Revised List).
Albertolite J. Colvin N. B. Gebbie
Calcarolite W. R. Smeltzer A. R. Fleming
Imperial H. C. Minns S. E. Brislin
Jocote R. Laing H. R. Welch
Icoma F. A. McMan F. Prinzel
Mina Brea A. Geddes A. McArthur
Royalite C. R. Dyon C. S. Walsh
Sarnolite A. G. Cameron W. L. Hunter
Talarolite F. F. Foote D. J. Dow
Vancolite T. R. Owen L. Hartie
Victolite C. R. Troweck J. E. Langdon

International Petroleum Co., Toronto.
G. Harrison Smith C. M. Rowley F. W. Huntley
Lady Sybil R. Stewart D. L. Havard
Keystone Navigation Co., Kingston, Ont.

Brockville J. E. Rathmun R. Leslie
Keystone Transports Ltd., Montreal.

Keybell L. Beaupre R. J. Mutchmore
Keynor W. V. Smith G. Baker
Keyport A. McGee L. Nordnes
Keyvive E. J. Smith J. Boak

Lachance Limited, Quebec, Que.
Dick T. A. Duchene G. Baron
Earl Bess H. Paquet J. Fiset
Ethel Q. J. E. Bernier M. Fiset

Fraserville W. Allison J. Grenier
J.L.L. (dredge) A. Latulippe P. Thivierge
St. Charles E. Dionne L. Dionne
Leonard Fisheries Ltd., Montreal.

Marjory V. Jas. Lukeman
Levis Ferry Ltd., Levis, Que.

Colomb A. Chabot S. Beaudet
Lauzon N. Thivierge A. Laflamme
Levis A. Forgues N. Lamothe
 G. Chamberland A. Bernier
 O. Fortin F. X. Desrochers

Magdalen Transports Ltd., Pictou, N.S.
R. W. Hendry F. D. Campbell J. J. Anderson
Midland Transportation Co., Midland, Ont.

Lucknow C. Lynn J. Gilbert
Luckport W. Nichollas R. Isbester
Montreal & Cornwall Navigation Co., Cornwall, Ont.

Britannic C. Haite N. Chartier
Morden Transit Co., Midland, Ont.

United Lumberman C. McDonald
Newcastle Steamboat Co., Newcastle, N.B.
Max Aitken R. Cassidy R. W. Stewart
North Vancouver Municipal Ferries, North Vancouver, B.C.

Ferry No. 2 R. R. Spicer D. Becker
Ferry No. 3. W. J. Spracklin W. P. McLaren
Ontario Car Ferry Co., Montreal.

Ontario No. 1 C. E. Redfern D. L. Smyth
Ontario No. 2 F. D. Forrest J. A. Nicholl
Ontario Transportation & Pulp Co., Thorold, Ont.

Linden R. J. Wilson L. Vipond
Marembleddale H. L. Beauvais L. G. Benitez
Pacific Salvage Co., Victoria, B.C.

Alaskan John McLeod G. Wilson
Algerine J. M. Hewison T. W. Allan
James Richardson & Sons Ltd., Kingston, Ont.

Susie Chipman L. Orr G. Verrier
Rockport Navigation Co., Kingston, Ont.
Mississquoi J. A. Carnegie T. Hazlett
Waubie R. H. Carnegie Jas. Gillie
John E. Russell, Toronto.

Erl King H. Davidson N. Maher
Glide O. Marin J. LaChapelle
Jes. L. Russell H. Finn L. Divine
St. Lawrence Transportation Co., Quebec, Que.

Gerald R. T. Thibadeau A. Bouchard
Long Sault J. Forgues D. Laverdiere
Timagami Fur Co., Timagami, Ont.

Keego A. T. Guppy
Union Steamship Co. of British Columbia, Vancouver, B.C.

Camosun A. E. Dickson A. Beattie
Capilano J. Boden P. J. V. Farina
Chasina N. Gray J. Maitland
Cheakamus R. Wilson R. M. Logan
Cheam F. W. Gilbert N. Tweedie
Chelohsin H. J. Stacey G. H. Foster
Chilco H. E. Lawrey R. Rogers
Chilkoot J. Findlay J. Hogan
Chilliwack C. B. Smith A. Edgar
Cowichan G. Gaisford L. P. Thomas
Venture A. Johnstone C. Arthur

West Coast Towing & Salvaging Co., Vancouver, B.C.
Masset H. S. McLellan W. Muir
Moresby J. M. C. Johnson A. Gill

River and Lake Transportation in Northern Alberta and Northwest Territories.

The Hudson's Bay Co.'s schedules for steamboat service on northern rivers and lakes for the ensuing season have been issued, covering services on the Athabasca and Mackenzie Rivers, and connecting and adjacent waters. The Athabasca River services will be given by steamboat, running between Waterways and Fort McPherson, the first trip to Fort Fitzgerald being scheduled to leave Waterways about May 10, and the first through passenger trip to Fort McPherson about June 15. The steamboat to be used on the service has accommodation for 58 saloon passengers, and is equipped with electric light, steam steering gear, and other modern conveniences, with a cargo capacity of 200 tons, and a speed of 13 knots. She is 146 ft. long, with 36 ft. beam. The s.s. Mackenzie River will operate between Fort Smith, Fort Norman oil wells and Fort McPherson, leaving Fort Smith on the first trip, about June 24, the round trip covering about 2,600 miles. Other trips are scheduled from Fort Smith to Fort Simpson about

July 26, and to Hay River about Aug. 8. The Fort Simpson-Fort Liard-Fort Nelson service will be performed by the s.s. Liard River, sailing from Fort Simpson about June 27, on the arrival there of the s.s. Mackenzie River from Fort Smith. One round trip only will be made between Fort Simpson and Fort Nelson, a second trip being made to Fort Liard only. The s.s. Weenusk will make weekly trips from Peace River to Hudson's Hope, and a service will also be given from Peace River to Vermilion Chutes.

The Alberta & Arctic Transportation Co.'s service, will, it is stated, be handled entirely from Waterways, northerly, by the Athabasca River route this year, and W. J. West, General Manager, is reported to have stated that owing to lack of business, the s.s. D. A. Thomas will not be operated for the present, and until further developments occur on the Peace River, she will be laid up. The s.s. Slave River, which was operated on the Peace River last year, will run on the Athabasca River, in conjunction with the motorboat Canadusa, out of Waterways, communication being maintained north of the Fort Smith portage, by the s.s. Distributor, and the motorboat Lady Mackworth. The company is arranging to build a warehouse at Waterways, which is the terminus of the Alberta & Great Waterways Ry. On the Mackenzie River, the s.s. Distributor will make a run to Fort McPherson, and Clavie, in the Mackenzie River delta, taking freight and passengers to the various posts en route. They will be transferred at the Fort Smith portage by the company's tractors, and a number of automobiles will also be operated for passengers.

Canada-British West Indies Service.—Canadian Railway and Marine World for March contained a Dominion order in council passed Feb. 10, providing for a renewal of the previous contract between the Government and the Royal Mail Steam Packet Co. for two years from March 31, 1922 to March 31, 1924. We were officially advised on April 19 that the order in council was communicated to the various British West Indian Governments, and that acknowledgements have been received from the Governments of Bermuda and the Bahamas, and also from the Colonial Secretary of Demerara. At the time of our advice the contract had to be made out and sent to the company's head office in London for signature, and it was expected that it would not be finally completed before the end of May or early in June. The company had not offered any objections to the terms of the proposed renewal.

Coast Steamship Co. (1922) Ltd. has been incorporated under the British Columbia Companies Act, with \$50,000 authorized capital, and office at Victoria, to take over from R. M. Maitland, Vancouver, the steamships Celtic, Clansman and Coaster, and the remains of the s.s. Fingall, and also the assets acquired by him recently from the Coast Steamship Co. Ltd., and to carry on a general navigation and transportation company.

Lights and Fog Signals.—The Marine Department has issued lists of lights and signals on the Atlantic coast, including the Gulf of St. Lawrence, to the head of ocean navigation; on inland waters west of Montreal and east of British Columbia; and on the Pacific coast and British Columbia rivers and lakes, corrected to April 1. Copies may be obtained from the Department at Ottawa.

Canadian Government Merchant Marine Operation, Etc.

Cost of Ships, Operation, etc. — The Minister of Railways gave the following information in the House of Commons on March 29, in answer to questions by W. Duff, Lunenburg, N.S., and J. F. Johnston, Last Mountain, Sask. The total capital cost of all C.G.M.M. ships up to Dec. 31, 1921, was \$73,571,842.27. Sixty-five ships are in commission and 48 are being operated. The net loss on operation during 1921 was \$2,210,724.55, exclusive of depreciation and interest due Government. The following amounts are owing the Government for interest up to and including Dec. 31, 1921, viz:—1920, \$1,741,394.27; 1921, \$3,357,833.39; these figures are computed at 5½% on total capital cost. The following amounts were allowed for depreciation on value of ships, viz., in statements prior to 1921, \$815,841.32; for 1921, at 4%, \$2,342,932.19, a total of \$3,158,775.51. The average cost per day to the Government of ships when not operated is as follows: 2,800-ton type, \$163.12; 3,400--3,950-ton type, \$226.38; 4,400-ton type, \$274.23; 5,100-ton type, \$296.08; 8,100-ton type, \$422.72; 10,500-ton type, \$572.87. All these figures include watchmen's wages, insurance, interest and depreciation. Two passenger ships on West Indies trade, Canadian Fisher and Canadian Forester, cost \$399.56.

We are officially advised that the 17 ships not in operation are located as follows: Canadian Voyageur, Canadian Signaller, Canadian Gunner, Canadian Miner, Canadian Sealer, Canadian Settler, Canadian Warrior and Sheba, Northwest Arm, Halifax, N.S.; Canadian Recruit, River St. Lawrence near Stone Pillars; Canadian Adventurer, Port McNicoll, Ont.; Canadian Engineer, Canadian Sailor, and James A. McKee, Goderich, Ont.; Canadian Pathfinder, Canadian Sower, Canadian Trader, and Thomas J. Drummond, Midland, Ont.

Insurance.—The Minister of Militia and Defence gave the following information in the House of Commons, April 3, in answer to questions by H. Marler, St. Lawrence-St. George, Montreal: The insurance carried on Canadian Government Merchant Marine ships owned by the Dominion Government is \$41,310,720, which was placed Jan. 1, 1922, with 30 English companies of good repute and 4 United States companies, as follows:—Globe & Rutgers Fire Insurance Co., Franklin Fire Insurance Co., Philadelphia, Springfield Fire & Marine Insurance Co., and Aetna Insurance Co. The insurance was placed through Willis Faber & Co. of Canada, Montreal, as brokers. The premiums were in sterling £303,096 16s. 10d., and in dollars \$144,111.63 additional.

Officers of Steamships.—The following engineers have been appointed in addition to those mentioned in previous issues:—Canadian Harvester, R. C. Prydie; Canadian Logger, S. Gruzelier; Canadian Pioneer, T. Duguid; Canadian Raider, E. G. Rankin.

Canadian Trasher Ltd., incorporated to own the ship which was originally named Canadian Thrasher, but which was renamed Canadian Britisher about the time of its completion, has had its corporate name changed to Canadian Britisher Ltd.

Montreal Sailings.

To Liverpool — Canadian Conqueror, May 5; Canadian Explorer, May 13; Can-

adian Leader, June 2; Canadian Cruiser, June 16; Canadian Commander, June 30.

To London—Canadian Volunteer, May 4; Canadian Challenger, May 18; Canadian Ranger, June 1; Canadian Conqueror, June 15; Canadian Challenger, June 29.

To Glasgow—Canadian Navigator, May 6; Canadian Otter, May 20; Canadian Seigneur, June 3; Canadian Carrier, June 17; Canadian Volunteer, June 24.

To Cardiff and Swansea — Canadian Squatter, May 23; Canadian Runner, June 6; Canadian Navigator, June 27.

To Australia and New Zealand—Canadian Planter, May 23; Canadian Explorer, June 28; Canadian Spinner, July 26.

To Barbados, Trinidad and Demerara—Canadian Beaver, May 10; Canadian Logger, May 24; Canadian Harvester, June 7; Canadian Coaster, June 21.

To Nassau, Kingston and Belize — Canadian Fisher, May 10; Canadian Forester, May 31; Canadian Fisher, June 21; Canadian Forester, July 12.

To Newfoundland—Canadian Sapper, May 6 and 27.

Vancouver Sailings.

Australia and New Zealand Service—Canadian Britisher, May 11, Auckland, Sydney, Melbourne, Adelaide. Canadian Skirmisher, June 15, Auckland, Sydney, Melbourne.

Oriental Service — Canadian Highlander, May 5, Yokohama, Shanghai.

India Service — Canadian Importer, May 30, Calcutta, Bombay.

Nova Scotia-Boston Service. — Nova Scotia members of Parliament waited on the Dominion Government, April 7, to discuss the question of better steamship accommodation for eastern ports. It was requested that the Canadian Government Merchant Marine s.s. Canadian Mariner, now laid up at Halifax, be placed in service between Nova Scotia ports and Boston, Mass., to carry live lobsters and other sea food, at a fair freight rate. It was stated that the deputation left with the expectation that a ship will be put on the route if it can be shown that there is sufficient trade to warrant it.

Mainly About Marine People.

Capt. D. Baird, President, Victoria and Vancouver Stevedoring Co., Vancouver, B.C., was elected President of the Northwest Waterfront Employers' Union at the recent annual meeting at Portland, Ore. A. M. Dollar, is Vice President for British Columbia.

Capt. Jos. Blois, master of the G.G.S. Stanley, has retired from active service, after about 51 years of seafaring life, 20 of which have been in Dominion Government service. He was presented March 30, with a travelling bag by the crew.

C. S. Boone, President, Boone Dredging & Construction Co., Toronto, died there, April 16, aged 67. He carried out a number of extensive dredging operations, mainly on the Great Lakes, for the Dominion Government, and was associated with the Toronto Shipbuilding Co., which built the wooden s.s. War Toronto, for the British Government, under order from the Imperial Munitions Board.

Capt. T. Bourassa, harbor master, Montreal, has retired after having been in the service for 30 years, as deputy

harbor master and harbor master. He was born at La Prairie, Que., in 1851, and was appointed deputy harbor master, Montreal, in 1892, and harbor master in 1914.

W. Carson, who died at Midland, Ont., April 16, aged 72, was a well known diver on the Great Lakes, and during the war acted as Dominion Government inspector of wooden ships which were built for war purposes.

Dr. W. Bell Dawson, Superintendent, Tidal and Current Survey, Naval Service Department, Ottawa, sailed from St. John, N.B., on the C.P.R. s.s. Melita, on his way to Rome, Italy, where he will represent Canada at the International Science Conference.

Mrs. G. H. Flood, wife of the Purchasing and Contract Agent, Marine and Fisheries Department, Ottawa, died there March 29, and was buried at St. John, N.B., her native place. She was a sister of George McAvity.

Capt. W. E. George, a veteran master mariner of the Pacific Coast, died at Victoria, B.C., recently, aged 88. He came from England in 1878 and settled in Victoria.

E. Hawken, Assistant Deputy Minister of Marine, and Frank McDonnell, Chairman, Board of Steamboat Inspection, are expected to return to Ottawa about May 1, from an official trip to Great Britain.

A. S. Hawker, Superintendent of the C.P.R. Bay of Fundy Steamship Service, died in the Infirmary, St. John, N.B., March 11, after a short illness. He had been in C.P.R. service over 40 years.

J. G. Macphail, B.A., B.Sc., Commissioner of Lights, Marine and Fisheries Department, returned to Ottawa, early in April, from Great Britain.

F. J. McClure, Passenger Traffic Manager, Robert Reford Co., Ltd., returned to Montreal at the end of March, after a ten weeks trip to the British Isles and European continent.

Thos. McConkey is acting as Chairman, Board of Steamship Inspection, Marine and Fisheries Department, Ottawa, during the absence in England of Frank McDonnell.

Jas. Playfair, President, Great Lakes Transportation Co., has been re-elected President of the Golf and Country Club at Midland, Ont.

Capt. D. Sutherland, master of the Imperial Oil s.s. Victrolite, died of pneumonia, aboard his ship, April 3, when bound from Port Lobos, Mexico, to New York, and was buried at Keywest, Florida. He was well known in Halifax, N.S., from whence his ship frequently sailed, and he had been in the company's service for a number of years, in command of its various steamships, being transferred from the s.s. Impoco to the Victrolite about four months ago.

A. R. Tibbitts, Inspector of Harbor Commission, Marine and Fisheries Department, Ottawa, is acting as Assistant Deputy Minister of Marine and Fisheries during the absence in England of E. Hawken.

J. W. Troup, Manager, British Columbia Coast Steamship Service, C.P.R., accompanied by Mrs. Troup, returned to Victoria, April 9, after a trip to China, Japan, Straits Settlements, and the Dutch East Indies.

Mrs. Jos. Whalen, mother of James Whalen, President, Port Arthur Shipbuilding Co., Port Arthur, Ont., died at Vancouver, B.C., April 5, aged 71.

United States Merchant Marine Affairs.

The position in which the U.S. Shipping Board found itself following the somewhat hysterical shipbuilding programme carried out in the later months of the war, and since, has been clarified to a considerable extent by the Merchant Marine Act 1922, some details of which were given in our last issue. The main principle of the act is to provide for the sale of the ships built, to private owners, and to provide what may be termed subsidies in regard to their operation, in the way of more or less indirect aids. The act of 1922 must be considered in conjunction with the act of 1920, commonly called the Jones Act, of which it is practically an amendment. The 1920 act, sec. 34, provided for preferential tariffs for merchandise carried in U.S. bottoms, but to have carried out the intention of this section, it would have been necessary to abrogate a number of international commercial treaties, which forbid preferential tariffs, but this, both the present and past Presidents did not consider to be in the national interest. The 1922 act therefore confines itself to the provision of indirect aids for the establishment of the merchant marine.

The 1922 act provides for the sale of the ships at such prices, to U.S. citizens, except as otherwise provided, as the Board may prescribe, the payment of the purchase price, with interest at not less than 2%, not to be deferred for more than 15 years. The intention is that the ships shall be sold at world prices, so that in capital account they shall not stand, to the purchaser, at more than foreign owned ships of similar type. With the exception of 23 combination passenger and cargo steamships, and some former German owned ships, the Board has only cargo ships, so that the disposal of them does not affect the passenger carrying trade to any extent. The main indirect aid provided, in lieu of that dealt with under sec. 34 of the Jones Act, is the deduction of 5% of all freight receipts for inbound and outbound traffic on U.S. ships, from income and corporation taxes. This, it is claimed, will benefit everybody concerned, including the farmer, the manufacturer, the importer and exporter, and the shipowner, giving a preference to U.S. ships, and ensuring full cargoes.

With regard to immigration traffic, it is provided that when 50% of the number of aliens of any nationality, admissible in any one year under the immigration laws, shall have been transported from foreign ports, in any other than U. S. ships, no more shall be admitted unless they shall have been transported in U.S. ships. Where, however, there are inadequate U.S. shipping facilities with any foreign countries for immigration traffic, the percentage above mentioned, may be increased up to 100%, and when a foreign nation possesses no ships engaged in emigration traffic to the U.S., the percentage above mentioned may be reduced to whatever percentage the Board may determine. This means that 50% of the admissible immigrant traffic to the U.S. from nations engaged in that traffic, will be allowed to travel in foreign ships, and that immigrants to the U.S., from foreign nations, not owning ships, which include a number of the Central European countries, from which there is a large number of immigrants, must travel in U.S. ships.

Other provisions of the act cover the

creation of a merchant marine naval reserve, the transport of army and navy officials, and of U.S. officials generally, in U.S. ships, and other matters, and also authorize the payment out of the merchant marine fund, of "compensation" in order to aid in the development and maintenance of the merchant marine, as follows:—To the owner of every sail, or power driven ship of 1,500 gross tons or more, registered in the U.S., and owned by a U.S. citizen, and operated in the foreign trade, half a cent for each gross ton of such ship, for each 100 nautical miles travelled; whenever such power driven ship is capable of a speed of 13 knots or over, on light draft, the compensation payable shall be calculated as follows:—for 13 knots and less than 14 knots, 2/10 of 1c.; for 14 knots and less than 15 knots, 3/10 of 1c.; for 15 knots and less than 16 knots, 4/10 of 1c.; for 16 knots and less than 17 knots, 5/10 of 1c.; for 17 knots and less than 18 knots, 7/10 of 1c.; for 18 knots and less than 19 knots, 9/10 of 1c.; for 19 knots and less than 20 knots, 1 1/10c.; for 20 knots and less than 21 knots, 1 3/10c.; for 21 knots and less than 22 knots, 1 5/10c.; for 22 knots and less than 23 knots, 1 8/10c.; and when the speed is over 23 knots, 2 1/10c., in addition to the basic rate before mentioned, for each 100 nautical miles travelled. Any power driven ship of 5,000 tons gross or less, but exceeding 1,500 tons gross, shall receive compensation as if it was 5,000 tons gross. The method of computing the distance travelled will be solely by the distances of the direct customary routes between the ports cleared and ports entered, and the tables of such distances as published by the U.S. Shipping Board, regardless of the ships' logs. Compensation will only be paid to ships actually operated in the foreign trade, and they must be maintained at the American Bureau of Shipping's highest classification. They shall carry foreign mail as required by the Postmaster General, but shall not be obliged to make a voyage which would not otherwise be made, unless expressly stated in the contract, and all first, second and third class mail matter shall be carried free. The amount of compensation outlined may be increased by the Shipping Board, if it deems it desirable or necessary to secure the establishment and maintenance of such lines and services, but to not more than twice the amounts provided. These amounts shall be paid out of the Merchant Marine Fund, to which will be credited all amounts paid to the Shipping Board by shipowners, being 50% of excess profits over a net operating income of 10% in any fiscal year; the amounts which would ordinarily be payable by the Postmaster General for the transportation of foreign mails, carried by such ships; 10% of such duties as are imposed by the act of Oct. 3, 1919; and all tonnage dues, taxes or fees imposed on ships entering U.S. ports.

The Director of Sales announced April 3, that the entire holdings of the U.S. Shipping Board Emergency Fleet Corporation at the Merchant Shipbuilding Corporation plant, Bristol, Pa., would be offered for sale by auction, April 24 to 27. The material offered included power plant equipment, gantry cranes, buildings, storehouse material, contractors' supplies, maintenance tools, automobiles, motor trucks, etc.

The U.S. Shipping Board Emergency Fleet Corporation, which is in charge of traffic, has announced the establishment of a monthly line of steamships from New York to south and east African ports, commencing with May, under the management of the Mallory Transport Lines. Six steamships, all cargo carriers, will be placed in the service, and the first call will be at Cape Town, thence to Port Elizabeth, East London, Durban, Beira and possibly to Zanzibar and Mombassa. This will be the only U.S. line operated on this route.

The Emergency Fleet Corporation has made arrangements with Runcimans London Ltd. to act as operating agents for the U.S. Lines in the United Kingdom, with supervision over sub agencies at Queenstown, Ireland, Plymouth and Southampton, Eng. These agents will act on a commission basis and a small guarantee, and will solicit outward cargoes and handle inward cargoes. The Corporation has leased offices in Cockspur St., London, for the U.S. Lines, where all passenger business will be handled. A series of offices will be opened shortly throughout the U.S. middle west, under the management of Louis F. Klein, with head office at Washington, D.C.

F. I. Thompson, Commissioner, U.S. Shipping Board, in announcing various hearings to be held under sec. 28 of the Merchant Marine Act 1920, recently stated that it is contemplated that this section become operative when, in the Board's opinion, facilities under the U.S. flag are adequate for U.S. foreign commerce, and that the hearings are to ascertain shippers' views as to the adequacy of the facilities afforded, and so that the operation of the section will not disturb the normal flow of commerce, nor adversely affect the various ports. Evidence as to the adverse or beneficial effect of the section will not be precluded, but the actual object of the hearings is directly on the question of the adequacy of the facilities. Hearings were held at Boston, Mass., Apr. 21, and at New York, Apr. 24, these two covering the North Atlantic, and hearings governing the South Atlantic and Gulf will be held at Norfolk, Va., Savannah, Ga., and New Orleans, La., during May, and for the Great Lakes and Pacific coast during June.

A. D. Lasker, Chairman, U.S. Shipping Board, at a joint hearing before the Senate committee on commerce and the House committee on merchant marine, in Washington recently, stated, among other things, that one of the most formidable objections to continued Government operation of the merchant marine, an objection which he considered insurmountable, is that ships owned by the Government would in due course wear out, even with proper repairs. He had not heard it suggested from any source, that the Government should build ships to replace those that are worn out, or that the Government should build new type ships. He said that if there is one unanimous opinion in the country regarding the merchant marine, it is that Government construction of merchant ships should cease. Thus the continued operation by the Government of its present fleet would be making no progress toward a permanent policy on the seas, or a renewed and enduring merchant marine. This one phase alone calls for legislation along lines proposed to en-

sure the Government's retirement from ownership and operation.

The Emergency Fleet Corporation, which is in charge of traffic, announces that in regard to the status of the various conference arrangements to which the U.S. Shipping Board is a party, there have been no developments of importance in the trade between the U.S., the United Kingdom, Germany, Belgium, Holland and France, rates continuing firm with few changes. From the Mexican Gulf, cotton rates are firm, and while the movement is not large, it remains steady. On the Pacific Coast, outward rates to the Orient are weak, and the general situation is chaotic, due chiefly to the falling off in demand for lumber in Japan, thus throwing on the market a large number of Japanese steamships previously engaged in the trade. Australian and South American trade is practically without change, enquiries being light and rates nominal. General cargo for the far east from New York is light, but the demand for steel continues brisk. Demands for space for the Black Sea and Levant services are active, and rates are advancing. Coffee rates continue light, being in fact, totally unremunerative, owing to competition chiefly by Scandinavian ships.

The U.S. Shipping Board's General Counsel has announced, with respect to the wooden ships and the claims of their builders, that a definite policy regarding the settlement of the amortization and profit claims, has been decided on in settlement for cancellation of wooden ships which were being built under cost plus contracts, and which superseded and cancelled lump sum contracts. For cancellation of hulls, originally awarded, under lump sum contract, the builders will be allowed the full fees mentioned in the superseding contracts, and for the cancellation of additional hulls, under superseded contracts, they will be allowed the portion of the fees which by the terms of the contracts, is apportioned to plant depreciation, and a percentage of that portion of the fees which is allocated to profit, such percentage to be based on a proportion of work performed on the cancelled hulls. This settlement, it is stated, will, if satisfactory to the contractors, be on a basis of \$7,000 for amortization, and \$8,000 for profit, per ship, on all new contracts executed by the Board, involving approximately 80 ships. In cases where a ship was partially completed, the builder will be allowed \$7,000 for amortization, and a proportionate amount of the \$8,000 allowed for profit, according to the amount of work done. The amortization claims approximate \$6,000,000, involving 70 builders, and it is stated that if the builders accept this decision, the Board will not be called upon to pay more than approximately \$1,000,000. The builders claim that they originally received verbal assurances that they would be given a sufficient number of contracts to enable them to come out whole in amortizing their plants, but the Board denies this.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

9. March 21.—18, Nova Scotia, south coast, approach to Country Harbor, uncharted shoals. 19. Nova Scotia, south coast, approach to Whitehaven, uncharted shoals. 20. Nova Scotia, south coast, Dover Bay, uncharted shoals.

10. March 22. — 21, Nova Scotia,

southwest coast, Yarmouth Harbor, dolphins replaced by spar buoys. 22. New Brunswick, Northumberland Strait, Baie Verte, rearrangement of buoys leading to mouth of Tidnish River, two additional buoys to be placed.

Dominion Government Steamship Subsidies.

The Minister of Trade and Commerce said in the House of Commons, April 3, in answer to J. Evans, Saskatoon, that the following companies performing ocean services were subsidized during 1921-22, and the votes are repeated in the estimates for 1922-23.

Atlantic Ocean:—Reid-Newfoundland Co., St. John's, Nfld., Canada and Newfoundland Service; annual subsidy \$35,000.

Royal Mail Steam Packet Co., London, Canada, British West Indies and Demerara service; annual subsidy \$340,666.66.

Elder, Dempster & Co., London, England, Canada and South Africa service; annual subsidy \$146,000.

Pacific Ocean:—Union Steamship Co., of New Zealand, Dunedin, New Zealand, Canada-New Zealand (Pacific) service; annual subsidy, \$130,509.

Pacific Steamship Co., Victoria and San Francisco; annual subsidy \$3,000.

The purpose of these subsidies is to assist the development of trade between Canada and the countries named, and also in some cases to provide for the transportation of mails to and from Canada.

The Minister of Trade and Commerce also answered questions by S. W. Jacobs, George Etienne Cartier, Montreal, as follows:—The estimated expenditure for the fiscal year 1922-23 under the head of mail subsidies and steamship subventions is \$1,100,775.66. Of this amount \$655,175.66 is for ocean services, and the balance, \$445,600, is for coasting services in Canadian waters. Ships running on the ocean services referred to above sail to Newfoundland, the British West Indies, Demerara, South Africa, New Zealand, and the United States. The question "How much has so far been paid on account of such subsidies?" is too indefinite to enable a reply to be made. Ships under Canadian Government Merchant Marine control sail to countries and ports to which ships subsidized by the Government also sail. In answer to the question "Does the Government intend to take action to discontinue the subsidies to companies competing with steamships belonging to the Dominion Government?" the Minister replied:—"Canadian Government Merchant Marine ships, when properly equipped to meet requirements of service, should be entitled to preference."

Dominion Hydrographic Surveys.

We are officially advised that the Naval Service Department's Hydrographic Survey Branch will undertake the following work this year. On the Atlantic coast the s.s. Acadia will sail from Halifax, N.S., about the middle of May, in charge of Capt. F. Anderson, and for the first part of the season will continue the work off Cape Canso, and later, will undertake a resurvey of the waters off the west end of Nova Scotia. The s.s. Cartier will sail from Quebec, about the same date, in charge of C. M. Savary, and continue the examination of the shore off the north side of Gaspé Peninsula. It is expected

that this latter work will reach Gaspé Basin before the end of the season. It is also proposed to make a survey of the harbor at Seven Islands by the same party, in charge of one of the assistants. It is not proposed to place the s.s. Bayfield in service this season, but she will undergo an extensive overhaul, which has been delayed for some time. The party will, however, be placed in camp, and will survey Miramichi Bay and River, in conjunction with the Public Works Department.

As the survey work on the Great Lakes has been completed, no hydrographic ship will be in service there this season.

The Pacific coast branch, in charge of H. D. Parizeau, will operate the steamships Lillooet and Restless during the season. Both ships were commissioned Apr. 18, the Lillooet proceeding to Vancouver, where she commenced a series of sweeping operations in conjunction with the Public Works Department, in the First Narrows, to test the channel recently dredged, and to pick up any loose boulders that may be lying about. It is hoped that after this examination, the channel north of Parthia Shoal will be opened to navigation. After completing this examination, the Lillooet will proceed north, and the work along the east shore of Hecate Strait, between the north end of Banks Island and the south point of Aristazable will be proceeded with. The s.s. Restless, in charge of Commander Knight, will make a survey of Johnson Channel, to develop, if possible, a new and shorter route between Fisher and Seaforth Channels, and it is expected that this work will take all the season.

Naval Service Department Ships For Sale.

Tenders were invited to May 1, by the Naval Service Department, for the purchase of the following ships:—

Armentieres, steel, built at Montreal, in 1918, screw driven, engine 61 h.p., length 130 ft., breadth 25 ft., depth 13 ft., tonnage 357 gross, 136 net, equipped with wireless, lying at Esquimalt, B.C. C. D. 23, wood, 50 tons, lying at Halifax, N.S.

Canada, steel hull, built at Barrow-In-Furness, Eng., in 1904, screw driven, engine 209 h.p., length 206 ft., breadth 25.1 ft., depth 13.3 ft., tonnage 411 gross, 185 net, equipped with wireless, lying at Halifax, N.S.

Grilse, steel pleasure yacht, built at Glasgow, Scotland, in 1912, screw driven, turbines, 6,000 h.p., length 202.3 ft., breadth 18.3 ft., depth 9.2 ft., tonnage 287 gross, 157 net, equipped with wireless, lying at Halifax, N.S.

Hochelaga, formerly named Waturas, steel, built at Leith, Scotland, in 1900, screw driven, engine 116 h.p., length 192.6 ft., breadth 27.6 ft., depth 14.8 ft., tonnage 628 gross, 427 net, equipped with wireless, lying at Halifax, N.S.

Niobe, steel armored cruiser, 11,000 tons, lying at Halifax, N.S.

Petrel, steel, built at Owen Sound, Ont., in 1892, screw driven, engine 50 h.p., length 116 ft., breadth 22 ft., depth 10.3 ft., tonnage 192 gross, 98 net.

Stadacona, formerly named Columbia, steel, built at Philadelphia in 1893, screw driven, engine 99 h.p., length 168 ft., breadth 30.5 ft., depth 15.7 ft., tonnage 780 gross, 520 net, equipped with wireless, lying at Esquimalt, B.C.

In addition to these, a number of small boats are offered for sale.

Canadian Pacific Railway's Ocean Steamship Services.

Capt. A. H. Hosken, of the s.s. *Empress of Russia*, is reported to have invented a method of reading a sextant at night, by means of a small dry battery, push button and shaded light.

The company has announced that its fare from the Far East points to Europe by way of Canada, is \$620, which route, it is stated, equals the Suez Canal route, both in fare and in time.

The s.s. *Empress of Britain* sailed from New York to Liverpool, Eng., towards the end of March, after having completed her second pleasure cruise of the season to the West Indies. She is due to arrive at Quebec from Liverpool, May 19, and to sail from Quebec, May 26.

The s.s. *Montrose* docked at Liverpool, Eng., March 26, after a successful trial run from Glasgow, Scotland. She is a sister ship of the *Montcalm* and the *Montclare*, and was built by the Fairfield Shipbuilding and Engineering Co., Govan, Scotland, for the C.P.R. Montreal service. She is expected to arrive at Montreal, May 14, on her maiden trip, after which she will be operated on that route throughout the St. Lawrence season. She has been built to Lloyd's highest class, 100 A1, and is equipped with geared turbine engines driving twin screws. Her dimensions are,—length 556 ft., breadth 70 ft., depth 51 ft., 16,400 gross tons. She has accommodation for about 500 cabin, and 1,250 third class, passengers. The boilers are equipped for burning oil fuel. The accommodation for cabin passengers is arranged on B and C decks amidships, in 2 and 4 berth staterooms. The cabin dining room is on D deck, extends the full width of the ship, and is arranged with a large well overhead and an arcaded clerestory around, and a number of the tables are arranged for small parties. The smoking room, drawing room and children's room are on the promenade deck. The third class accommodation is on D and E decks, in 2, 4 and 6 berth rooms, with dining room on D deck and smoking rooms and lounges on B and C decks.

It is announced that the steamships *Scotian* and *Victorian*, which have been in service between England and India, for the British Government for some time, are returning to the St. Lawrence service. They have been utilized for the transportation of soldiers and their families from Great Britain to India, and have been running continuously in that service since the autumn of 1921. Before taking up this last service, they were completely refitted for the Suez Canal route, and supplied with awnings, electric fans, etc., necessary for the tropical run. They are being reconditioned for the Atlantic service, and the *Scotian* is expected to arrive at Montreal, May 6, the *Victorian* following on May 21. The s.s. *Scotian* will replace the s.s. *Pretorian* on the Glasgow route, in conjunction with the steamships *Metagama* and *Tunisian*. The s.s. *Victorian* will be placed on the Liverpool route.

The s.s. *Empress of Canada* is expected to arrive at Vancouver from Liverpool, via the Orient during June, and is announced to sail from Vancouver to the Orient June 29, and regularly thereafter. She is the latest addition to the company's trans-Pacific fleet. She was originally expected to be in service in March 1921, but has been considerably delayed at the builders, owing to strikes and other unforeseen occurrences. She is of

33,000 tons displacement, 22,500 tons gross, 627 ft. long, and uses oil as fuel. The s.s. *Empress of Australia*, 31,000 tons displacement, 21,400 tons gross, 590 ft. long, and using oil as fuel, will also be placed in service to the Orient this summer, her first sailing from Vancouver being announced for July 27. These two steamships will be operated in addition to the two already in the Oriental service, viz., *Empress of Asia* and *Empress of Russia*, each 25,000 tons displacement, 16,850 tons gross, 570 ft. long. The two latter hold the records for the quickest time across the Pacific. The company has arranged with the Japanese and Chinese government railways for the sale of overland tickets between Yokohama and Shanghai, at reduced fares in connection with its ocean tickets.

Dominion Marine Association's Activities.

The Association is maintaining its protest against the tonnage duty and inspection taxes which were abrogated by statute in 1903 and reimposed in 1920.

The Association is compiling its recommendations as to aids to navigation and it is giving consideration to recommendations by the Lake Carriers Association for aids in certain Canadian waters.

The Association has renewed its request for the abrogation of the compulsory payment of pilotage dues on the St. Lawrence, below Montreal, and it understands it has the support of the Shipping Federation of Canada, as representative of ocean tonnage.

In connection with the Association's request for an amendment of the Canada Shipping Act, to exempt from hospital taxes in Quebec, ships from the Great Lakes, instead of merely ships from Ontario, the Dominion Minister of Health is having a report prepared and an amendment of the act is hoped for as a result.

The Association has concurred with the Lake Carriers Association, after consultation with Dominion Public Works Department's engineers, and the United States War Office District Engineer, in a proposal for the removal of the Middle Ground shoal which now divides the up-bound and down-bound channels, between Port Huron, Mich., and Sarnia, Ont., and it is expected that the work will be proceeded with forthwith.

The Association, in conjunction with the Lake Carriers Association, is seeking modification of the stringent immigration regulations which were put in force during the war, and which imposed serious burdens of clerical and other work on ship's masters. The U.S. authorities are disposed to go as far as the Dominion Government will, and the matter is now being considered by the Dominion Interior Department.

A review of the Chicago Drainage Canal situation has been presented by the Association to the Dominion Premier, with reference to bill H. R. 9046, now before the U.S. Congress and resolution 105 before the U.S. House of Representatives, and has renewed its request for action by the Dominion Government at any possible opportunity, to prevent withdrawal of water in excess of the 4,167 cu. ft., authorized by the U.S. Secretary of War in 1912, and it has also protested against proposals now before the U.S. Congress for permission to

withdraw a larger amount, with compensating works, in the St. Clair, St. Lawrence and Niagara Rivers.

The Association has approached the Minister of Trade and Commerce and the Dominion Grain Commissioners, on the subject of a reduction in the charges upon a ship in connection with the transshipment of grain, and it is conferring with the various elevator owners and operators, including the railways, the Montreal Harbor Commissioners, and the Railways and Canals Department, on the subject. Shovelling and elevating are variously charged at different ports, and statistics appear to prove that the elevator operators make a very substantial profit over the cost of operating, in connection with charges for these items.

The Association has requested the Minister of Marine and the Minister of Railways and Canals to appoint a committee to continue the work which was carried on last year in Montreal harbor, by representatives of the Association, in removing difficulties and improving the dispatch of traffic. This has led to the appointment of a committee consisting of M. P. Fennell Jr., Secretary, Montreal Harbor Commissioners, Chairman; T. R. Enderby, Operating Manager, Canada Steamship Lines Ltd.; E. N. Todd, General Foreign Freight Agent, C.P.R., and C. J. Smith, General Manager, Montreal Warehousing Co.

Ships Registered in Canada during January.—Apart from three small motor boats, only one steamship was registered during January, viz., 150,555, *Princess Louise*, registered at Vancouver, B.C., built at North Vancouver in 1921, length 317.2 ft., breadth 48.1 ft., depth 17.4 ft.; tonnage, 4,032 gross, 2,449 net, 252 h.p., screw driven, owned by C.P.R. Co., Montreal. Three sailing ships were also registered, viz.: 141,800, C.N.P. No. 3, *New Westminster*, B.C., barge, built at Port Mann, B.C., in 1921, length 153.6 ft., breadth 46 ft., depth 12 ft.; tonnage, 723 net, owned by Canadian Northern Steamships Ltd., Toronto; 141,654, *Kirk and Sweeney*, Yarmouth, N.S., built there in 1921, schooner, length 124.4 ft., breadth 27.4 ft., depth 12 ft.; tonnage, 192 net, owned by W. D. Sweeney, Yarmouth, N.S.; 150,398, *Saguenay Trader*, Quebec, schooner, built at Chicoutimi, Que., in 1921, length 102 ft., breadth 27 ft., depth 9.1 ft.; tonnage, 148 gross, 147 net, owned by J. Tremblay and E. Gagnon, Chicoutimi, Que.

Ships Added to, and Deducted from Canadian Register during January.—One steamship, 4,032 tons gross, 2,449 tons net; 3 motor boats, 35 tons gross, 23 tons net; and 3 sailing ships, 1,063 tons gross, 1,062 tons net, all built in Canada, were added to the Canadian register during January. One steamship, 16 tons gross, 11 tons net, and 2 sailing ships, 290 tons gross, 227 tons net, were removed from the register, having been wrecked or otherwise lost; 3 sailing ships, 1,528 tons gross, 1,355 tons net, were sold to foreigners, and 1 sailing ship, 106 tons gross, 96 tons net, was transferred to a British port.

The First King's Pilot of the St. Lawrence River.—A monument is to be erected on the Plains of Abraham, Quebec City, by the C.P.R., with the following inscription in English and French: "This monument recalls to the passer by, Abraham Martin, called he Scot, first King's pilot on the St. Lawrence, who tilled the land on the illustrious plains which bear his name."

Quebec Harbor Improvements.

The Minister of Marine and Fisheries, Hon. E. Lapointe, M.P. for Quebec East, placed on the House of Commons order paper early in March a notice that he would, in committee of the whole, move a resolution to the effect that it is expedient to provide that the Dominion Government may, from time to time, advance to the Quebec Harbor Commissioners, such sums, not to exceed \$1,500,000, to enable them to carry on the construction of such terminal facilities as may be necessary to equip the port properly. The resolution provides that debentures shall be issued by the commissioners to cover the advances, and that the interest thereon, shall be considered a part of the construction costs, and may be paid out of amounts advanced by the Government. Applications for advances to be submitted monthly for the Minister's approval, showing total expenditures on the different items in detail. The debentures to be issued to be repayable within 25 years, and to bear interest at 5% per annum.

Brig.-Gen Tremblay, one of the commissioners, in speaking of the resolution, is reported to have stated that the contemplated works include dredging the entrance to the St. Charles River, to allow ships of larger draft to enter; dredging the entire basin beside the grain elevators to 35 ft.; completion of the large wharves along the St. Charles River at the extreme west, to give easy berthing to larger ships; extension of the elevator system to expedite the transfer of grain to large ships; renovation of sheds 19 and 26; completion of the commissioners' wharf; construction of pontoons for better wharfing of ships; renovation of grain elevators and accessories; evening the surface of the wharf between sheds 18 and 26 at the breakwater; increase of accommodation for the commissioners' transportation facilities; building oil tanks and connections at Louise docks; coal chutes for trans-Atlantic steamships; and small quays for the better entry of small ships to the St. Charles River; also the renovation of the immigration docks.

Seasickness' Prevention Device.—London, Eng., cablegram, April 12.—The new s.s. Montcalm has been placed by the Canadian Pacific Steamships Ltd. at the disposal of marine architects who are experimenting with a device to prevent seasickness. Already, by means of bilge keels, tanks and other measures, the rolling motion of ships has been reduced to a minimum. Now the experts are seeking a preventive of the fore-and-aft pitching movements, which are not only the main producers of seasickness, but which cause the engines to race uneconomically when the screw is lifted clear of the water. The experiments will be carried on while the Montcalm is doing her regular service on the Atlantic.—Copyright, Montreal Gazette.

Salvors Ltd. has been incorporated under the Dominion Companies Act, with \$5,000,000 authorized capital and office at Ottawa, to salvage ships and other property, afloat or ashore, to rescue crews and passengers, to tow and otherwise aid ships and floating property and to operate ships. The incorporators are:—W. H. G. Garrioch, John Gray, John Huckell, James Scobie, C. F. Winter, R. K. Paterson, A. G. Midford, Ottawa, and F. A. Heney, Westboro, Ont.

Miramichi Bay Tides' Mystery Solved.

The hitherto unaccountable action of the Miramichi Bay tides has been solved. The diurnal tides are unequal, and for years an explanation of the reasons for this inequality has been sought by the Naval Service Department's Tidal and Current Service Branch officers. A definite analysis of the tide action in Miramichi Bay has been arrived at recently, and in the Tide Tables for 1922 it is indicated for the first time which of the two tides of the day is the higher. It has long been known that the diurnal inequality of the tide is reversed in regard to the two tides of the day across the width of the Gulf of St. Lawrence, between St. Paul Island and Miramichi Bay. This gives rise to much complexity, but a definite relation between these two points has been discovered.

The new information will be of great advantage to shipping interests; as in future, captains will only need to refer to the Tide Tables to see which tide in the day will be higher. This is of special importance in Miramichi Bay, because of the bar at its mouth which has to be crossed. The difference in the rise of the tide is often as much as 2 ft., and ships leaving Chatham, N.B., can now gain this advantage by choosing the higher tide of the day, thereby enabling them to take on a considerable additional amount of cargo.

The Icebreaking Steamship J. D. Hazen.—An Ottawa press dispatch of Apr. 19, states that the icebreaking steamship J. D. Hazen, which was built for the St. Lawrence service, and sold to the Imperial Russian Government during the war for operation in the White Sea, has been purchased by the Dominion Government, for \$400,000, and that the arrangement was concluded by E. Hawken, Assistant Deputy Minister of Marine, who with F. McDonnell, Chairman, Board of Steamboat Inspection, as mentioned elsewhere in this issue, were expected to return to Ottawa about May 1, after an official trip to Europe. We were officially advised Apr. 25, that the Marine Department had not been advised that the purchase of the ship had been concluded.

Glen Steamships Ltd. s.s. Glendochart, which wintered at Londonderry, Ireland, sailed from there, April 7, for Montreal. The company's steamships Geneley and Glengarnock, which wintered at St. John's, Nfld., will sail for Montreal as soon as conditions warrant. These, with the Glenarm, Glendowan and Glenfarn, which were overhauled and repaired at Midland during the winter, will be operated by the Great Lakes Transportation Co., Midland, until the full organization of Glen Steamships Ltd., when they will be handed over. The Glen Transportation Co.'s ships will, as last year, be operated by A. E. Mathews, as Manager, who is also Managing Director, Mathews Steamship Co., Toronto.

The Naval Service's Future.—A bill introduced in the House of Commons by the Minister of Militia and Defence, Hon. G. P. Graham, provides for the establishment of a Department of National Defence, the Minister of which shall be charged with matters relating to defence, including militia, military, naval and air forces. It provides for a Deputy Minister of National Defence, and an officer who shall, in relation to the Naval

Service, perform all the powers, duties and functions vested in the Deputy Minister of the Naval Service by the Naval Service Act, and who shall have the rank and salary of a deputy head of a department and shall be a member of the Defence Council.

Steel Plates for Shipbuilding.—The Minister of Marine stated in the House of Commons on April 5, in answer to T. W. Caldwell, Victoria, and Carleton, N. B., that the Government entered into a contract with the Dominion Iron & Steel Corporation for a supply of steel plates, that the contract was not carried out in its entirety, having been cancelled on Feb. 18, 1921, the matter of damages being referred to the Exchequer Court. The total claim was \$10,969,482.15, of which \$3,000,000 was paid on Dec. 14, 1921.

Drydocks.—Hon. H. H. Stevens, Vancouver Center, B.C., moved in the House of Commons, on April 5, for a return showing what drydocks are located and operated at Vancouver, Victoria, and Prince Rupert, B.C., Halifax, N.S., St. John, N.B., Quebec and Montreal, Que., when they were built and put in service, what are their dimensions, and what were the total gross tonnages entering and leaving those ports during 1921.

G.T.R. Port Facilities at Portland, Me.—Preliminary work is reported to have been commenced on the construction of a pier at Portland, Me., at an approximate cost of \$1,000,000, jointly, by the State of Maine and the G.T.R. A contract for the removal of the old wharf, construction of retaining walls, and a considerable amount of dredging is reported to have been let to the Aberthaw Construction Co., Boston, Mass. The pier will be mainly of timber construction.

Eaton-Nelligan Shipping Ltd., the incorporation of which was announced in our last issue, with \$100,000 capital, has its office at 59 St. Peter St., Montreal, with the following directors:—Perley R. Eaton, President; E. P. Cleary, Vice President; J. J. Nelligan, Managing Director; and A. P. McKinnon. It will operate ships carrying bulk cargoes in the St. Lawrence River and Gulf, and on the Atlantic coast, generally.

The s.s. Posen, a former German steamship, seized under libel proceedings at New York, and offered for sale by order of the New York Federal Court, Apr. 7, at the reserve price of \$200,000, or approximately \$19 a ton, was withdrawn and the sale postponed, without a single bid being obtained. At the sale it was observed that the U.S. Shipping Board is holding its ships at approximately \$30 a ton.

Revillon Freres Trading Co. has bought a wooden 3-masted schooner of 400 d.w. tons capacity, which is being built at Liverpool, N.S., and which will be fitted with a Densil semi-Diesel engine of 100 h.p., which is expected to give her a speed of 7 or 8 knots. She will be used to take supplies to the company's trading posts in the Arctic, and will be away for about 4 months on this service.

It is reported that local interests are considering the erection of a grain elevator at Burrard Inlet, Vancouver, with an initial capacity of 150,000 bush., but so arranged that the capacity can be increased to 1,000,000 bush. later. The proposed buildings will include a sacking and drying plant, and, if proceeded with, will be ready for operation in about six months.

Atlantic and Pacific Oceans.

The Anchor-Donaldson Line inaugurated its service between Montreal and Londonderry, Ireland, March 25, in conjunction with its Glasgow service by the s.s. *Saturnia*.

The Hamburg American Line has declared a dividend of 10% for the calendar year 1921, compared with 8% for 1920. The profit and loss account showed a gross surplus of 96,171,675 marks, compared with 44,474,835 for 1920.

The White Star-Dominion Line has completed arrangements for booking passengers through to points in Soviet Russia. This is the first resumption of normal passenger traffic since 1920 to the portion of Russia now under Soviet Government.

The Cunard Line's s.s. *Albania*, which has been running for some time between Liverpool, Halifax and New York, is to be transferred to the St. Lawrence route, and will open the company's service from Liverpool to Montreal, calling at Quebec, during May.

The Canadian Robert Dollar Steamship Co. is reported to have sold the s.s. *Melville Dollar* to the Kishimoto Kaisha, Kobe, Japan. She was built at Glasgow, Scotland, in 1905, for Robert Dollar, and has been operated between Vancouver and Oriental ports for several years.

The Thomson Line, Robert Reford Co., Montreal, agents, is reported to have bought the s.s. *Baarn*, which is said to have been renamed *Cairnavon*. She was built in 1920, and has been fitted up for carrying perishable freight. She has been placed in the Montreal service and was announced to sail from Newcastle, April 30, and from Montreal May 25.

General reductions in freight rates between the Pacific coast and the Orient are reported from Vancouver. The rate on lumber is stated to have been reduced from \$15 to \$12 per 1,000 ft. b.m., the rate on wheat flour from \$6 to \$5 a ton, and on general merchandise by an average of \$2 a ton. Apparently, according to reports, a rate war is in progress between the Blue Funnel Line and the Japanese Lines, and it is stated that the C.P.R. has declared its intention of meeting competition.

The White Star-Dominion Line's s.s. *Canopic* sailed from Liverpool, April 13, for Halifax, N.S., calling at Queenstown, Ireland. She has been completely overhauled and refitted for the St. Lawrence traffic, having been originally operated in the White Star Line's Mediterranean-New York service. On her second sailing from Liverpool, May 13, she will come direct to Montreal and be operated throughout the season on that route, in conjunction with the steamships *Canada*, *Megantic* and *Regina*.

The White Star-Dominion Line's s.s. *Regina* arrived at Halifax, N.S., March 24, on her first trip after having been fully reconditioned, following her war service. She completed the trip in 7 days, 11 hr. 43 min., maintaining an average speed of 15.07 knots. She was building at the outbreak of the war, and was immediately taken over for war service, and placed in patrol duty in the North Sea. After the armistice, she made two trips to Canada, before being reconditioned, and was then placed in the builders' hands for overhauling.

The motor ship *Dinteldijk*, built at Belfast, Ireland, for the Holland American Line, for the joint service with the

Royal Mail Steam Packet Co., between U.K. ports and British Columbia, was delivered recently, and is expected to arrive at Vancouver on her maiden trip, in May. Each of the companies engaged in this service is building three motor ships. The R.M.S.P. Co.'s *Loch Katrine* arrived at Vancouver in March, and the *Loch Gail* is approaching completion, and is expected to arrive during the summer. The Holland America Line's ships *Kinderdijk*, *Eemdijk* and *Moerdijk* are already in service.

Maritime Provinces and Newfoundland.

St. John, N.B., harbor revenue for March was about \$31,000, about \$4,000 more than for March 1921.

The names of the Newfoundland ships *Rattler* and *E. J. Reddy*, have been changed to *Iron Bound* and *Lucy Kent*, respectively.

The schooner *Cumberland Queen*, owned by J. N. Pugsley, Parrsboro, N.S., is reported a total loss, off Cape Hatteras, while bound from Turks Island to New York with a cargo of salt.

The Bras d'Or Steamship Co. is reported to have bought the new steel steamship *Princess*, at present in New York, for service on the Bras d'Or lakes, in place of the old sidewheel s.s. *Marian*.

The Newfoundland Government has adopted a regulation for Grand Banks harbor, providing that the owner of every ship entering the harbor shall pay 5c. a ton on the gross tonnage not oftener than once in each calendar year.

The s.s. *Diana*, of the Newfoundland sealing fleet, was caught in heavy ice floes towards the end of March, and was abandoned. She was built in Great Britain, especially for whaling and sealing service, and was originally named *Hector*.

The Newfoundland sealing fleet's catch is given as 79,000, divided amongst the ships participating, as follows:—*Terra Nova*, 15,000; *Eagle*, 12,000; *Ranger*, 4,000; *Viking*, 15,000; *Thetis*, 14,000; *Nep-tune*, 11,000; *Saguna*, 7,000; *Seal*, 1,000. The s.s. *Diana* was caught in the ice and abandoned. Last year, the catch was 101,452, valued at \$171,242.76.

The Bridgetown Steamship Co.'s s.s. *Valinda*, which struck one of the piers at Annapolis, N.S., in Dec. 1921, and sank there, was subsequently raised and temporary repairs made, to enable her to proceed to Bear River under her own steam. During the winter she has been completely renovated, and fitted with a new starboard broadside, keel and shoe, several new beams, new deck, and general repairs. These repairs were completed during March, when she proceeded to St. John, N.B., where her machinery was overhauled, after which she was placed in service between Bridgetown, Annapolis and St. John.

The North Atlantic Steam Fishing Co., Ltd., is being organized in Sydney and North Sydney, N.S., to undertake fishery business in North Atlantic waters with steam trawlers, etc., and use North Sydney as a shipping port. James Dunn, North Sydney, and W. N. McDonald, Sydney, are interested in the project. The capital will be \$100,000, most of which has been subscribed locally. It is proposed to operate five steam trawlers at present owned by W. N. McDonald. They were used in naval patrol work

during the war, but were built originally for fishing at a cost of approximately \$75,000 each. It is stated that the company is buying the ships for \$15,000 each, and they are to be equipped with all the latest fishing gear.

The Cape Breton Electric Company has sold the hull of its s.s. *Pawnee* to J. Salter and Sons, North Sydney, N.S. She is being dismantled, the machinery and boiler having been removed, the purchasers intending to use the hull as a floating warehouse. The C.B.E. Co. is offering the machinery, boilers and fittings for sale separately. The s.s. *Pawnee* was built at Athens, N.Y., in 1890, and was screw driven by engine of 150 h.p. Her dimensions were length 115.8 ft., breadth 22.9 ft., depth 5.7 ft., tonnage 107 gross, 65 net. She was operated originally by the Sydney Ferry Co., and was taken over with other of the ferry company's property by the C.B.E. Co. She was condemned in 1913 and has not since been operated, her place having been taken by the s.s. *Electronic*.

Province of Quebec.

The port of Montreal was officially opened for navigation April 13, when the C.G.S. *Lady Grey* arrived from Three Rivers, and reported that there was practically no ice between those points.

A proposal has been made to the Quebec Harbor Commissioners, to make all the sheds on the breakwater wharves 18, 25 and 26, 2 stories high, to provide extra accommodation along a frontage of about 2,300 ft., for the handling of immigration traffic, etc., leaving the lower space exclusively for freight.

The Webster Steamship Co., Ltd. has been granted supplementary letters patent under the Quebec Companies Act, reducing its share capital by \$200,000, by cancelling 1,400 paid up shares of \$100 each, not represented by available assets, and by paying off 560 shares of \$100 each which are in excess of the company's requirements.

The Montreal Harbor Commissioners are reported to have adopted a new tariff of wharfage rates, giving a general average reduction of approximately 15%, the reduction being considerable on coal. It is estimated that these reductions will mean a decrease of nearly \$100,000 in receipts, which is expected to be covered by increased business.

Montreal longshoremen are stated to have declined to accept the reduction in wages announced by the various steamship companies trading out of Montreal, and about the middle of April a strike appeared imminent. It was proposed by the steamship interests to make the new rates as follows:—50c. instead of 60c. an hour for day work and 60c. instead of 80c. an hour between 1 and 11 p.m., and 60c. instead of 90c. an hour for night work from 11 p.m. to 5 a.m.

Ontario and the Great Lakes.

The Welland Canal was officially opened for traffic April 17.

The name of the s.s. *America*, owned by Georgian Bay Tourist Co., Midland, has been changed to *Midland City*.

Harbor improvement work at Cobourg, will, it is reported, be commenced almost immediately, with the rebuilding of the Langevin pier.

An order in council has been passed fixing tolls to be charged for ferry ser-

vice across the Rainy River, between Rainy River, Ont., and Beaudette, Minn.

R. MacDonald, first mate, and C. E. White, third engineer, of the Imperial Oil Co.'s s.s. Royalite were smothered by gasoline fumes in the hold of the ship April 14, at Sarnia.

It is reported that a syndicate of Montreal and Toronto business men has acquired some steamships from the U.S. Shipping Board, to operate between the Great Lakes and Newfoundland.

The Minister of Public Works stated in the House of Commons recently that the total expenditure from Jan. 1, 1912 to Dec. 31, 1921, on the Toronto harbor by his department was \$6,376,149.72.

L. Solman, Manager, Toronto Ferry Co., stated recently, in reference to a Montreal press dispatch, that his company was not, as reported, buying any steamboats, but was more inclined to sell them.

The Niagara, St. Catharines and Toronto Navigation Co.'s s.s. Dalhousie City, which opened navigation on Lake Ontario, at the end of March, lost one of her propeller blades while running between Toronto and Port Dalhousie, March 27. Repairs were made at Toronto, the following day.

The Niagara, St. Catharines and Toronto Navigation Co.'s s.s. Dalhousie City opened Canadian navigation on Lake Ontario, when she arrived at Toronto, March 27. Capt. J. Maddicks received the customary harbor master's hat. The first ship of any description to arrive in Toronto harbor this season was J. E. Russell's steam tug John E. Russell.

The U.S. Lake Survey reports the levels of the Great Lakes for March, in feet above mean sea level, as follows:—Superior, 601.35; Michigan and Huron, 579.40; St. Clair, 573.96; Erie, 571.39; Ontario, 245.08. Compared with the average March levels for the past 10 years, Superior was 0.42 ft. below; Michigan and Huron, 0.66 ft. below; Erie, 0.32 ft. below, and Ontario, 0.60 ft. below.

The arrangement of a package freight service between Montreal and Detroit, calling at Toronto, Hamilton, Cleveland, and other ports en route, was reported to have been announced by W. E. Burke, Director of Transportation, Canada Steamship Lines, recently. The company operated a similar service prior to the war, and this, it is stated, is a resumption of that service, which will be commenced on the full reopening of lake navigation.

The Great Lakes Steamship Co. sued the Maple Leaf Milling Co. recently for \$40,516, for damage caused to the s.s. John Dunn Jr., when alongside the Maple Leaf elevator at Port Colborne, about Dec. 9, 1921. It was claimed that there was an agreement that the ship should have been lightered to 15 ft. draft, immediately upon arrival, and that as this was not done, she struck a rock which pierced the hull. On the other hand it was alleged that the rock or whatever pierced the ship, lay about 96 ft. north of the elevator leg, and 40 ft. from the shore. Judgment was given in favor of the plaintiff company, the amount of damages to be settled by the Master of the court.

With reference to the report mentioned in our last issue, that Chicago Steamship Lines, Inc., Chicago, Ill., proposes to inaugurate a steamship service between Chicago and New York, calling at

Montreal, we are officially advised that the company has decided to bring around five steamships from the Atlantic seaboard with cargoes for Chicago, stopping at Montreal and Buffalo, and that if these cargoes prove successful a regular service will be operated between Chicago, Detroit, Montreal, Boston and New York. The first trips of these ships, however, will be in the nature of a trial only.

Canada Steamship Lines Ltd. has bought the s.s. Aube from the General Transatlantic Co., through the Anderson Co. of Canada, the purchase having been made by J. W. Norcross, President, Canada Steamship Lines, during his recent visit to England. The s.s. Aube, which is now at St. Nazaire, France, was formerly the Montreal Transportation Co.'s s.s. Rosemount, and was sent overseas and sold to the French company during the war. She was built at Newcastle-upon-Tyne, Eng., in 1896, and is screw driven by engine of 200 h.p. Her dimensions are,—length 245 ft., breadth 41 ft., depth 18.4 ft.; tonnage, 1,580 gross, 989 net, 2,800 d.w. tons capacity.

Mathews Steamship Co., Toronto, is reported to have bought the s.s. B. F. Berry, from Franklin Steamship Co., Cleveland, Ohio, for \$400,000. She was built at Lorain, Ohio, in 1908, of steel, on the channel system, with steel tank top where no wood ceilings are fitted, 3 watertight and 2 non watertight bulkheads, steel boiler house, steam pump wells, electric light plant, side tanks, hatches spaced 12 ft. centers, etc. Her dimensions are,—length 480 ft., breadth 52 ft., depth 30 ft., tonnage 6,188 gross, 4,775 net. She is equipped with triple expansion engines having cylinders 22½, 36 and 60 in. diam. by 42 in. stroke, supplied with steam under induced draft by 2 Scotch boilers, each 14½ ft. diam. by 11½ ft. long, at 180 lbs.

The s.s. Robert L. Fryer is to be offered for sale May 1, at Fort William, Ont. She is fitted up as a floating elevator, and besides general equipment, has an electric light plant, stationary engines for running elevator machinery, 16 hopper grain compartments, conveying belts under all bins, and a screw conveyor. She has an estimated loading capacity of from 12,000 to 15,000 bush. an hour, and is especially designed for harbor work and the transferring of grain from elevator to elevator, ship to ship, and ship to elevator. She was built at West Bay City, Mich., in 1888, and has an oak hull with diagonal strapping on frames, steel arches, steel boiler house, steam pump wells, etc. Her dimensions are,—length 281 ft., breadth 41½ ft., depth 21½ ft.; tonnage, 1,810 gross, 1,451 net. The propelling machinery consists of triple expansion engines with cylinders 19, 32 and 50 in. diam., by 40 in. stroke, 850 i.h.p., at 88 r.p.m., supplied with steam by two Scotch boilers, each 10 ft. diam. by 11 ft. long, at 150 lb. She was owned formerly by Henderson Towing & Lighterage Co., Fort William, and is being offered for sale by the liquidator.

Manitoba, Saskatchewan, Alberta and Northwest Territories.

The Northern Trading Co. is building a warehouse for freight at Nagles Snye, at the mouth of Slave River, near Fort Resolution. Freight for Mackenzie River points is usually held back until the ice clears from the Great Slave Lake, but with the building of the warehouse,

freight can be accumulated at the Slave River mouth, and when the lake is cleared of ice, forwarded more speedily than hitherto.

British Columbia and Pacific Coast.

The C.P.R. s.s. Princess Mary, which sailed from Vancouver, April 19, for Skagway, Alaska, carried about 100 White Pass and Yukon Ry. employees, the majority being crews of that company's river boats.

With reference to press reports that the C.P.R. is to remove its British Columbia Coast Steamship Service headquarters from Victoria to Vancouver, we are officially advised that they are unfounded, the matter not having been given any consideration whatever.

It is reported that dredging operations will be undertaken in the Victoria outer harbor, this year, to provide a depth of 40 ft. at low tide. It is stated that ships on the Pacific services have difficulty in entering the harbor, where there is a minimum depth of 29 ft. in some places.

The Latin America Line, for which B. L. Johnson, Walton and Co. are Vancouver agents, is operating a steamship service between B.C. ports and Central and South American ports. Between Oct. 1921 and March 1922, five sailings were made, and it is announced that monthly sailings will be made, if sufficient business offers.

The s.s. Ruth Alexander, bought recently by the Admiral Line from the U. S. Shipping Board, has been placed on the company's Puget Sound-California route, and is making regular calls at Victoria. She was built at Stettin, Germany, for the South American trade, and at the commencement of the war was seized and held by the Chilean Government, and at the close of the war was allocated to the U.S. She is 455 ft. long, 55 ft. beam, and is well equipped for Pacific Ocean service.

The C.G.S. Gunhild, used formerly as a quarantine tender on the B.C. coast, is reported to have been sold to W. H. Drewitt, Victoria, who, it is stated, intends using her in freight service to the Gulf islands. The price paid is stated as \$2,000. She was built in the U.S. in 1906, and was originally named Margaret. She is screw driven by engine of 10 h.p., and her dimensions are:—length 61 ft., breadth 12.7 ft., depth 5.1 ft.; tonnage, 27 gross, 18 net. When the Dominion Government bought her, the price paid was stated to have been \$12,000, and it is also stated, that for the greater part of the time since, she has been lying idle at the William Head quarantine station.

The Grand Trunk Pacific Coast Steamship Co., announces, effective May 7, a double weekly service between Seattle, Victoria, Vancouver, Prince Rupert, Anxox and Stewart, with the steamships Prince George and Prince Rupert, the former leaving Seattle northbound, and the latter leaving Prince Rupert southbound, on that date. The Queen Charlotte Islands service will be performed fortnightly, by the s.s. Prince John, effective May 6. The s.s. Prince Albert will be operated principally in freight service, but commencing about the middle of July, and until the end of August, she will leave Vancouver on approximately alternating dates with the s.s. Prince John, calling at Skidegate Inlet and other south Queen Charlotte Islands points as may be found necessary, en route from Vancouver to Prince Rupert.

British and United States Shipbuilding and Operating Cost Comparisons.

Reference is made elsewhere in this issue to the provision made for payment of subsidies to U.S. steamships operating in foreign trade. The U.S. Shipping Board Emergency Fleet Corporation has issued a circular in justification of these subsidies, and showing the necessity for them so as to place the costs of maintenance and operation more nearly on a par with those of British shipping. The circular states that British labor costs are from 35 to 45% lower in practically all industries than are similar U.S. costs. This creates a differential against products of U.S. labor in the proportion that labor enters into these products. The labor affecting U.S. shipping costs comprises the labor involved in building and repairing ships, in operating them at sea, and in controlling the ships' operations from on shore. The effect of the higher cost of U.S. labor is to add an annual differential to the operating cost of a U.S. ship which will run from 3 to 5% per annum on her cost. In other words, a modest dividend rate is absorbed in paying for building the ship in U.S. yards, her operation by U.S. officers, and a crew shipped in a U.S. port, and her control by a shore staff paid at U.S. wages. In the past the crew's wages have been especially stressed in commenting on the difference in operation cost between a U.S. and a British ship. For the tramp cargo steamer about half the differential existing is due to wage costs, especially to that of the licensed officers, which by U.S. laws must be U.S. citizens. For the larger and faster ships, the express freighters, or the passenger ships, which the U.S. merchant marine is so grievously lacking, this difference becomes less in importance compared to the tremendous difference existing in the cost of construction. A ship of the George Washington type would cost in the U.S. about \$9,500,000. She could be built in England for about \$7,500,000 to \$8,000,000. The U.S. owner of a U.S. built George Washington would therefore have to carry, during the life of the ship, an excess capital cost of \$1,500,000 to \$2,000,000, on which he would be paying probably \$250,000 to \$300,000 a year more than a British owner of a similar ship. The payroll of this ship would be not less than \$450,000 a year, and would involve a wage differential of nearly \$100,000. The higher cost of repairs and of the U.S. administrative staff would add to this another \$25,000, making a total annual differential against this ship of approximately \$400,000. This difference amounts to 5% on the first cost of the British ship of \$8,000,000. In other words, when the British ship is paying 5%, the U.S. ship would only be breaking even. For cargo ships, the wage differential alone would amount to \$9,000 or \$10,000 a year under present conditions, and owing to the acute unemployment among seafaring labor on this side of the Atlantic due to the large number of ships laid up, the U.S. wages are closer today to those of British ships than will normally be found to be the case. This, however, is a temporary condition and cannot last, for the Board does not believe that U.S. ships can ever successfully compete, except upon the principle of paying sea labor a living wage, commensurate with that which equally skilled labor can obtain ashore. To meet these situations the Board has

recommended a schedule of direct aid based upon the partial equalization of the wage and first cost differentials existing between U.S. and British ships. The schedule of payments provides for a flat rate of all low speed ships based upon their size and mileage. For the fast, hence, much more costly ships, of which the U.S. merchant marine is in great need, the scale of payments increases according to the speed, so that the larger and faster ships get sums in proportion to their cost. The direct aid schedule will work out for nearly all types of ships at approximately 2½% a year of the first cost.

Some question has been raised as to the size of the subsidy which would be received by some of the former German ships, such as the Leviathan and Mount Vernon. Obviously, on these ships, the scheduled amount of subsidy, which is based on cost of replacement, will not be followed, since the Board will sell the ships at prices much less than the building cost. It will, instead, under the discretion allowed it, reduce the amount of the subsidy assigned to such ships to an amount commensurate with the price at which the Board sells them. The largest amount of subsidy which would be received by privately owned ships at present existing would be that paid, if the schedule were carried out, to the new Resolute and Reliance of the United American Lines. They would be entitled to approximately \$200,000 a year by the schedule, but in receiving this aid, they would be obliged to forego their mail payments, which would approximate \$150,000 a year. The total subsidy which could be paid to the existing privately owned fleet would approximate \$12,500,000, from which should be deducted approximately \$2,500,000 now being paid in the form of mail subventions. It has been estimated by the Board that an adequate U.S. fleet, composed of all the types of ships needed, would receive, according to the schedule, from \$30,000,000 to \$32,000,000 a year.

Montreal Longshoremen's Wages

Ocean steamship lines operating out of Montreal, have put into effect a new schedule of wages and working conditions for longshoremen as follows: Working hours from 7 a.m. to 12 noon, and from 1 p.m. to 6 p.m. at 50c. an hour; from 7 p.m. to 11 p.m. and from 12 midnight to 5 a.m. at 50c. an hour; double time for Sunday work. When longshoremen are required to work in meal hours, they will receive double time at the prevailing rate of wages, and for each succeeding hour until discharged or set to work. Nitrate and bulk sulphur will be paid at the rate of 65c. an hour for day work and 75c. an hour for night work; grain trimming and bagging will be paid at 65c. an hour for day work and 75c. an hour for night work, the running of grain in the pipes to be stopped while the men go down in the hold to work, two men to stand on deck during that time if necessary. Orders for work will be given at 7 and 9 a.m., 1, 4 and 7 p.m., for night work; men for night work will be ordered out for 7 p.m. and paid full time at the prevailing rate from that hour until discharged or set to work. Night meals to be taken between 11 p.m. and mid-

night, and the ship to supply good meals or pay the cost thereof. Coal handling on general cargo ships will be paid at 55c. an hour for day work and 65c. for night work; 15 men will constitute a gang for discharging and 16 men for loading, according to the nature of the work and the capacity of the ship. These conditions and wages will apply to all steamships coming into the port of Montreal and belonging to the companies signing the schedule.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Metal and Thermit Corporation, New York, announces that an investigation by its research department, to reduce the cost of Thermit welding, shows that economies amounting to 10%, or over, can be made in regard to the amount of Thermit required to make a weld. It has been found that by reducing the size of the collars or re-inforcements of Thermit steel, also by narrowing the gap and changing considerably the proportions of gates and risers, it is possible to weld the smaller sections, such as 2 x 3 in. up to 4 x 6 in. with very much less Thermit than was ever believed possible before. For instance, a weld on a 2 x 3 in. section, for which 40 lb. of railway Thermit used to be recommended, now can be made with only 10 lb. of Thermit. On a 3 x 4 in. section, where 55 lb. was recommended formerly, 25 lb. only is needed, providing the size of collar, width of gap and size of the various gates are proportioned in accordance with the dimensions now found best. On the average locomotive frame section, which is believed to be about 4 x 6 in., the new method will give a perfect weld, with a saving of over 10% in the Thermit required, i.e., while 75 lb. was recommended previously for this size of frame, the new method will weld with only 65 lb., or a saving of 13 1/3%. Investigation has proved that in no case will the saving for the average frame be less than 10% when this new method is followed, while, as stated before, on the smaller sections the saving runs up into high figures and enables a Thermit weld to be made at a cost which will not only compare favorably with the cost of other welding methods, but which will actually be cheaper when advantage is taken of the use of pneumatic rammers, smaller mold boxes and other labor-saving devices which have been introduced in the past year.

Orton & Steinbrenner Co., of Chicago, Ill., manufacturers of locomotive cranes, clamshell and orange peel buckets, and coal crushers, have arranged with J. Ross Bates, formerly connected with Wonham, Bates and Goode Trading Corporation, of New York and Boston, to represent them in New York, N.Y., and the New England States, with offices at 136 Liberty St., New York, N.Y., and 128 School St., Watertown, Mass.

Templeton, Kenly & Co., Ltd., Chicago, Ill., has issued bulletin 122, illustrating and describing simplex jacks for all lifting purposes.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities—Canadian Counsel, W. D. Lighthall, K.C., Montreal.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—L. E. Moreland, Hull Electric Co., Hull, Que.

Canadian Freight Association (Eastern Lines)—G. C. Ransom, Chairman, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, Chairman, 805 Boyd Block, Winnipeg.

Canadian Passenger Association—Eastern Lines, G. H. Webster, 54 Beaver Hall Hill, Montreal; Western Lines, E. J. Stone, 306 Union Station, Winnipeg.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club—W. A. Booth, 53 Rushbrooke St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Ticket Agents' Association, E. de la Hooke, London, Ont.

Canadian Traffic League—R. J. Fitzgerald, 93 Wright Ave., Toronto.

Dominion Marine Association—F. King, K.C., Counsel, Kingston, Ont.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, Des Moines, Iowa.

Niagara Frontier Summer Rate Committee—James Morrison, Canadian National Rys., Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, General Secretary, 263 St. James Street, Montreal; Western Operating Committee, E. J. Stone, 306 Union Station, Winnipeg.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacramento Street, Montreal.

Transportation Club of Toronto—W. J. Hotrum, 595 Runnymede Road, Toronto.

Transportation Club of Vancouver—C. A. Dorfner, 450 Hastings St. West, Vancouver, B.C. Winnipeg Traffic Club—A. J. Barber, 114 Cadomin Bldg., Winnipeg, Man.

Transportation Conventions in 1922.

May 9 to 12.—Air Brake Association, Washington, D.C.; F. M. Nellis, 165 Broadway, New York, N.Y.

May 10 to 12.—American Railway Development Association, Denver, Col.; J. F. Jackson, Central of Georgia Ry., Savannah, Ga.

May 17 to 19.—Association of Railway Claim Agents, Montreal; H. D. Morris, Northern Pacific Ry., St. Paul, Minn.

May 22 to 25.—International Railway Fuel Association, Chicago, Ill.; J. G. Crawford, 702 East 51st St., Chicago, Ill.

May 23 to 26.—Master Boiler Makers Association, Chicago, Ill.; H. D. Vought, 26 Cortland St., New York.

June 1, 2.—Canadian Electric Railway Association, Quebec, Que.; L. E. Moreland, Hull, Que.

June 14 to 21.—American Railway Association, Mechanical Division, Atlantic City, N.J.; V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

June 18.—American Train Dispatchers' Association, Chicago, Ill.; C. L. Darling, 1310 Mallers Bldg., Chicago, Ill.

June 19 to 21.—American Railway Association, Purchases and Stores Division, Atlantic City, N.J.; J. P. Murphy, General Storekeeper, New York Central Rd., Collinwood, Ohio.

June 26 to 30.—American Society for Testing Materials, Atlantic City, N.J.; C. L. Warwick, University of Pennsylvania, Philadelphia, Pa.

June 28, 29.—American Association of General Baggage Agents, Minneapolis, Minn.; E. L. Duncan, 332 South Michigan Ave., Chicago, Ill.

Aug. 23 to 25.—American Association of Railroad Superintendents, Kansas City, Mo.; J. Rothschild, 400 Union Station, St. Louis, Mo.

October.—American Electric Railway Association, Chicago, Ill.; J. W. Welsh, 8 West 40th St., New York.

Oct. 17 to 19.—American Railway Bridge and Building Association, Cincinnati, Ohio; C. A. Lichty, 219 North Waller Ave., Chicago, Ill.

The Quebec Railway Light, Heat and Power Co., Ltd.

REPORT OF THE PRESIDENT AND DIRECTORS FOR THE EIGHTEEN MONTHS' PERIOD ENDED DECEMBER 31st, 1921

To the Shareholders:—

Your Directors beg to submit the following report of the operations of your Company for the period of eighteen months to 31st December, 1921, together with Statement of Assets and Liabilities as at that date.

The Gross Earnings from operation for the period of eighteen months were \$4,139,320.39, of which \$2,757,836.36 were for the period of twelve months ending 31st December, 1921, being an increase over the corresponding period of twelve months ending 31st December, 1920, of

\$203,423.81

The Operating and Maintenance Expenses for the eighteen months were \$3,104,839.93, of which \$2,074,029.01 were for the period of twelve months ending 31st December, 1921, or an increase over the corresponding period ending 31st December, 1920, of

\$113,428.00

The Net Earnings from Operation for the period of eighteen months were \$1,034,480.46, of which \$683,807.35 were for the period of twelve months ending 31st December, 1921, or an increase compared with the corresponding period ending 31st December, 1920, of

\$89,995.81

After adding Miscellaneous Income and deducting Fixed Charges, taxes and depreciation for equipment placed out of service, there remains, a net surplus for the eighteen months period of \$101,708.03, or a net surplus for the period of twelve months ending 31st December, 1921, of

\$87,512.63

The corresponding period of twelve months ending 31st December, 1920, showed a deficit of \$33,171.71, and consequently the year ending 31st December, 1921, shows an improvement over the year ending 31st December, 1920, of

\$120,684.34

The balance at the credit of Surplus Account on 30th June, 1920, was \$582,704.84. After adding the surplus for the eighteen months period ending 31st December, 1921, there remains at the latter date a surplus of

\$684,412.87

The installation of new steel head gates at the main dam on the Montmorency River and alterations and improvements of the intake have been completed. As anticipated in the last Annual Report this work has reflected itself in most satisfactory operating results in the Power Division.

An additional order has been placed for ten (10) double truck P. A. Y. E. cars to be added to the rolling stock of your City Street Railway Department. It is expected that these cars will be placed in operation during the month of April, 1922.

On the 11th August, 1921, meetings were held of the holders of the two issues of your Company's French Currency Bonds. At these meetings the Bondholders accepted the following settlement of their claims against your Company:—

(a) \$2.40 per coupon for all matured coupons;
(b) \$29.50 in cash per 500 franc bond of the First Issue;

(c) \$19.50 in cash per 500 franc bond of the Second Issue;

(d) \$67.00 and \$77.00 per 500 franc bond of the First and Second Issues respectively, in 5% 30-Year Income Bonds of your Company.

In carrying out the settlement following the Bondholders' meeting in August, 1921, your Company cancelled \$23,200.00 par value of French Currency Bonds which were held in the Treasury. The remaining change in Treasury Bonds account represents bonds sold during the period under review, the proceeds of which were applied to the reduction of your Company's current liabilities.

On referring to the Balance Sheet it will be noted that since the issue of the last statement the current liabilities of your Company have been reduced by \$1,457,583.27. This reduction resulted from the settlement with the French Currency Bondholders, which enabled your Company to dispose of Treasury Bonds and also to realize assets which would not otherwise have been convertible into cash.

There was expended on Capital Account during the eighteen months period ending 31st December, 1921, an amount of \$214,762.15.

Notwithstanding these expenditures the current position of your Company has been improved during the period by \$734,580.95.

The total value at which your Company carried its investment in the bonds and stock of Quebec and Saguenay Railway Company and Lotbiniere & Megantic Railway Company, was transferred from Investments, Stocks, Bonds and Interest in Other Corporations account to Investment Adjustment and Bond Discount, etc., account.

The construction of the Quebec and Saguenay Railway created a substantial volume of traffic not previously available for the Montmorency Division of your Company. This necessarily enhanced the value of your Company's holdings in its subsidiary, the Quebec Railway, Light & Power Company. No increase, however, was made in the book value of Quebec Railway, Light & Power Company securities. It was thought best after the sale to reduce this account by the full amount formerly carried representing the sum invested in the Quebec & Saguenay Railway Company and the Lotbiniere & Megantic Railway Company.

Statistical Charts showing comparisons of the railway operations for the previous years are attached to this report.

The accounts of your Company have been duly audited and certified to by Messrs. P. S. Ross & Sons, Chartered Accountants, Montreal.

Your Directors desire to express their appreciation of the services rendered by the officials and staff of the Company.

Respectfully submitted on behalf of the Directors.

LORNE C. WEBSTER,
President.

Montreal, March 30th, 1922.

STATEMENT OF ASSETS AND LIABILITIES AS AT 31st DECEMBER, 1921

ASSETS	
Investments, Stocks, Bonds and Interest in other Corporations.....	\$14,298,633.02
Treasury Bonds	641,100.00
Investment Adjustment and Bond Discount, etc.	4,100,932.33
Advances to Controlled Companies.....	2,166,442.78
General Construction, etc.	533,640.56
Cash on hand	33,038.84
Accounts and Bills Receivable	279,214.90
Stores and Supplies on hand	250,123.39
Prepaid Expenses, etc.	58,289.60
	\$22,361,415.42

LIABILITIES	
Capital Stock	\$10,000,000.00
Less: Unissued	500.00
	\$9,999,500.00

BONDS:	
5% Consolidated Gold Bonds due 1st December, 1939	\$10,000,000.00
Less:	
In escrow to redeem Bonds of Subsidiary Companies	3,411,000.00
	6,589,000.00

5% 30-Year Income Bonds due 1st September, 1951	3,307,200.00
Bills Payable	264,516.68
Accounts Payable, etc.	484,444.93
Sundry Loans and Advances	444,229.30
Accrued Interest	42,201.65
Deferred and Unclaimed Interest	64,194.25
Accrued Charges	98,541.23
General Suspense and Reserves	383,174.51
Surplus	684,412.87
	\$22,361,415.42

Certified Correct: (Signed) A. E. LABELLE, Director.
(Signed) H. G. BOSSE, Comptroller.
(Signed) C. A. LAVIGNE, Director.

Quebec, 15th March, 1922.
Audited and Verified as per Report of March 15th, 1922, annexed.
(Signed) P. S. ROSS & SONS,
Chartered Accountants.

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under
 Positions Wanted and Positions Vacant, 3c. per word.
 Equipment for Sale advertisements, 4c. per word.
 Allow five words where replies are to be sent to a box number. Minimum order—\$1.
 Rates under other headings and for display advertisements on application.

Modern Marine Machinery

Automatic Steam Towing Machines, Ship Windlasses, Cargo and Deck Winches, Steam Capstans, Dock Gypsies, Steering Engines, Hydraulic Hoists, etc.

Manufactured by the

CORBET FOUNDRY & MACHINE CO., LIMITED Owen Sound, Canada



Norton Jacks

are the highest grade lifting Jacks in the world

Made by

A. O. NORTON
 Limited
 Coaticook, Quebec

Ontario Jockey Club TORONTO

SPRING MEETING

MAY 20th to 27th

The Sixty-Third Running of The King's Plate of 50 Guineas with \$10,000 added—the oldest fixture run continuously on this continent.

Saturday, May 20th, at 4 p.m.

RACING - STEEPLECHASING

Col. Wm. Hendrie, President. W. P. Fraser, Sec'y-Treas'r.

NOTICE

THE CANADIAN NORTHERN RAILWAY COMPANY.

Referring to the Trust Deed securing the 5 per cent. Income Charge Convertible Debenture Stock of the Canadian Northern Railway Company, the Directors regret to announce that the earnings of the Company for the half-year ended December 31st, 1921, are insufficient to enable them to declare any interest to be payable on the said stock on May 2nd next.

By order of the Board.

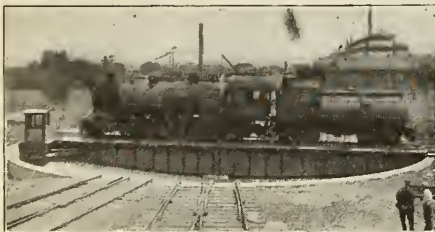
R. P. ORMSBY,
 Secretary.

Toronto, April 8th, 1922.

It Pays

to carry an advertisement in the Canadian Railway and Marine World every issue of the year because you obtain proportionately better

Results



Geo. P. Nichols & Bro.

Turntable Tractors

More than one hundred railroads use over 700 Nichols' Electric Tractors.

Transfer Tables

Eighty-five railroads and car builders use nearly 200 Nichols' Electric Transfer Tables.

There's a Reason

2137 Fulton St., Chicago

Rails, Cars, Locomotives

and Contractors' Equipment

IMMEDIATE
 SHIPMENT

John J. Gartshore

58 Front Street West
 TORONTO

Car Closets

Flush or Dry

DUNER CO. 101 S. CLINTON ST.
 CHICAGO.

GRIFFIN & GRIFFIN

P.O. Box 97, Windsor, Ont.

Canadian manufacturers of the Celebrated Wheel Truing Brake Shoe. Best Wheel Grinders in the World.



STANDARD
 Copper and Brass Wire,
 Copper Clad Wire,
 Magnet Wire,
 Weatherproof Wire,
 Rubber Ins. Wire,
 Lead Covered Cables,
 Armored Cables,
 Cable Terminals,
 Junction Boxes,
 etc., etc.

WE have unsurpassed facilities for meeting your every requirement of these products promptly and satisfactorily. Write our nearest office about your requirements.

Standard Underground Cable Co. of Canada, Limited

Branch Offices and Warehouses
 Montreal, Toronto, Hamilton, Winnipeg, Seattle.

Western and Eastern
 Poles

Cleveland
 Coils

Don M. Campbell, Preston, Ont.

Railway Equipment

See us at Booth 14, Canadian Electric Railway Association Convention, Quebec, June 12 and 3

Electric Cars

Motors

Engineers and Contractors**VIVIAN T. BARTRAM****Railroad
and
Harbour Works***Head Office***Bank of Toronto Bldg. TORONTO****The Strauss Bascule
Bridge Co.****Engrs. & Patentees of Strauss
Movable Bridges.**

STRAUSS Bridges in CANADA number more than TWICE as many as all other Bascule and Lift Bridges COMBINED. Consult us before adopting plans or undertaking construction.

Main Office: 225 No. Michigan Ave., Chicago.

Canadian Offices: 14 Windsor Hotel, Montreal; 103 London Bldg., Vancouver.

New York Office: 30 Church St.

THE ARNOLD COMPANY

ENGINEERS—CONSTRUCTORS
ELECTRICAL—CIVIL—MECHANICAL
REPORTS, DESIGN AND CONSTRUCTION
Complete Railway Shop and Terminal Properties—
Electrification of Steam Railroads.
CHICAGO

ANGUS SINCLAIR, C. E.*Railway Contractor*

OFFICE: EXCELSIOR LIFE BUILDING
Adelaide and Toronto Sts., Toronto

Traffic Service**GUY TOMBS LIMITED**

Traffic Managers, Freight Brokers,
Ocean Ticket Agents.

Special attention to exports through Canadian ports.

285 Beaver Hall Hill - Montreal

Scientific Instruments

Nautical Insts. Surveying Insts.
Marine Clocks and Chronometers

*Established 1857***HARRISON & CO.**

53 Metcalfe St., Dominion Sq. MONTREAL

**Bureau of Canadian
Information**

THE Canadian Pacific Railway, through its Bureau of Canadian Information, will furnish you with the latest reliable information on every phase of industrial and agricultural development in Canada. In the Reference Libraries maintained at Montreal, Chicago and New York are complete data on natural resources, climate, labor, transportation, business openings, etc., in Canada. Additional data is constantly being added.

No charge or obligation attaches to this service. Business organizations are invited to make use of it.

**Canadian Pacific Railway
Department of Colonization and Development**

165 E. Ontario St. 355 Windsor Stn. C.P.R. Bldg., Madison Ave., at 44th St.
Chicago Montreal New York

MARINE

FIRE

G. U. PRICE LimitedINSURANCE**Bank of Toronto Building**

MONTREAL

Inquiries invited

CASUALTY

LIFE

ROBERT W. HUNT, President

CHARLES WARNOCK, Vice-Pres. and Genl. Mgr.

Robert W. Hunt & Co., Limited

Consulting and Inspecting Engineers
Chemists and Metallurgists

Expert examination and tests of all steel and metal products; Bridges, Buildings, Cement, Electrical and Mechanical Plant Equipment; Rails and Fastenings; Cars; Locomotives; Pipe; Castings; Forgings; Lumber; Paving Materials.

Resident inspectors at all important manufacturing centres in Canada, the United States and Great Britain.

REPORTS ON PROPERTIES AND PROCESSES.

Head Office and Laboratories:

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CANADIAN BRONZE LIMITED

Brass Wearing Parts for Locomotives. Journal Bearings for Freight and Passenger Service. BABBITTS. Miscellaneous Brass Castings for Railroads.

Works and Office: 69 Delorimier Avenue, MONTREAL, QUE.

MILLER BOILER WASHING SYSTEM—FOR LOCOMOTIVES

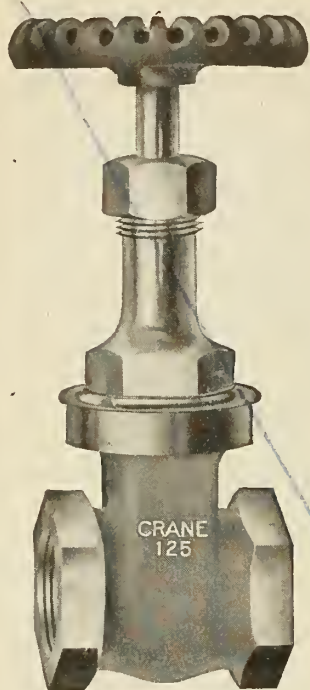
Washout Water at 120°.

Refill Water at 200°.

F. W. MILLER HEATING CO.

McCORMICK BUILDING

CHICAGO, ILLINOIS

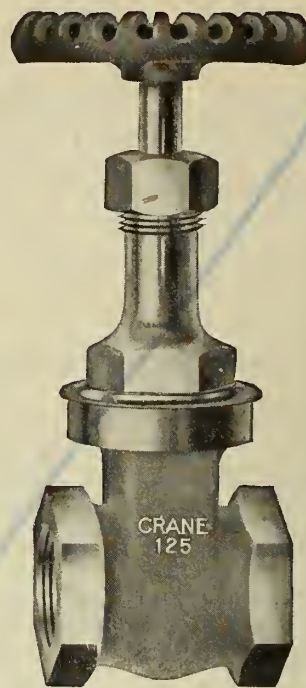


CRANE

STANDARD

BRASS GATE VALVES

No. 440



DOUBLE DISC. PARALLEL SEATS

The Steam working pressure for which they are intended
is Cast on the Valve.

Steam Working Pressures up to 125 Pounds.

Cold Water working Pressures, 175 Pounds.

These Valves may be packed when open and under pressure.

*Manufacturers of Valves, Fitting and Piping Equipment for all pressures and
purposes—and distributors of Pipe, Plumbing and Heating Supplies.*

Branches and Warehouses:
HALIFAX, OTTAWA, TORONTO,
HAMILTON, LONDON, WINNIPEG,
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Sales Offices:
ST. JOHN, QUEBEC, SHERBROOKE,
EDMONTON, VICTORIA,
SYDNEY, AUSTRALIA.

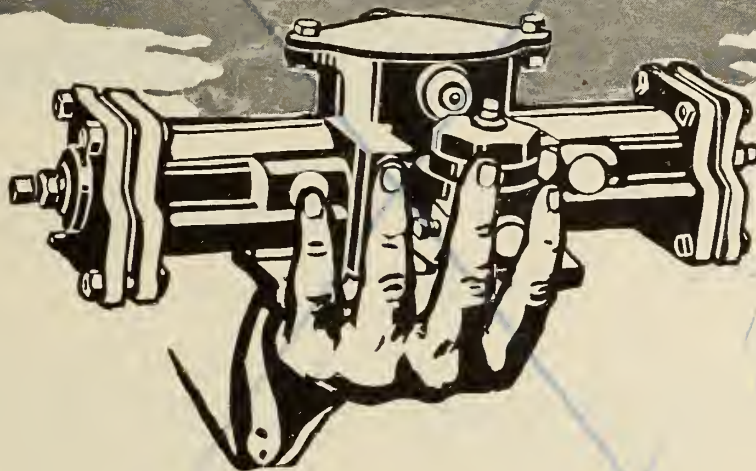
CRANE
LIMITED

HEAD OFFICE & WORKS
1280 ST PATRICK STREET
MONTREAL

CRANE-BENNETT
LIMITED

Head Office and Warehouse:
LONDON, ENGLAND.

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BIRMINGHAM, CARDIFF,
GLASGOW, LEEDS, MANCHESTER.



“National Pneumatic” —says *Hydro-Electric*, too!

For the twenty-five high-grade, single-truck cars which the Hydro-Electric Commission of Ontario has ordered for early operation in different cities of Ontario, it has specified the door and step control of this company.

Thus is confirmed the decision of Montreal, Toronto and other Canadian cities where National Pneumatic equipment is standard either on double-truck cars or as a part of the famous safety car.

Accounts for that Canadian plant, too!

See our exhibit at the Canadian Electric Railway Association Convention, Quebec, June 1, 2 and 3.

Producers of

Pneumatic and Manual Door and Step Control
Motorman's Signal Lights, Door and Step Operating Mechanisms
Safety Interlocking Door Control Multiple Unit Door Control

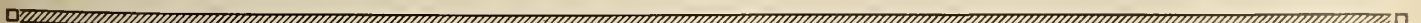
Manufactured in Canada by
Railway & Power Engineering
Corp., Ltd.
Toronto, Ont.

National Pneumatic Company, Inc.

50 Church St., New York

Edison Bldg., Chicago

Works: Rahway, N. J.





Light-Weight One-Man Birney Safety Cars Now Built in Canada

Some Canadian street railways have already placed Birney Safety Cars in service. Light in weight and so equipped as to facilitate the most satisfactory operation with one man, the Birney Safety Car represents the highest point of development in car design and equipment. Its low operating cost permits the operation of more cars on more

frequent headway, thereby providing an attractive service which stimulates the car riding habit and increases gross revenue.

Our Plant is prepared to execute orders for Birney Safety Cars, mounted on Brill 79-E trucks, having solid-forged sideframes. The performance of this light-weight car is responsible for its popularity.

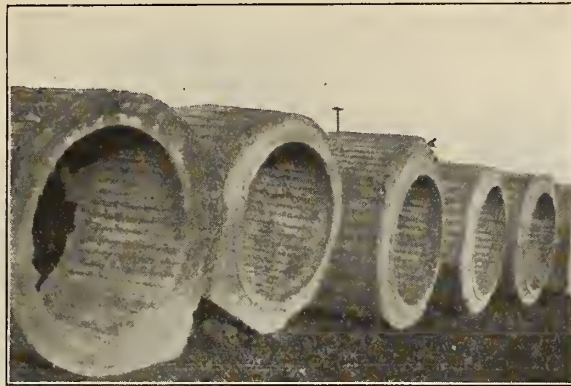
For further particulars address

CANADIAN BRILL COMPANY, LIMITED
PRESTON, ONTARIO

Affiliated in the construction of all types electric railway cars with

The J. G. Brill Company, Philadelphia, U.S.A.
American Car Company, St. Louis.

The G. C. Kuhlman Car Co., Cleveland.
Wason Mfg. Company, Springfield, Mass.



Reinforced Concrete Pipe made by Canadian National Railways,
Edmonton, Alta. Size 49 inches O.S. Diameter;
36 inches I.S. Diameter.

KILL
LAST AD.

One of the Important Railway Uses of Concrete Culvert Pipe

Pre-cast concrete Pipe has three outstanding advantages.

1. It is ready for immediate use.
2. Its maximum practicable size is limited only by the weight which can be economically shipped and handled into place.
3. Economical as compared with cast-in-place pipe or small box culverts.

Where the waterway opening requires more than one large diameter pipe, two pipes may be placed side by side. Where the opening calls for more than two large diameter pipes, it is well to provide a large "box" culvert or concrete arch design.

Concrete Culvert Pipe has been used with a covering of less than 12 inches and under embankments up to 70 feet high.

Nothing can equal Concrete for this purpose. Its economy and durability recommend Concrete Pipe of the type shown in the illustration.

**SPECIFY
CANADA CEMENT
UNIFORMLY
RELIABLE**

We maintain a Service Department to co-operate in all lines of work for which Concrete is adapted. Our library is comprehensive and is at your disposal at all times without charge.

CANADA CEMENT COMPANY LIMITED

Canada Cement Company Building - Phillips Square, Montreal

Sales Offices at Montreal Toronto Winnipeg Calgary

**CANADA CEMENT
CONCRETE
FOR PERMANENCE**

KILL
LAST AD.



Dominion Oxygen Service now includes **PREST-O-LITE Dissolved Acetylene**

USERS of welding and cutting apparatus will appreciate this new and better service — one source of supply for both Dominion Oxygen and Prest-O-Lite Dissolved Acetylene.

The same high quality will be maintained in both the oxygen and fuel gas as has always distinguished these products.

The same types of cylinders will be continued under the new arrangement.

The advantage and the saving to you will come from placing your orders with one Company for *both* Dominion Oxygen and Prest-O-Lite Gas—thus always securing an adequate supply of both at the time and place you need them.

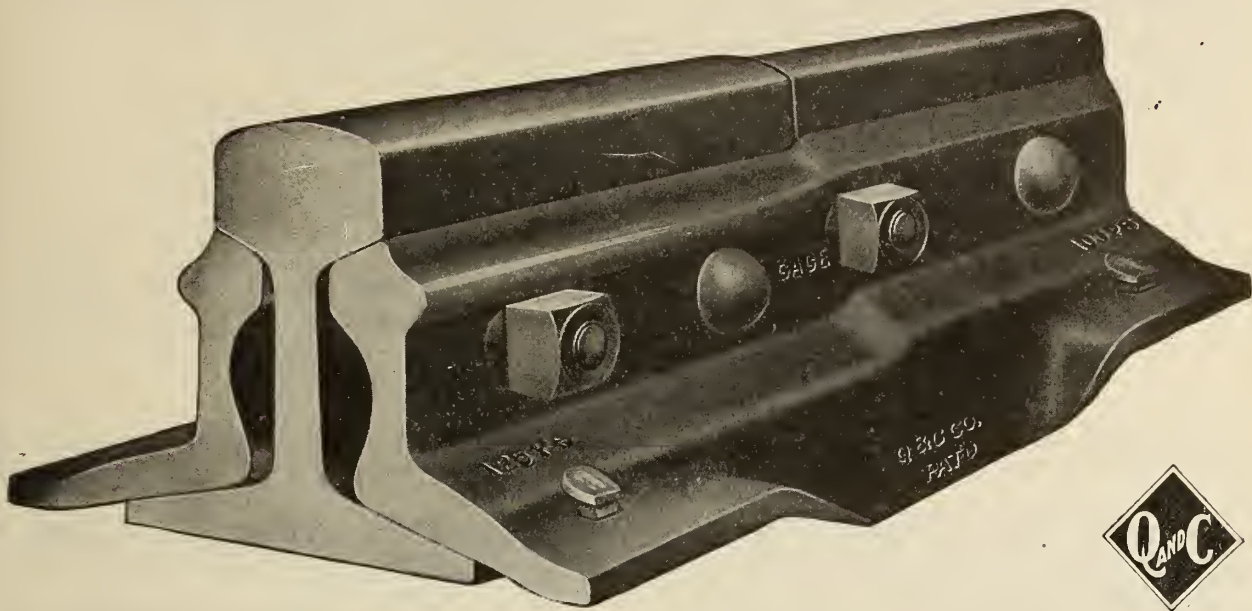
Telephone, telegraph, or write your orders to our nearest Distributing Station for immediate shipment by the shortest route.

DOMINION OXYGEN COMPANY, LIMITED

*Operating the Welding and Cutting Gas Division of
PREST-O-LITE COMPANY OF CANADA, LIMITED*

Hillcrest Park, Toronto.

Shawinigan Falls, Quebec, Montreal, Hamilton, Merritton,
Welland, Windsor, Winnipeg.



“The Joint by which others are judged”

“Heavier locomotives” is the cry today. Naturally, longer and heavier trains in the future. To successfully stand up under these additional tons, the maintenance equipment must be the best. In selecting step joints, as any other device, the design, material used, the process of manufacture and the cost are the essentials. It is on these fundamentals that the Q & C Rolled Steel Step Joint has built its reputation in the past.

Combined with their feature of strength—which under actual test has proven many times stronger than cast metal—Q & C Rolled Steel Step Joints embody the factors of safety and economy that enable them to lead in the step joint field. By our process of manufacture a rolled steel joint with the Bonzano and Thomson features is pressed to fit any rail section. This process involves heat treatment which further strengthens the joint and also permits pressing to a perfect fit. On your road you want the step joints that are the most efficient. A card will bring you any information. Write us today.

We also manufacture

Derails, Replacers, Rail Braces, Rail Benders, Rail Saws, Snow Plows, Snow Flangers, Guard Rail Clamps, Guard Rail Braces, Electric Snow Melters, Rolled Steel Step Joints, Bonzano-Thomson Rail Joints.

OUR BRANCH OFFICES SPAN THE DOMINION

The General Supply Co. of Canada, Limited

Montreal

356 Sparks Street, Ottawa

Winnipeg

Toronto

Vancouver

North Bay

Moncton

**KILL
LAST AD!**

CANADIAN **VICKERS** LIMITED

SHIPBUILDERS, ENGINEERS, BOILERMAKERS and REPAIRERS
MONTREAL

Boilers—All types.
Tanks and Special Plate Work.

Low Prices—Prompt Deliveries.



ENGINEERS, MANUFACTURERS
AND ERECTORS OF

**STEEL RAILWAY BRIDGES
STEEL HIGHWAY BRIDGES
STEEL TURNTABLES
STEEL STRUCTURES OF
EVERY DESCRIPTION**

YOUR INQUIRIES WILL RECEIVE PROMPT ATTENTION

THE HAMILTON BRIDGE WORKS COMPANY
HAMILTON, CANADA **LIMITED**

MARCONI "MADE IN CANADA" **WIRELESS APPARATUS**

For Marine, Land and Aircraft Purposes

Wireless Telegraph and Telephone Equipment

Installed — Operated — Maintained —

Communicate Your
Requirements to:—



The Marconi Wireless Telegraph Company
of Canada, Limited

Marconi Building, 11 St. Sacramento Street, Montreal, P.Q.

Divisional Offices: Vancouver, Winnipeg, Toronto, Halifax, St. John, N.B., St. John's, Nfld.

TRY TULC NOW

The best and most economical lubricant for—

ARMATURE BEARINGS

MOTOR BEARINGS

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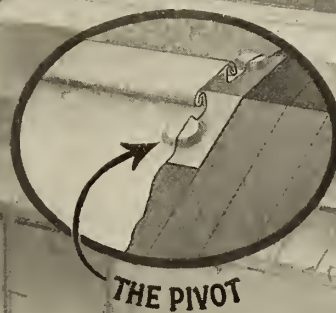
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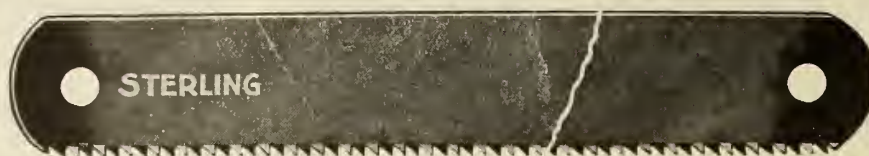
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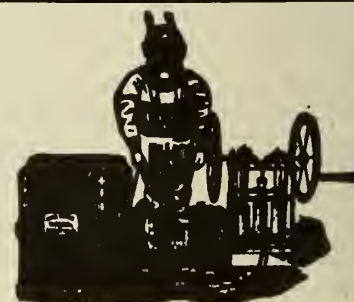
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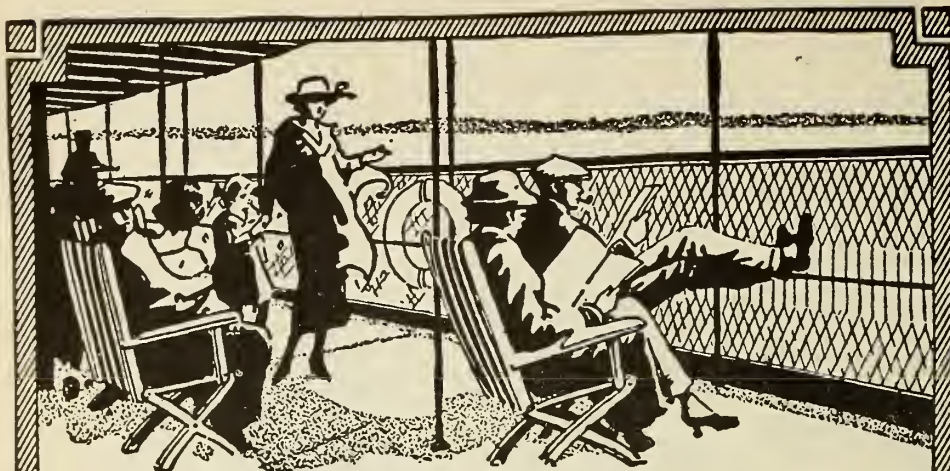
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Collingwood Shipbuilding Co.
Reid Newfoundland Co.
Toronto Drydock Co.
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Acton Burrows
- SIGNAL SYSTEMS, CAR**
Ohio Brass Co.
- SIGNALS**
Gen. Railway Signal Co. of Can.
- SIGNS**
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Steel Co. of Canada
Harvard Turnbull & Co.
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Standard Und. Cable Co. of Can.
- SPREADER CARS**
F. H. Hopkins & Co.
- SPRINGS**
American Steel Foundries
Canadian Steel Foundries Ltd.
B. J. Coghlin Co.
Harvard Turnbull & Co.
- STAPLES**
Steel Co. of Canada
- STATION NAME SIGNS**
Acton Burrows
- STAYBOLTS, FLEXIBLE**
Flannery Bolt Co.
- STAYBOLTS, LOCOMOTIVE**
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- STEAM HAMMERS**
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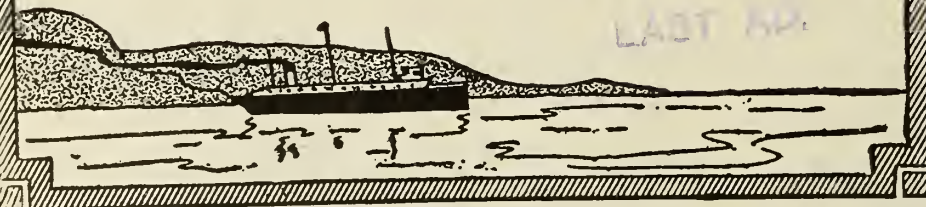
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You can make this trip either as a vacation by itself or as part of a transcontinental journey by rail—and—water. But be sure you get reservations on a

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The ideal signs for

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Telegraph,
Telephone and
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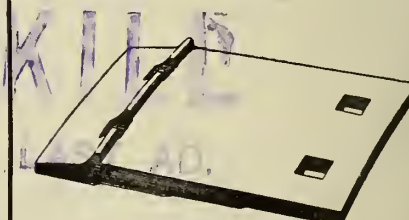
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One of the most distinguished, successful and honored Engineers of Canada writes as follows of the

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“It is by far the most scientifically designed and practically efficient tie plate ever evolved.”

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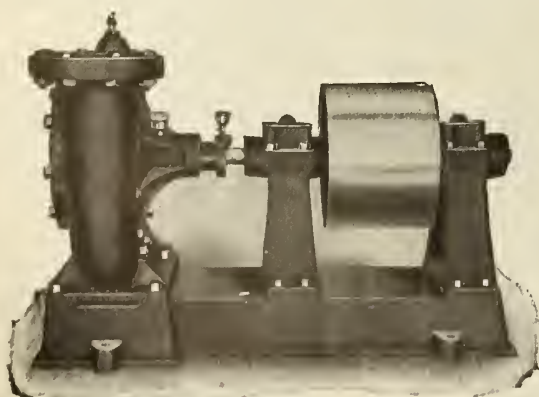
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PUMPING MACHINERY for Every Service

Vertical and
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Test our service when next in the market,—it will pay you.

The Smart-Turner
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The efficiency-point of a file has been passed as soon as its teeth have lost their sharpness.

It pays to watch closely for signs of wear.

Discard the file *then*—a new file costs less than the labor-time wastefully expended on an old one.

Long efficient service from every file is ensured by ordering one of these famous brands:

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Made in Canada by
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*Alternate months.

MINER RAILWAY APPLIANCES MANUFACTURED IN CANADA

CANUCK SUPPLY CO., Ltd.
MONTREAL



**ROLLING ROCKER
SIDE BEARINGS**



**EFFICIENT
FRICTION
DRAFT
GEARS**



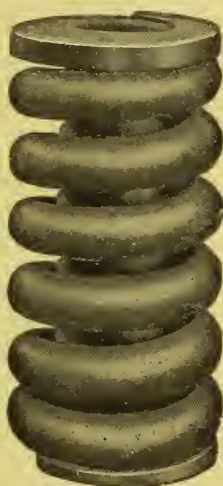
**IDEAL
SAFETY
HAND
BRAKES**

**W. H. MINER
CHICAGO**

THESE DEVICES ARE VERY EXTENSIVELY USED

PARTIAL LIST OF EQUIPMENT WE SELL

Ash handling machines
Bridges, coal and ore
Buckets, grab
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Cable railway systems
Cars, automatic cable
and electric
Car dumpers
Car pullers
Coal crushers
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Coal pockets
Concrete carts
Concrete mixers
Conveyors
Dredges
Derricks
Drift spikes
Gasoline engines
Hoists, cargo
Hoists, steam and electric
Pressed washers
Pumps
Springs, locomotive, car
Steel and iron bars
Track spikes
Track tools
Wheelbarrows
Winches, ship
Wire cloth
Wire nails
Wire rope and blocks
Wire, tinned, coppered
and galvanized



Coghlin Springs

Made in Canada in a well-equipped plant and of the best materials. The accepted standard of spring quality for over 50 years.

Steam and electric railway springs of every description.

Track tools.

Information and prices gladly furnished on request.

HARVARD TURNBULL & Co.
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Agents for { Canadian Mead-Morrison Co. Ltd. London Concrete Machinery Co. Ltd.
B. J. Coghlin Co. Ltd. The Peck Rolling Mills Ltd.

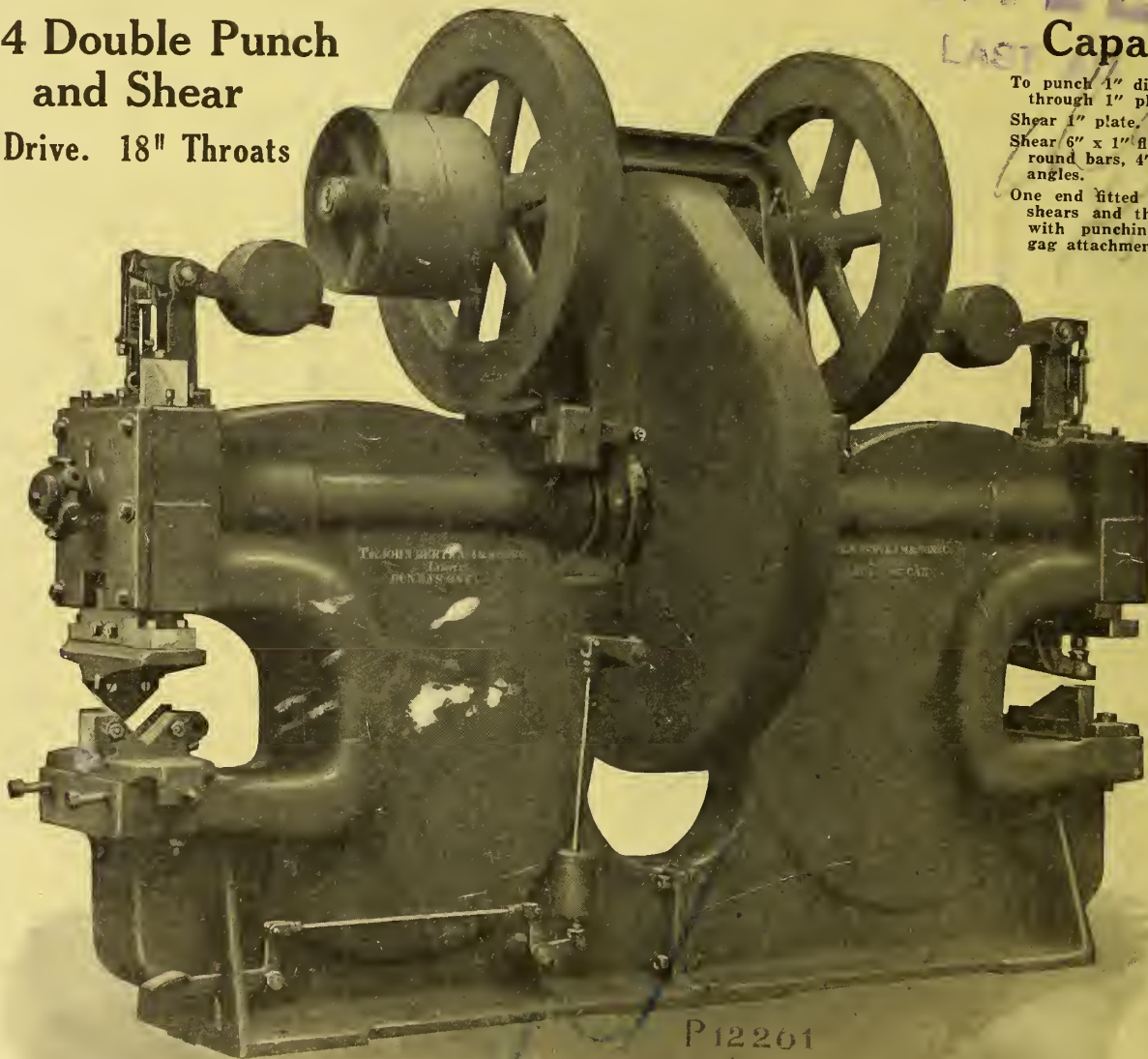
The BERTRAM MACHINE TOOLS

WILD LAST Capacity

No. 4 Double Punch and Shear

Belt Drive. 18" Throats

To punch 1" diameter holes through 1" plate.
Shear 1" plate.
Shear 6" x 1" flat bars, 1 3/4" round bars, 4" x 4" x 3/8" angles.
One end fitted with Angle-shears and the other end with punching tools and gag attachment.



P12201

The John Bertram & Sons Co., Limited

DUNDAS, ONTARIO, CANADA

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723 Drummond Bldg.

TORONTO
32 Front St. West

VANCOUVER
609 Bank of Ottawa Bldg.

WALKERVILLE
103 1/2 Sandwich Street

WINNIPEG
1205 McArthur Bldg.

HALIFAX
Roy Bldg.

marked

Canadian Railway AND Marine World

Founded in 1898 by Acton Burrows.

Number 292.

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TORONTO, CANADA, JUNE, 1922

See page 297 for
Subscription Rates

BERTRAM
MACHINE
TOOLS

18-inch Crank Slotting Machine

A. C. Motor Drive Through
Speed Box

10 H.P. Motor—1,000 R.P.M.

**The John Bertram
& Sons Co., Limited**
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HALIFAX—Roy Building



P15106

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS



ECONOMY CAST STEEL DRAFT ARMS

Application of Economy Cast Steel Draft Arms will keep cars off repair tracks.

The value of the Economy Cast Steel Draft Arm is emphasized by the fact that there are over 625,000 in service.

Application of Economy Cast Steel Draft Arms increases the revenue.

INTERNATIONAL EQUIPMENT CO. LTD.
MONTREAL, QUEBEC, CANADA.



KENNEDY PROPELLER WHEELS

Cut Shows Propeller 17 Ft. 6 Inches in Diameter, Weight 10 Tons. All Sizes, Sectional or Solid Iron, Semi-Steel or Steel.

Marine Machinery Anchor-Windlasses
Winches, etc.

Steel Castings, All Sizes

Try us with your next Order

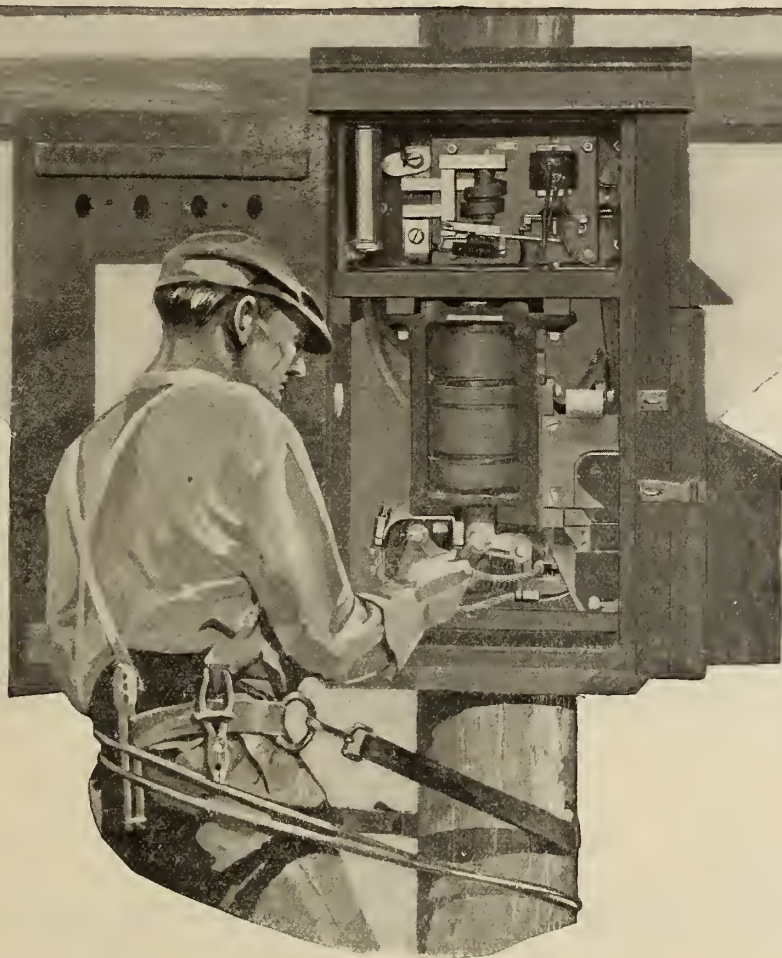
THE WM. KENNEDY & SONS, LIMITED

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OWEN SOUND

ESTABLISHED 1860

When traffic for any reason makes heavy demands in one section, the feeder system should be ready to meet the power requirements



C.-G.-E.
Automatic
Sectionalizing
Switch

Connected directly across the section insulator the C.G.E. Automatic Sectionalizing Switch links up adjacent feeder sections, increasing current capacity and equalizing voltages. In case of a short circuit, it automatically opens, and will not close until the line is again free from trouble.

Such an automatic switchman guarding each section of your feeder copper gives

you all the benefits of an uninterrupted network of feeders, supplies current as needed and gets the highest possible efficiency. In case of trouble at any point the affected section will be cut out immediately and when the trouble is removed, will be switched into the network again — and IT'S ALL DONE AUTOMATICALLY.

Our nearest sales branch will gladly supply you with full particulars.

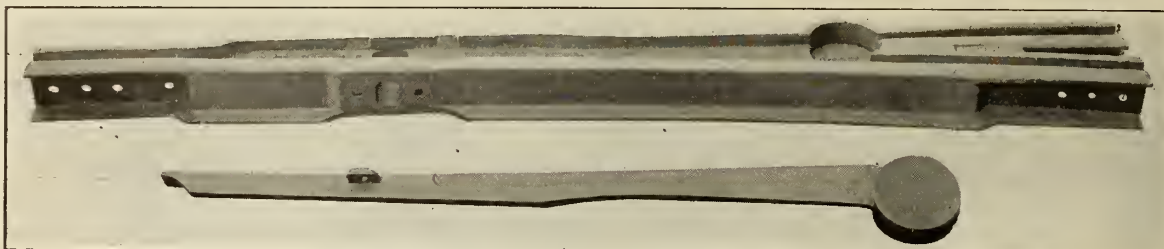
Canadian General Electric Co., Limited

HEAD OFFICE  TORONTO

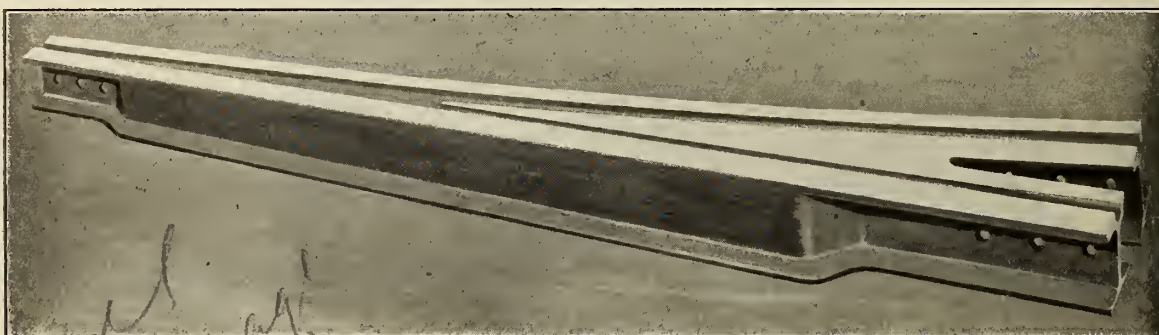
Branch Offices: Halifax, Sydney, St. John, Montreal, Quebec, Sherbrooke, Ottawa, Hamilton, London, Windsor, Cobalt, South Porcupine, Winnipeg, Calgary, Edmonton, Vancouver, Nelson and Victoria.

TRACKWORK

FOR STEAM AND ELECTRIC RAILWAYS



Manganese-Steel Spiral Switch



Manganese-Steel Mate

order bag
SWITCHES, MATES, FROGS, DIAMOND CROSSINGS, ETC.

COMPLETE INTERSECTIONS

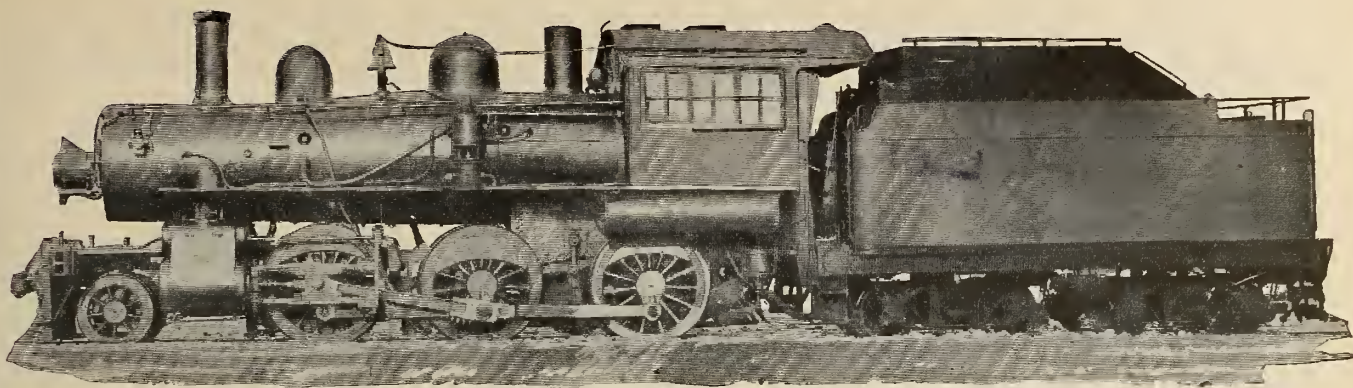
BUILT-UP, MANGANESE-INSERT or SOLID MANGANESE-STEEL

Manufacturers of Balkwill Articulated Manganese-Steel Crossings

CANADIAN
STEEL FOUNDRIES
LIMITED

TRANSPORTATION BUILDING

MONTREAL



THERE is not a single railway executive in Canada who would willingly or knowingly purchase or permit the use of inferior cylinders, cylinder packing, pistons, journals or bearing parts, simply because they were lower in price than the tried and tested kinds.

Yet the very life of the best bearing surfaces—their proper functioning and efficient action—depends upon an outside influence—*lubrication*. Evidence of the effects of inferior lubricants are plainly manifest whenever and wherever they are used: hot bearings, worn brasses, carbonization in cylinders, repacking, repairing and replacing of parts—equal in cost to many times the price difference between Galena and lower grade oils.

In addition to reducing these expensive troubles to a minimum, the savings accruing through extra mileage and conservation of fuel makes Galena lubrication by far the lowest in cost, as well as the most efficient, a fact readily ascertained from the cost records of hundreds of railroads.

*"More miles to the pint
Better service to the mile!"*



Galena-Signal Oil Company

of Canada, Limited

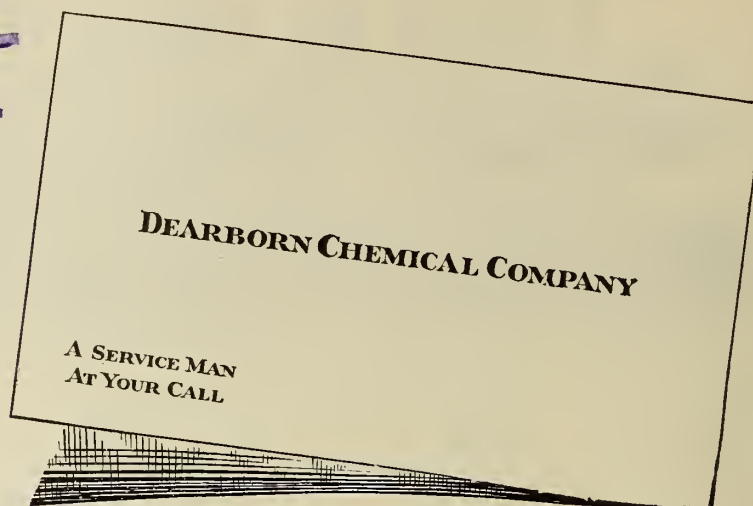
Toronto

Montreal



**KILL
LAST AD.**

Make better
water for your
locomotives a
part of our duty



Scientific Treating Improves Even Softened Waters

In a number of interesting cases we are treating water for locomotive use even after it has been through softening plants.

The highly corrosive character of these waters and their frequent tendency to foam makes such treatment as we provide most advisable.

Stop Foaming, Scale Formation, Corrosion

Dearborn Scientific Water Treatment is recommended only after our laboratory analysis of the waters in question. The fact that for 34 years we have been treating feed waters, both softened and raw, successfully and that over 50% of the locomotives in America use our treatment, is convincing evidence of the superiority of Dearborn methods.

How to Judge Dearborn Treatment by Comparison

Consider the thousands of different kinds of boiler water supplies—ranging from naturally soft or softened to alkali and hard waters. Doesn't it seem logical that a treatment prescribed with full knowledge of the actual requirements of the waters to be treated

would be more satisfactory than any stock formula? And especially since we can prove actual ultimate economy in using Dearborn Treatment. Let us go into this further with you.

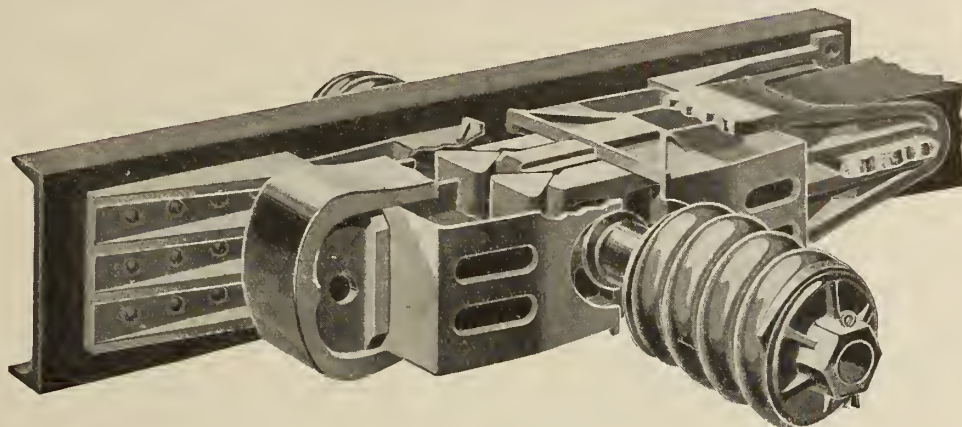
DEARBORN CHEMICAL COMPANY

of Canada Limited

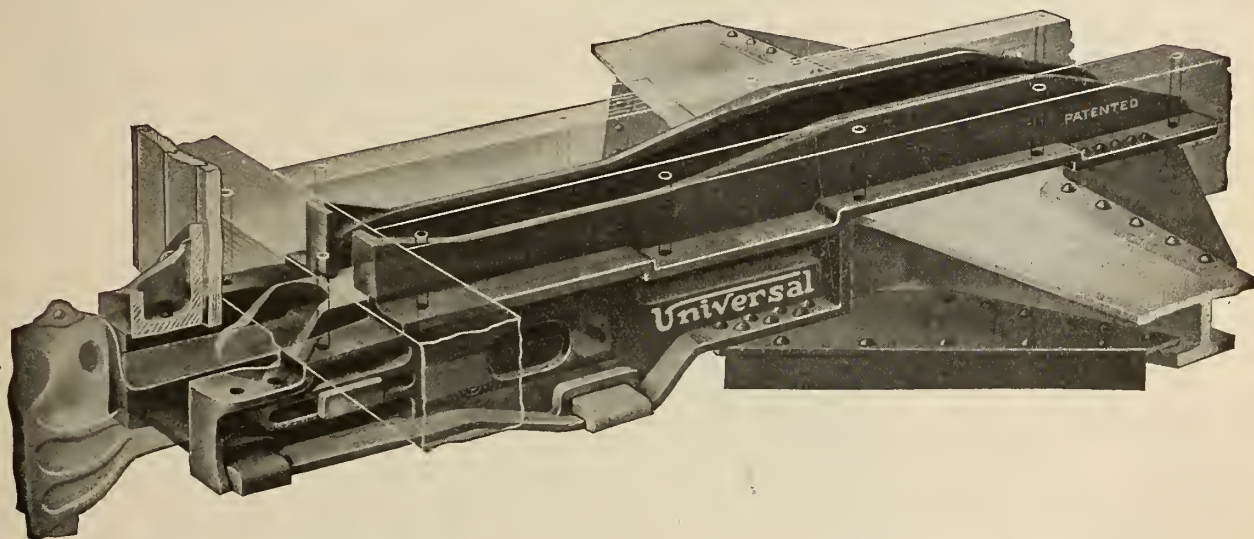
2454-2464 Dundas St W.,

TORONTO, CANADA

CARDWELL FRICTION DRAFT GEAR MADE IN CANADA



Universal ATTACHMENTS MADE IN CANADA



REENFORCING DRAFT ARMS
TANDEM SPRING DRAFT RIGGING
TWIN SPRING DRAFT RIGGING

CAST STEEL YOKES
DRAFT LUGS or PLATES
FRICTIONLESS SIDE BEARINGS

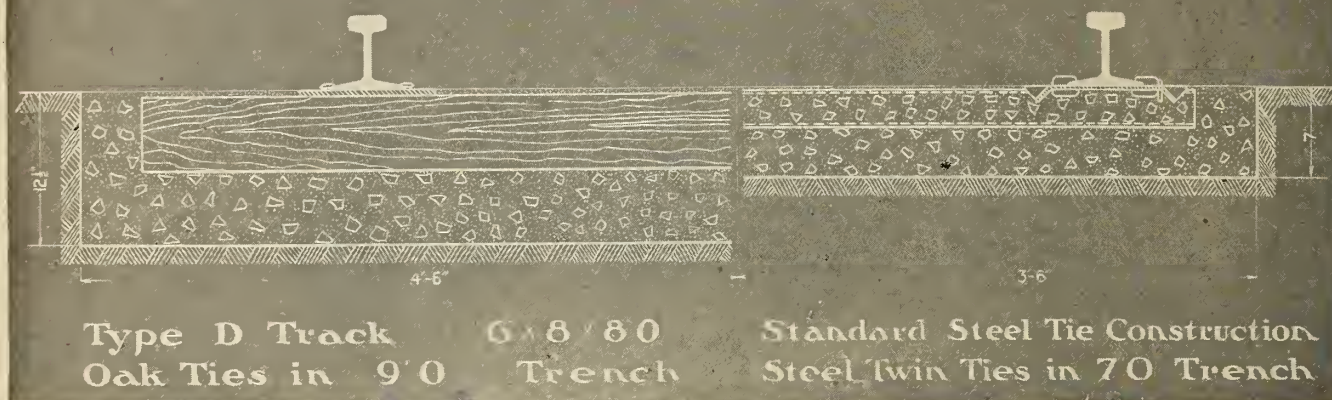
MADE IN CANADA

WEBB. G. KRAUSER

Transportation Building, MONTREAL

International Steel Twin Ties

Comparative Cross Section



Brantford Municipal Railway
The Ottawa Electric Railway
St. Thomas Municipal Street Railway

Used by
Hydro Electric Railway, Guelph
Port Arthur Civic Railway

Kitchener & Waterloo Street Railway
Hydro Electric Railway, Windsor

The above cross section shows at a glance the large saving and advantages accomplished by the use of STEEL TWIN TIE TRACK.

SIMPLICITY of Construction.

SAVING of Concrete.

SAVING of Excavation.

ELIMINATION of Water Absorbing Material.

ACCURACY of Gauge.

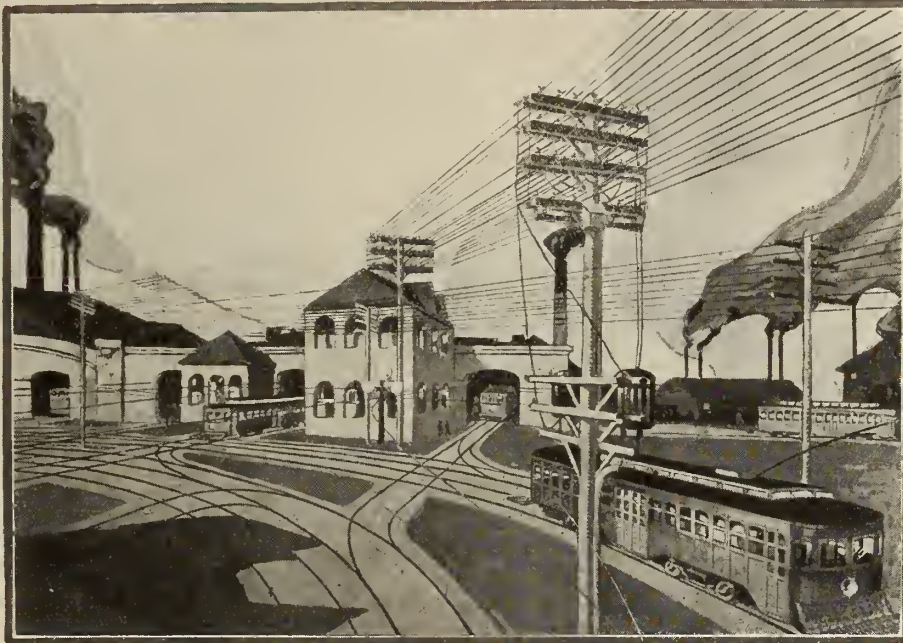
PERMANENCY of Construction.

The above proven facts lead Engineers to use this type of construction.

Write today for particulars.

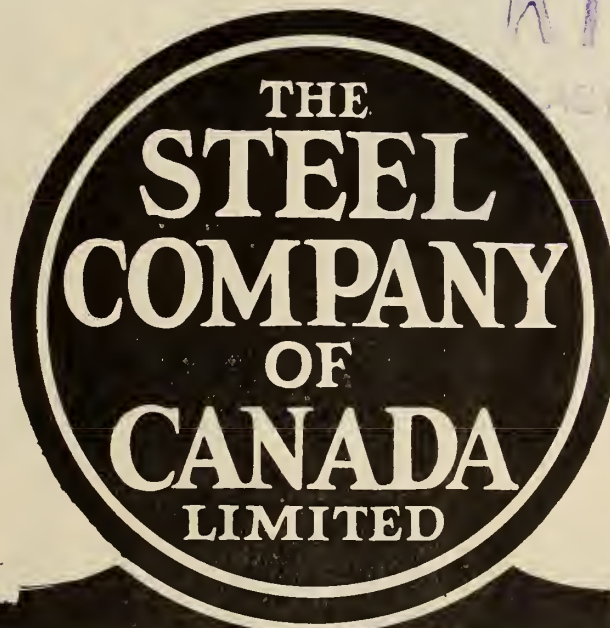
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Canadian Electric Railway Association
Convention at Quebec, June 1, 2 and 3.*

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SARNIA BRIDGE CO.
Limited
SARNIA - ONTARIO



GALVANIZED
**POLE LINE
HARDWARE**

WIRE
Copper and Galvanized
RIVETS
BOLTS, NUTS
WASHERS
SCREWS



POLE STEPS
GUY CLAMPS
CROSS ARM
BRACES
ANCHOR
RODS

HAMILTON MONTREAL



THE map above shows the location of the 49 foundries in the United States and Canada, represented by the Association of Manufacturers of Chilled Car Wheels.

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Buffalo, 4
Pittsburgh, 2
Cleveland, 2
Amherst, N.S.
Montreal
Mich. City, Ind.
Louisville
Mt. Vernon, Ill.
Ft. Wayne, Ind.
Birmingham
Atlanta
Savannah
Boston
Detroit
St. Paul
Kansas City, Kan.
Denver
Tacoma
Rochester, N. Y.

Sayre, Pa.
Berwick, Pa.
Albany
Toronto
New Glasgow, N.S.
Madison, Ill.
Huntington, W. Va.
Wilmington, Del.
Houston, Tex.
Hannibal, Mo.
Reading, Pa.
Baltimore
Richmond, Va.
Ft. William, Ont.
St. Thomas
Hamilton
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The Standard Wheel for Seventy-One Years.

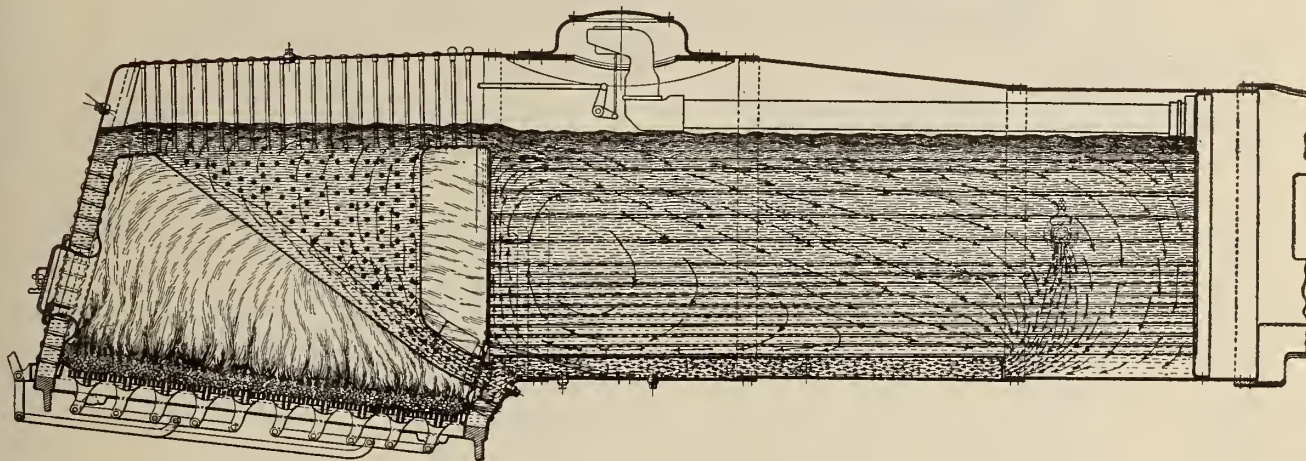
ASSOCIATION OF MANUFACTURERS
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1847 McCormick Bldg., Chicago

CHILLED IRON WHEELS

Sent to Railway Age June 2/22

Nicholson Thermic Syphons

For Locomotive Fireboxes



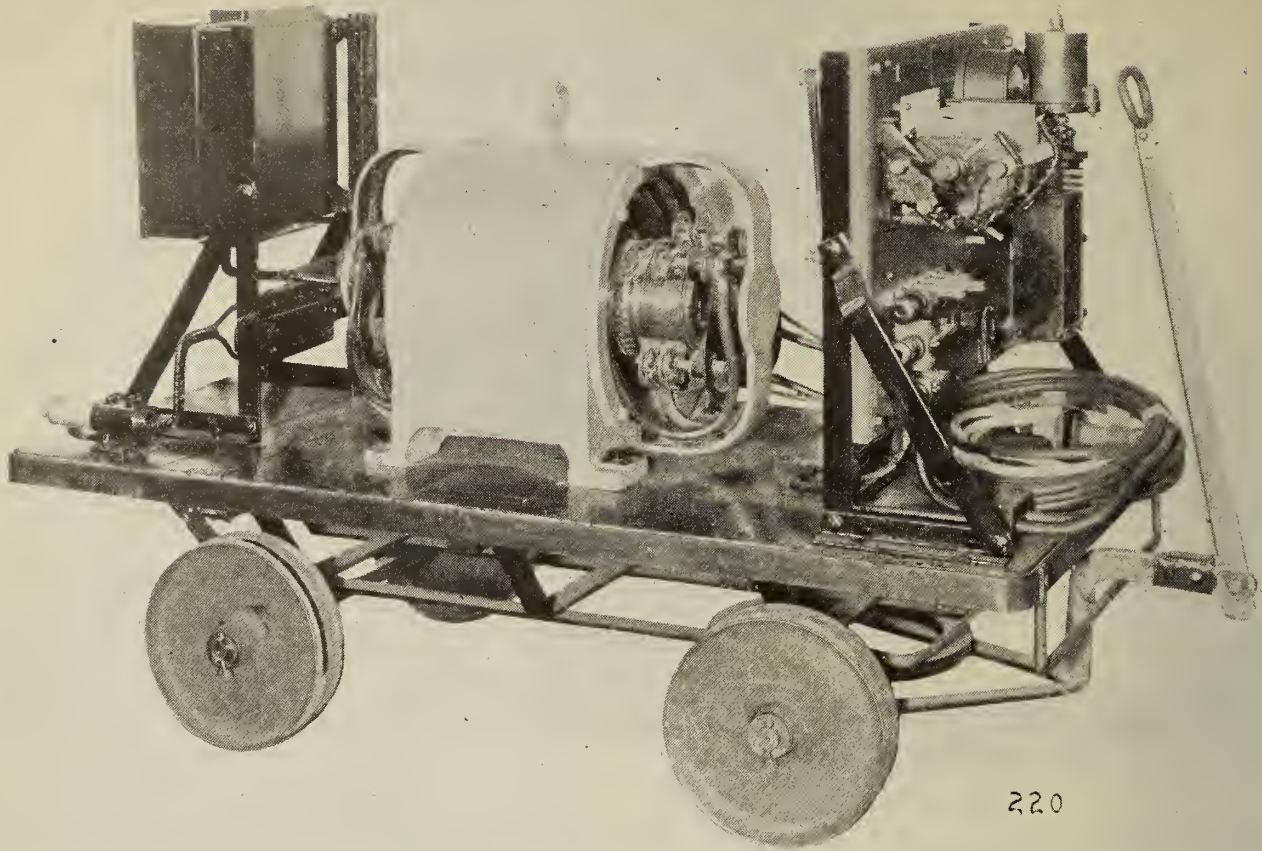
THE device that saves coal at the rate of from 14% to 24%, and **ENERGIZES** the entire boiler by creating vigorous circulation which sweeps all heating surfaces of the boiler. The resulting increase in *steaming capacity* eliminates *steam failures*.

Circulation may be observed in working model to be exhibited in booth 382-3-4-5 at the convention at Atlantic City, June 14-21.

Locomotive Firebox Company

Marquette Building

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1—Arc Dynamotor Portable Unit

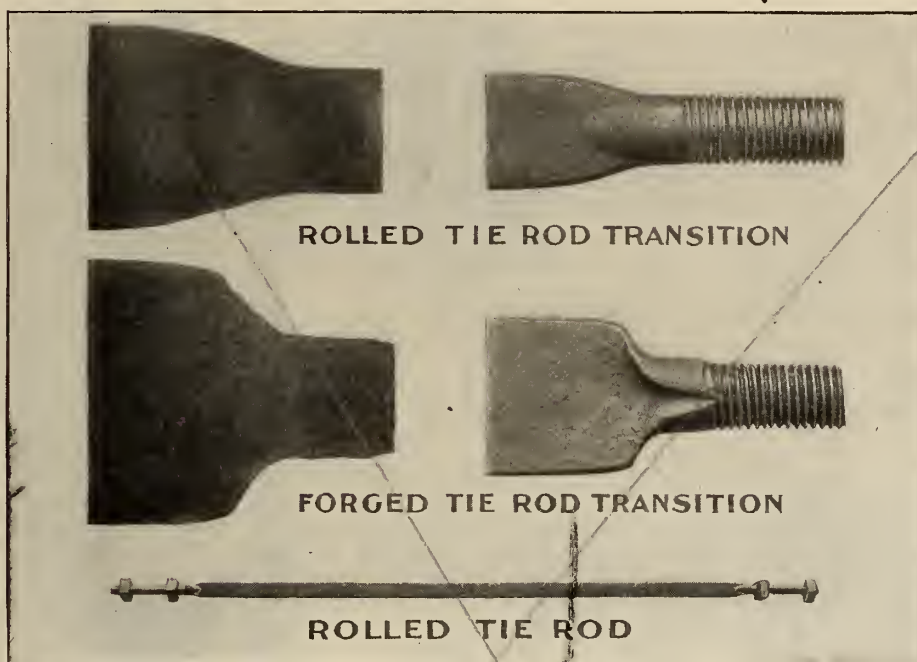
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Electric Welding

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Witherow Tie Rods used between girder or Tee rails in track construction are rolled from billet to finished form in one heat.

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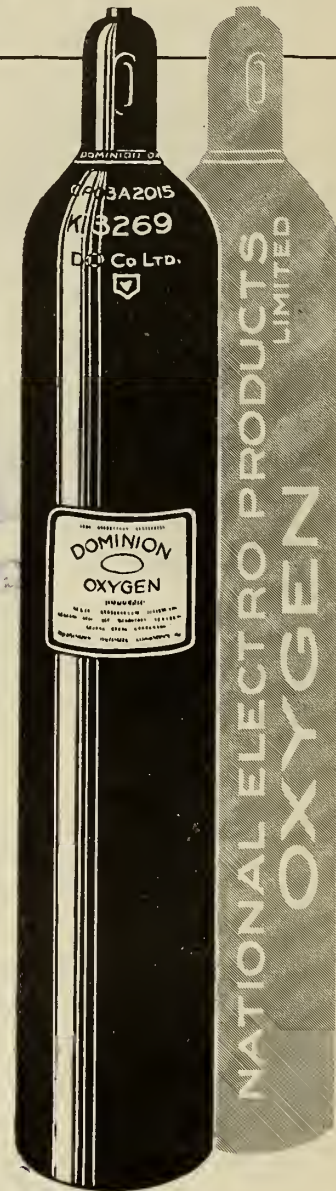
with

Dominion Oxygen Company Limited

This consolidation becomes effective immediately. The Dominion Oxygen Company Limited takes over the plants, patents, goodwill and contracts of the National Electro Products Limited, and will operate them under the name of the Dominion Oxygen Company Limited.

This union of the two companies will be of material advantage to all users of oxygen—it will effect stabilization of product—assure steady supply—and make possible important improvements in service.

It is sincerely hoped that the patronage given in the past to these two concerns individually will be extended to the new organization.



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*Operating the Welding and Cutting Gas Division of
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One of the foremost qualities of Q & C Rolled Steel Step Joints is the fact that they can be depended upon to give a reliable service, for our first thought in building a step joint has been given to a reliable product.

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tors of safety and economy. By our process of manufacture, the rolled steel joint with the Bonzano-Thomson features is pressed to fit any section of rail. This process involves heat treatment which further strengthens the joint and also permits pressing to a perfect fit.

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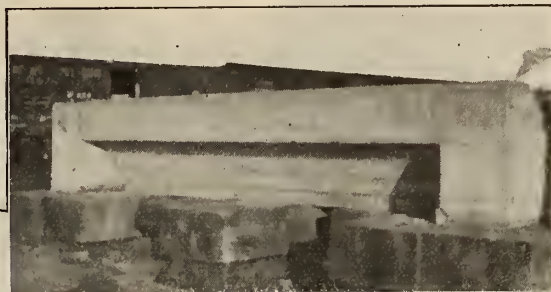
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Canadian National Railways



End view of sections or slabs showing substantial build.



Side view of outside slabs showing design of exposed side.



Illustration giving general idea of completed slabs when the sections are set in place.

Portable Concrete Slabs For Large Culverts or Short Span Bridges

Made by ordinary labor—under supervision of a competent foreman — these slabs were constructed at a moderate cost by the Canadian National Railways, at Edmonton, Alberta. Anchored in the surface side of each slab, are four iron rings, so placed as to distribute the weight when picked up with a 4 way chain.

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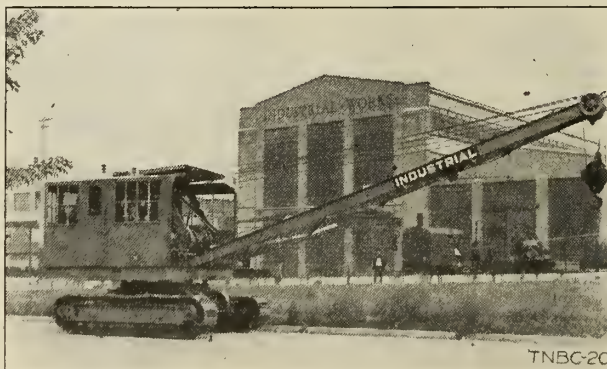
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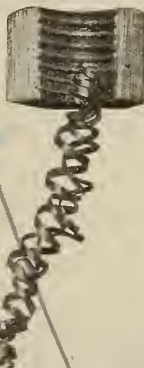
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Insist on this
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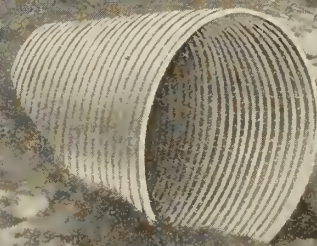
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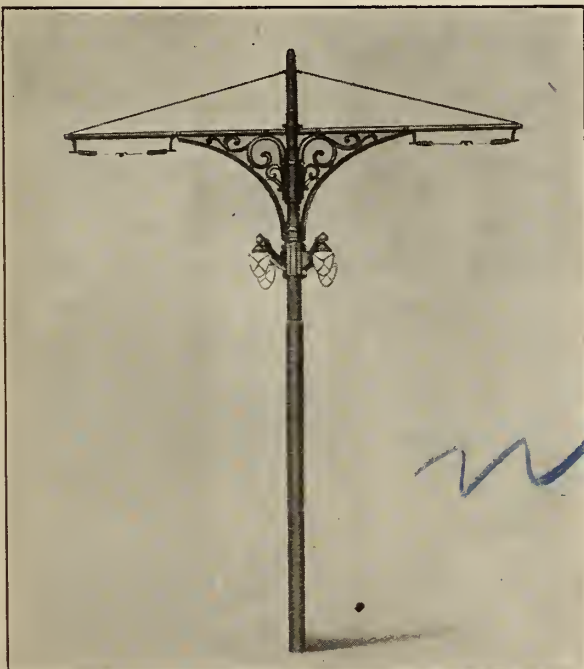
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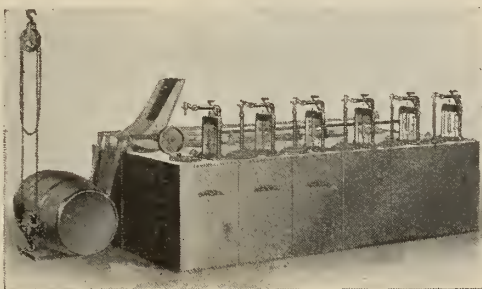
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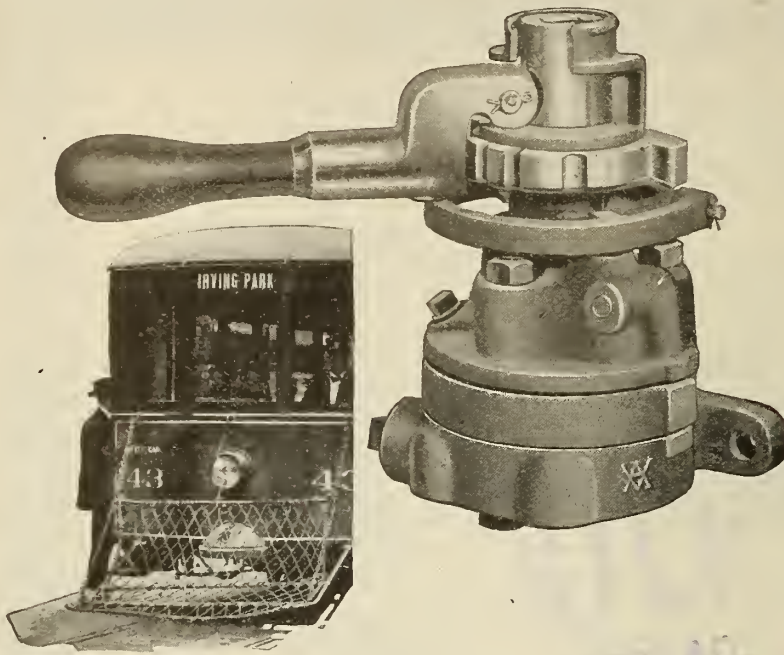
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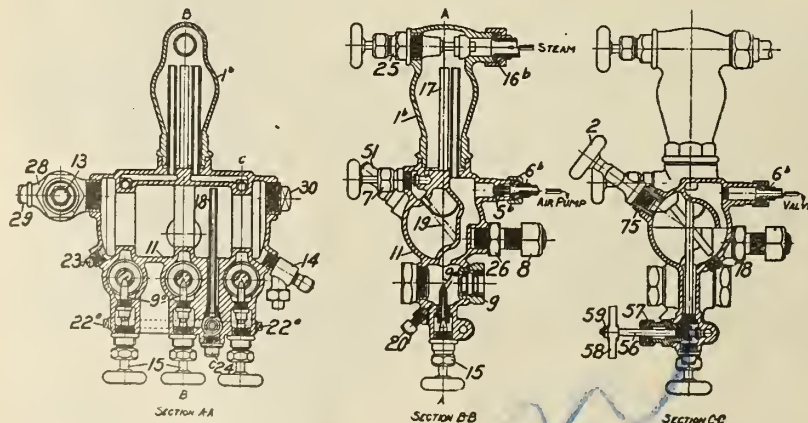
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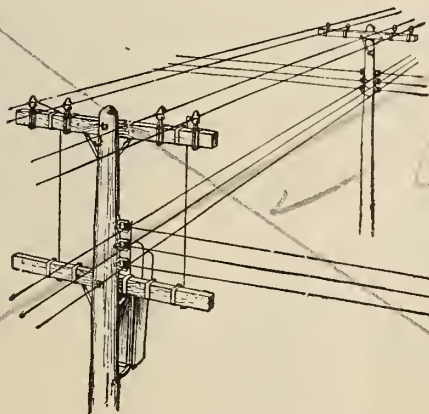
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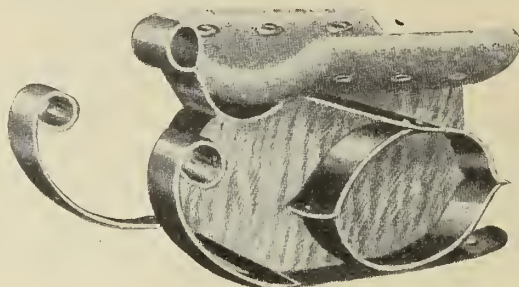
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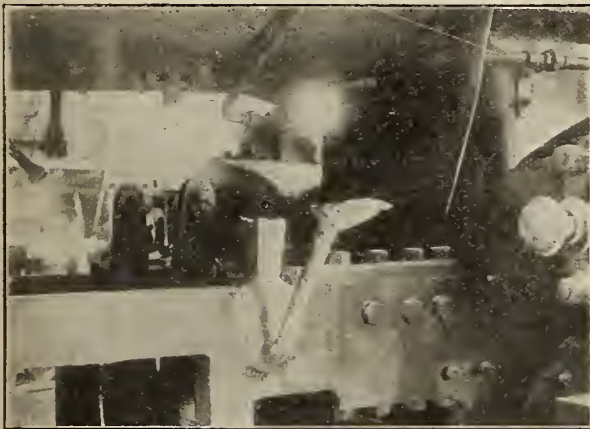
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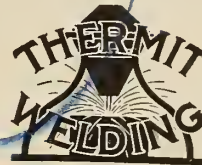
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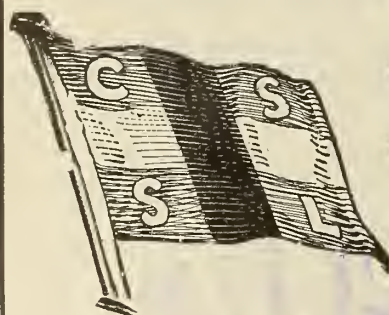
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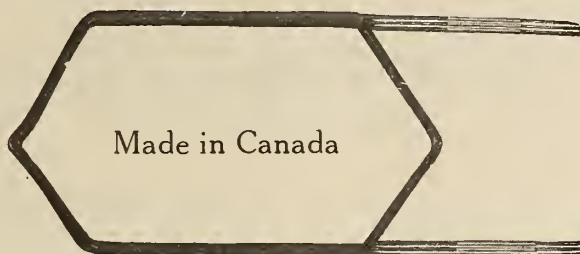
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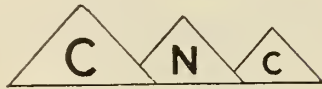
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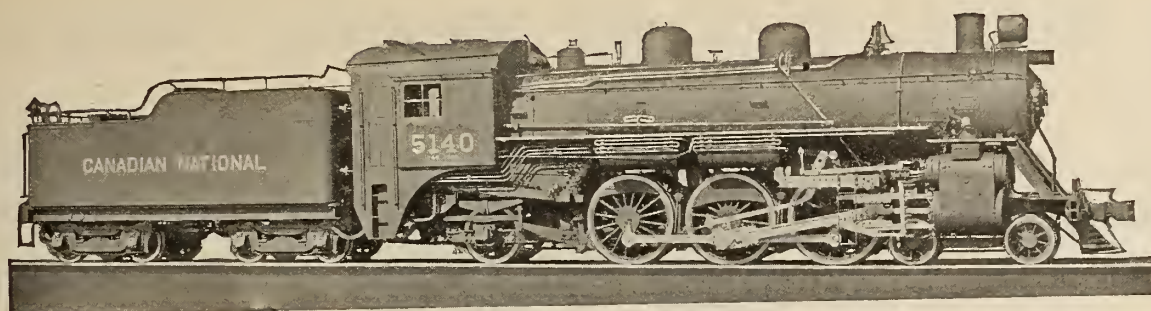
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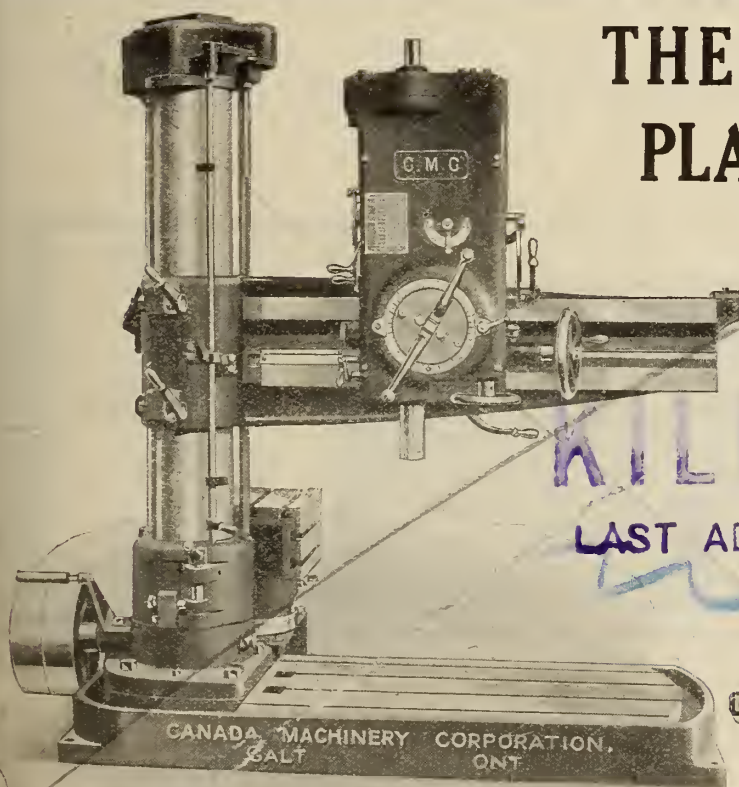
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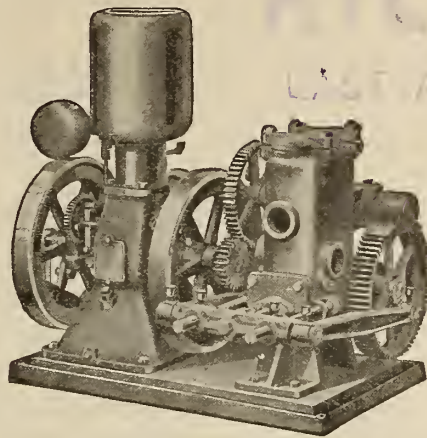
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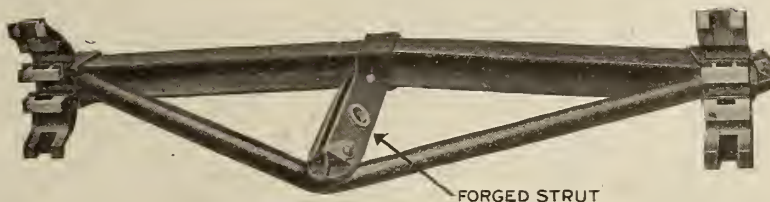
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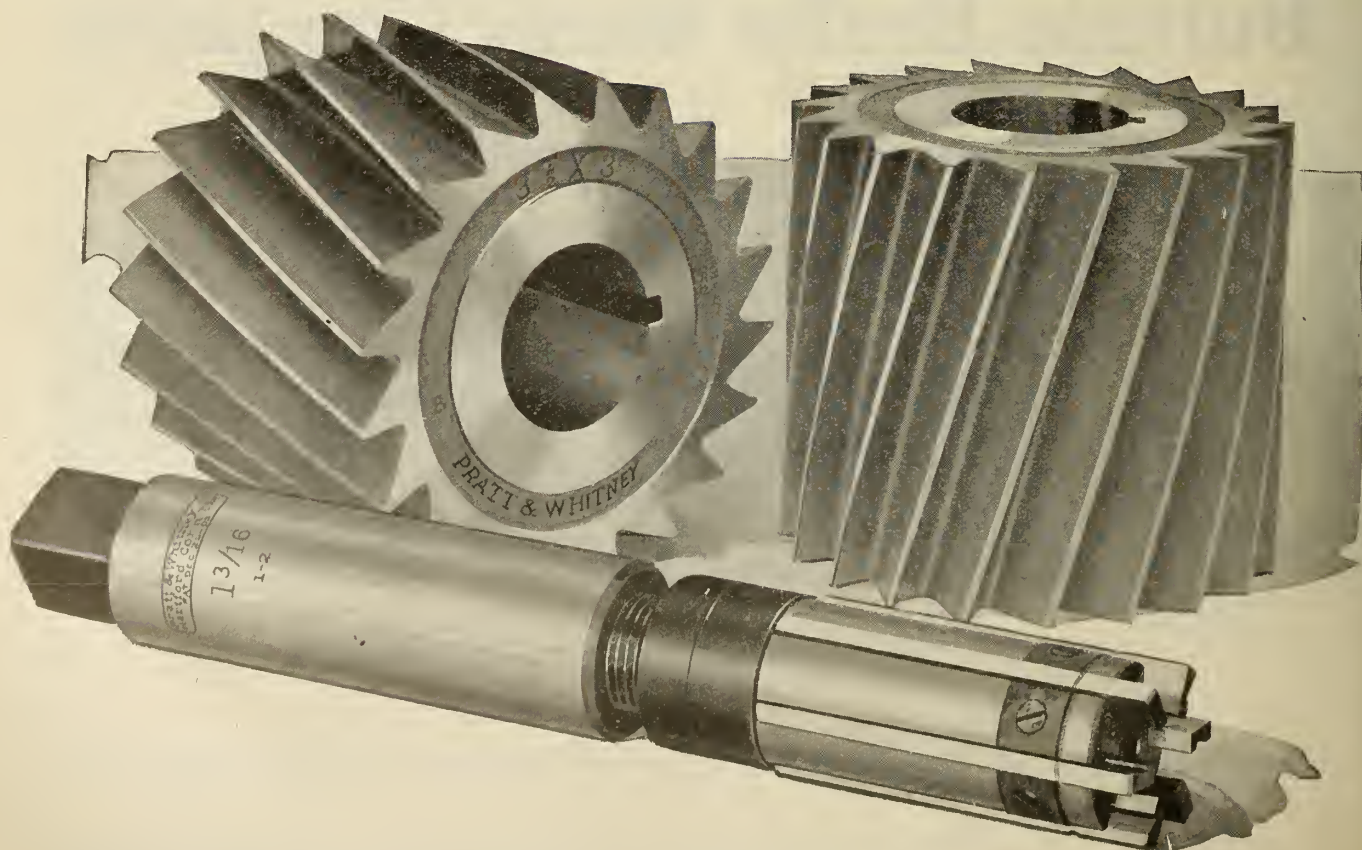
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Canadian Railway and Marine World

June, 1922

The Board of Railway Commissioners and the Nature of Its Work.

By S. J. McLean, LL.B., Ph.D., Assistant Chief Commissioner.

What I have to say in the present paper is concerned with the work and practice of railway regulation in Canada. I am desiginedly abstaining from expressing any qualitative opinion on the merits of the Board's work; not because I am without opinions on the subject, but because such expression of opinion does not fall within the scope of the paper. I am also taking for granted that you have a general knowledge of the body of law under which the Board of Railway Commissioners operate.

Decisions of courts which are now accepted as a commonplace establish that railway activity is concerned with private property affected by public use, and, therefore, the public phase having been recognized and propriety of regulation is now beyond peradventure. The question of regulation of railways began to attract attention in Canada in the early seventies. In 1873, a bill was introduced into Parliament to provide "for the better regulation of the traffic on railways." It provided for equal mileage rates. No machinery for a regulative commission was provided under it. The matter of an improved method of regulation was referred in 1875 to the Commons committee on railways, telegraphs and canals; but nothing was done. The question of railway regulation was taken up very actively by the late D'Alton McCarthy in the period from 1880 to about 1885, and he argued very strongly for the organization of a railway commission such as had been organized in England under the legislation of 1873. As an outcome of his activity there was appointed in 1866 a royal commission on railways which investigated the situation and which reported that some of the conditions existing in England were of such a nature that legislation which was applicable there would probably not work out so well in Canada. It also stated that the experiment of the United States in organizing the Interstate Commerce Commission was so recent that Canada could hardly predicate a policy on a basis of the policy so recently adopted there. And so it was suggested, and there was embodied in the act of 1888 the idea that the existing railway committee of the Privy Council should be given additional functions, in regard especially to the regulation of rates. It was recognized in that report that one defect in the organization of the railway committee, as it had existed, was its lack of a migratory character. That is to say, any person who had any matter coming within the jurisdiction of that committee had to have it heard in Ottawa, and it was suggested by the royal commission that officials should be appointed who would go out and take evidence and report to the committee, and the committee would take action upon the report, thereby lessening the expense of the parties applicant. The situation worked along in that way, and about 1898 the matter of a further development of the policy

of railway regulation was taken up. Various investigations were conducted and the result was that in 1903 the Railway Act was amended, and provision was made for the organization of a railway commission which is more technically described in the Act as: The Board of Railway Commissioners for Canada.

The Commission was organized in 1904 and very wide powers were given to it. As the Commission was organized in the first instance, provision was made for three commissioners. Subsequently, in 1908, provision was made for six, and an arrangement was made whereby the Commission could be divided into sections, i.e., one section could be taking evidence—hearing cases—in one province, and another section in another; or, as has happened, both sections have sat in Ottawa on the same day hearing different cases. The decision of the section is, under the act, the decision of the Board.

The Commission, coming after the railway committee of the Privy Council, had its functions in some ways conditioned by those of the railway committee. The functions formerly possessed by the railway committee were transferred to the Board and various functions were added thereto; and the question at once arose as to the relation of the new Board of Railway Commissioners to the cabinet and courts. Formerly, the matter of regulation of rates, for example had been in the hands of Parliament. You will find in some of the older legislation the provision that Parliament might regulate rates, but not so as to produce less than a 15% return. And evidence of that having existed comes up, in connection with the provision as to the 10% clause in the C.P.R. Co.'s charter. Parliament saw fit to transfer the control of rates and various other functions to the railway committee of the Privy Council: that is to say, to a committee of the cabinet. And there was a political responsibility of the cabinet to Parliament. When Parliament transferred from the railway committee to the Board the functions the committee had formerly possessed, it was considered that the principle of responsibility should still be retained, and so provision was made for an appeal from a decision of the Board to the Governor-in-council; and the Governor-in-council, of his own motion, has also power to review or rescind or vary the Board's action.

The Railway Commission has been in existence some 18 years. I am purposely limiting myself to setting out in this paper the phases of the Commission's activities which can be statistically measured; that is to say, I am simply concerning myself with the quantitative measure of the Board's work. The qualitative measure of the Board's work is of course, of importance. It is open to all to form an opinion on this; and all I can ask, as a member of the Board, is that the citizens of Canada in arriving at a qualitative opinion should first acquaint

themselves with the nature and results of its work. The records are available in its annual reports.

Applications, Orders, etc.—Some information in regard to the number and nature of the applications that come before the Board, the matters involved, and the way in which they are dealt with, whether formal or informal, should be not only of interest but also of some service in arriving at an opinion on the Board's work and the place it occupies in connection with regulation. The committee whose report led up to the act of 1888 recognized that one defect in the existing procedure was the lack of migratory organizations. In sum, it was necessary to bring the organization closer to the people. In the 13 odd years which have elapsed since I was a member of the Board I have travelled some 169,000 miles. During 1921, the mileage covered by the Board and its officers amount in round numbers to 453,000. Further, the time taken up in formal hearings and the necessary travelling in connection therewith during the past year equalled 50 out of every 100 working days. Simply as a matter of statistical note, it may be mentioned that the Board had 27,534 out-going letters during 1921. During the year, 1,484 orders were issued. Some 26 general orders, applicable to all companies subject to the Board's jurisdiction, issued on such topics as sleeping and parlor car fares, exchange surcharge—freight and passenger, coal supply, packing and frogs, inspection of steam boilers, valuation of live stock shipped with settlers' effects, telephone tariffs and rates, maintenance of way rules, brake tests, demurrage, track centers, switching rates, operating rules, explosives regulations, summer rates on coal.

The applications made to the Board in 1921 were 3,454. Down to the end of 1915, the Board had received some 47,000 applications. Since that date some 20,000 have been received, making a total of about 67,000 all told. Of the 67,000 applications the Board has had before it, not more than from 15 to 20% have come to a formal hearing. During 1921, 88% of the applications were dealt with informally. Referring to the Board's general business, it may be noted that some 7,800 cases had been set down for formal hearings since the inception of the Board's work down to the end of Jan., 1922.

As already pointed out, provisions are made for appeals to the Supreme Court and to the Governor-in-council. Up to date, the totals in this respect are as follows:

To the Supreme Court: dismissed 28, allowed 8, abandoned 5, withdrawn 3, total 45. To the Governor-in-council: dismissed 17, referred back 5, abandoned 5, withdrawn 1, allowed 1, pending 1, total 30. The total number of appeals in which the Board has been reversed amounts to less than 1% of the total

cases heard.

The informal work, that is to say, work not of necessity involving hearings, begins soon after the railway obtains its charter, from Parliament. There has been discussion from time to time as to the propriety of having a general railway act laying down the general conditions, much the same as is provided for in the Companies Act, with the further provision that on a given body of men satisfying a regulative tribunal that they have complied with the provisions of the statute a charter might be issued. This method of incorporation exists to a considerable degree in the United States. So far as Canadian discussion is concerned, it may be mentioned that the late Sir William Van Horne expressed his favor for it. After the charter comes a route map approving the general location. Since 1919, this falls within the scope of the Board's work. Next is the location plan, which is a detailed route map, and has to be approved by the Board. A plan has to be filed showing what is proposed to be done in connection with highway crossings. A copy of this has to be served upon the municipality concerned, giving it time to file its objections, if any, to the crossings. The crossings have to be built to specified standards.

A plan showing where it is proposed to locate its stations has to be filed by the railway. It files with the Board standards showing types of stations and exactly what accommodation is to be given. A plan is served upon the municipality concerned and it is given an opportunity in the time limited, to forward its objections, if any, to the location of the station. Bridges over 18 ft. long must have formal approval. When the road is constructed, the railway company makes application to open for traffic, and an inspection is made to see whether the road is reasonably safe for travel.

Accidents—The question of public safety arises as soon as the railway is in shape for operation. This arises in connection with train travel, accidents at crossings and accidents from trespassing. All railways subject to the Board's jurisdiction are required to report the accidents occurring on their lines. The Board's function is not to ascertain the facts with a view to assessing damages, as would be the case in a court action, but with a view to preventing as far as possible a recurrence of accidents. During 1921, there were 4 passengers killed and 240 injured, a decrease of 13 and 139 respectively from 1920. Travel on railways, serious as an accident may be and important as it is to eliminate the possibility of accidents, is relatively safe. In 1921, there were over 51,000,000 people carried on Canadian railways, which is equivalent to a little less than 7 railway trips per capita; and there were 4 passengers killed and 240 injured. During 1921, there were some 91 employees killed and 1,344 injured. The figures given may be compared with the total of 185,000 employees on the railways. Another phase of the matter is concerned with accidents at crossings. The total number of accidents reported during 1921 show 243 persons killed and 1,928 injured, which is an improvement over 1920, when the figures were 254 and 2,330 respectively. Further analyzing these figures, it will be found that 189 accidents took place at highway crossings covering 70 persons killed and 214 persons injured. This compares with the figures of 68 and 215 for 1920.

Of these accidents, 45 occurred at crossings protected by gates, bells, watchmen, etc., and covered 20 persons killed and 48 injured.

Motor Accidents.—One significant factor is the large number of motor accidents. Out of 189 highway crossing accidents in 1921, 114 were motor ones. From April to Oct., 1921, 50% of the highway crossing accidents were motor accidents, while four-fifths of those killed and two-thirds of those injured were to be found in the column of motor accidents. The improvements of highways and the greater speed possible thereby for motor travel is a very great contributing factor to motor accidents. It cannot be too much emphasized that the only absolute protection against railway danger is to be obtained from the construction of subways or the installation of overhead crossings. In a great many cases, this type of protection is impossible to put in; and so, with other forms of protection, the burden must of necessity be on the driver of the motor car to use reasonable precautions. This applies to any crossings, whether protected or otherwise. Without arguing from the extreme case and without alleging that all drivers of motor cars are similarly negligent, I may say that within the past year we have had 4 cases where men driving motors ran into trains. For example, at a western point, a motor ran into a train standing at the water-tank, the caboose and some three cars being over the crossing. At a point in Ontario, where a train was standing on the crossing, a motor ran into the ninth car from the caboose. The crossing was protected by a bell which was in good order. In another case, in the west, a motor driver ran into a train standing on the crossing; and in a case in the east a man ran into a moving train, part of which had passed the crossing. While the motor traffic is concerned with the legitimate use of the highway, at the same time, on account of the high speeds that are available in this type of traffic, there is much greater chance of danger than with ordinary highway traffic; and no matter what can be done in connection with protection, there is an especial burden of care on the part of motor drivers.

During 1921, 64 of those killed on the railways were trespassers while 91 were injured. The figures show a decline in recent years, which is very fortunate. Some years ago, the railways did not receive the co-operation they should have from the municipalities in connection with the prosecution of those trespassing on the railway. It is obvious that such prosecutions were really in the interest of the trespassers, with a view to keeping them out of the dangerous situations. Part of the improvement in the situation is due to the loyal co-operation of the different provinces, with a view to emphasizing upon the local magistrates the importance of preventing in the interests of the individual those trespassing on the railways. The Board has circularized the attorney general of each province from time to time and there has been a decided improvement. The most extreme case of trespassing is one which took place in eastern Canada last December, where a man had driven on to the railway track, apparently asleep, and was killed. Another accident occurred in a case where the distance between the two crossings was shorter on the railway than on the highway,

and two unfortunate trespassers took a chance by driving down the track during the winter season and were killed.

Protection of Crossings.—Under the legislation of 1909, railways constructed subsequent to April 1 of that year had to stand the full cost of any protection ordered. In the same year, a grade crossing fund of \$200,000 a year, for a period of years, was provided for. Out of this, the Board may make a contribution of 25% of the cost of installation of the protective device and not exceeding \$15,000. The expenditures on protection since this legislation was enacted have been as follows: By the railways \$2,382,814.75; by the municipalities \$1,783,983.41; out of the grade crossing fund \$338,528.62; total \$4,505,326.78. The contribution as it was prior to 1919 was 20% and not exceeding \$5,000. It is readily apparent that the limitation placed prevented any considerable aid to a large protective work. The amended percentage referred to has improved the situation. In dealing with crossing protection between April 1909, and Dec. 1921, the following is the record of protective works and devices: by electric bells 262; gates 115; subways 64; overhead bridges 25; diversion of highways 35; closing of streets 10; removal of view obstruction 8; shelter 1; towers 3; wigwags 8; bell and wigwags 26; diversion of highway subway 1; diversion of highway and removal of view obstruction 1; bell and removal of view obstruction 1. Inspections were made by the Board's Operating and Engineering Departments. Where an accident takes place, there is, pending investigation, a speed limitation of 10 miles an hour. If the Board is satisfied, after investigation, that the crossing is reasonably safe, the speed limit may be raised. If it is not satisfied, protection may be provided by subways, separation of grades, installation of gates, bells, bell and wigwags, watchmen, improved view by the cutting down of banks or the clearing out of brush. Recently, in connection with a couple of highway crossings near Ottawa, which was part of the Civic Improvement Commission's work, protective islands have been installed as an additional protective device. Usually where subways are concerned, the matter necessitates a hearing. In other cases, such as have been enumerated, very often the procedure is for a copy of the report of the inspecting official to go to the parties asking them to show cause, in writing, why protection should not be installed as recommended. Informal procedure has been developed to a very considerable extent in connection with the matter of protection. Whereas in the State of Wisconsin the practice is, in connection with the installation of a bell or a bell and wigwag, to have a formal hearing, here in Canada the expedited process afforded by informal action has been taken. I have gone to some length in the question of accidents, but do not feel that any apology is necessary, because I am sure that every one is agreed that the elimination of accidents is greatly to be desired. I have not exhausted the subject, but I wished to say something which would emphasize what is being done, and also to emphasize the necessity of people exercising due care in connection with the approach to crossings.

The service and convenience to the public is very important. As bearing on the nature of the work done in addition to what has already been mentioned,

some of the lines of investigation of the Board's Engineering and Operating Departments may be mentioned, viz.: inspection of spur tracks, condition of road-bed, switches and frog packing, grade revision, inspection of track in connection with slides, culverts, drainage, interlocking plants, safety appliances, inspection of motor power, passenger equipment, station buildings and premises, station locations, train service, and car supply. For example, in connection with the inspection of cars and engines in Jan. 1922, alone, there were some 7,201 cars inspected from the standpoint of safety appliances and some 799 locomotives inspected. During 1921, 73 applications in western Canada dealing with station facilities and train service were gone into.

The prevention of fire loss is another phase of the work where through co-operation of the railways and the Board's Fire Inspection Department a great improvement has been made. During 1921, some 10,270 miles of fire-guards were constructed or maintained by railways in the Prairie Provinces, in accordance with requirements issued by Chief Fire Inspector. A total of some 1,500 fires were reported as originating within 300 ft. of the railway lines. The total damage done by the fires was estimated to be \$162,000. In this connection, fire appliances on some 2,900 locomotives were inspected. Under the Railway Act, provision is made for fire-guarding in the west, the Board having powers in regard to exempting where there is a case made out, from the necessity of building fire-guards. Any one who has travelled in the grain country will know how quickly, at certain seasons, a fire may start and do great damage; and it was obvious in the general interest, that such source of danger should be minimized in every way possible. The matter involved in connection with the question of fire-guards very seldom come to a public hearing. There has been a very cordial co-operation between the railways and the Board's officials, enabling the informal procedure, as distinct from that of the formal hearing, to be used to a very great extent here.

Railway Rates—While, from what has been said, it will be seen that there is a wide scope of work as distinct from the rate jurisdiction of the Board, the importance of the rate side is not to be minimized. The rate cases involve very often a wide sweep of facts. Within the last couple of weeks, argument has been terminated on a rate case involving matters affecting rate structures from Sidney, Vancouver Island, to Sydney, Cape Breton; but while many rate matters must of necessity, come to a formal hearing, it must also be recognized that the informal procedure is of importance here as well. During 1921, some 93,000 tariffs were filed with the Board. These cover tariffs of from one sheet up to the size of a modest book. All standard tariffs have to be approved by the Board and thereafter published in the Canada Gazette. The standard fixes the maximum within which the railway may operate. Special tariffs thereafter filed come into operation on notice, without the formal approval of the Board. Under the Railway Act, an application may be made for suspension of a new tariff; thereafter the Board, if satisfied that a *prima facie* case for suspension has been made out, may suspend pending hearing.

The Board requires the railways to file statements of the reasons for changes in tariffs. An analysis of the reasons filed

would in itself afford grounds for a rather instructive paper. I have been struck in looking over these notices recently with the number of voluntary reductions. In a batch of some 50 odd tariff notices which I looked over a few weeks ago, over 50% of them were concerned with reductions; that is not to say that all the others were increases, because in many cases there were new rates on account of the extension of territory hitherto not covered except under the standard tariffs. The reasons given are interesting and some may be mentioned in passing. On the Dominion Atlantic, a quite common reason given is to meet water competition. In western Ontario, various reduced coal rates were put in because the coal would not move on the standard mileage rates. In other sections, it will be found that reductions are made to put various shipping points more on a parity. Matters of short line mileage enter in. These rate notices show a much more fluid condition in regard to rate adjustment than is ordinarily taken for granted.

Classification.—Fundamental to the movement of commodities is the question of classification. The process in connection with the formulating and amending of classification is to use the informal procedure as much as possible. Where a new classification is being worked out, as at present, the process is to have the matter discussed by a representative committee of the shippers and railways, the idea being that only the irreducible minimum of difference shall be brought to the Board for its consideration. In the same way, in connection with an amendment of the classification by supplement, the changes proposed by the railways are sent out to an extensive list of trade bodies; these are considered by these trade bodies; their objections or exceptions are sent in; then a meeting is arranged between a representative of the Board and the representatives of the shippers and railways; and, thereafter, if there are any points of difference that cannot be agreed upon, the matter comes before the Board for hearing, if necessary. I may remark in passing that the recent classification supplement was finally ironed out without the necessity of any formal hearing. I lay stress and feel justified in laying some stress on this phase of the matter, because there is no adequate appreciation outside of the limited classes of shippers and railway traffic men of the amount of informal work which is done in connection with working out the fundamental matter of classification. I may say, further, that I am of opinion that it is much more important work in this connection than formal hearings because where the items of a general classification come to a general hearing, each side feels itself in the position of an advocate, and, therefore, the matter is not looked at from a standpoint of reasonable give and take which is available in a round-table conference.

Informal Action.—Many applications in regard to rates come in and are dealt with informally. The Board has no jurisdiction in regard to loss and damage and refund claims. At the same time, if it appears that any question is raised as to the propriety of the rate charged, the matter is brought to the attention of the railways. As to overcharges, I have had on my desk within the last few weeks a matter involving an overcharge of 20c on a passenger journey, and on taking it up with the railway the matter

was adjusted. A number of years ago, a man complained of an alleged overcharge on a jug of mineral water. This was investigated and it was found there was an overcharge of 15c; and the matter was adjusted. Matters are constantly coming in as to provision under the bill of lading, the rate charged, the provisions of classifications, etc., and a large amount of time is spent on matters of this kind which, while individually small, are important in their total sum to a very considerable number of residents of Canada.

As indicated, I have attempted only to deal with this matter from a quantitative standpoint—perhaps it might be called a study in the anatomy of regulation. I have already referred to the number of complaints filed during 1921. In various cases, these complaints include 3 or 4 under one heading. A special check shows that some 4,500 individual complaints were received. Of these, some 2,800 fell under the heading of engineering and operating, and show some 64 sub-heads; 900 under rates and traffic, which show some 58 sub-heads; while there are some 564 applications under miscellaneous.

In various cases, the Board is asked to deal with matters over which it has no jurisdiction. The obvious answer from the standpoint of principle in such cases is simply to explain the lack of jurisdiction; at the same time, I think it may be said for the Board that it is not a mechanical organization, that it may claim some of the attributes of the heart, and that where on the special conditions as disclosed, notwithstanding the lack of jurisdiction, special features of hardship appear, the Board is not unwilling to advise the applicant that while it has no jurisdiction in the matter it is agreeable to bringing the matter to the attention of the railway in the hope that through the exercise of its good offices an adjustment can be affected, and to act accordingly.

Regulation—It has been my fortune to be connected with the matter of regulation in Canada for a good many years, and it is a matter of interest to me, entirely aside from my official connection with the work of regulation, to watch the expansion of the jurisdiction of the Railway Act. The tendency has been gradually to increase the jurisdiction. The first connection I had in an official capacity with the work of regulation in Canada goes back to Dec., 1898, when in an interview with the late Hon. A. G. Blair, then Minister of Railways and Canals, we talked over the question of railway legislation and the regulative portions of it. At that time, basing my opinion on studies I had made on the conditions in the United States and England, I expressed the opinion that the preventive work would be even more important than the corrective work. Quite a number of years have elapsed since then and a good deal has happened but I am still more convinced that to endeavor to deal with complaints and grievances in their inspection stage rather than when they come to a head is perhaps the most valuable portion of the Board's work.

Under the Railway Act of 1888, provision was made for the exercise of regulative functions by the railway committee of the Privy Council. It was recognized by the royal commission, which reported in favor of the amended legislation of 1888, that a non-migratory or-

ganization might put obstacles in the way of dealing with grievances. This criticism in anticipation was justified by the subsequent facts. The condition was that if a man could not afford either to attend the sittings of the Railway Committee in Ottawa in person or engage counsel, he had to let the matter go unexamined and unredressed.

Farm Crossings.—In the applications before the Board during last year, 80 were concerned with farm crossings, fencing and drainage. In the old days, under the act of 1888, the section foreman appeared to be the highest type of authority before the eyes of the applicant. If he had any question in regard to fencing, cattle guards or farm crossing, he apparently appealed to the section foreman, and without disparagement of the worth of the section foreman it is evident that in many cases he did not handle the situation very tactfully, and the grievance had an opportunity to develop. After a man has written in a few letters on a grievance it becomes a principle. Complaints in regard to farm crossings, cattle-guards and other matters do not now stop with the subordinate officials, but, if necessary, are taken to the highest executive. Matters which in themselves may seem small and of minor importance can, under the procedure existing, be taken before the highest official of the railway by way of dealing with matters of necessary redress.

A Migratory Organization.—As pointed out, the Board is a migratory organization. It has an inspecting organization travelling from place to place. It has sub-offices at Toronto, Winnipeg and Calgary. It does not take even a 2c. stamp to start an application, as letters come into the Board's offices free. The Board's organization is migratory not only as to hearings but also as to investigations. I have mentioned in an earlier connection the mileage I have travelled during the last 13 years. This is not of importance in itself, but as indicating that the hearings which it is my lot to take part in have extended from White Horse, in the Yukon, to Mulgrave, N.S. Whenever necessary, investigations are made on the ground, and throughout it has been recognized that while a hearing may be a matter of last resort an adjustment informally, without hearing, in an expeditious and economical method, is also in the interests of the general public.

The foregoing paper was read before the Canadian Railway Club in Montreal recently.

An Ideal Railway Job.

Lazy Mike—I have a new position with the railway.

Weary Rhodes—What ja gona do?

Lazy Mike—You know the fellow that goes alongside the train and taps the axles to see if everything's all right? Well, I help him listen.—Dry Goods Economist.

C.P.R. Constable Shot.—A. J. Tierney, a C.P.R. constable at Moose Jaw, Sask., came upon three men engaged in robbing a freight car in the yards there at midnight recently. Two shots were fired from the car as the constable approached and he was shot through the heart and killed instantly. The men immediately ran away, being fired on by another C.P.R. constable who was on duty in the vicinity.

Birthdays of Transportation Men in June.

Many happy returns of the day to:

Thomas Ahearn, President, Ottawa Electric Ry., Ottawa, Ont., and Honorary President, Canadian Electric Railway Association, born at Ottawa, Ont., June 24, 1855.

F. F. Backus, General Manager, Toronto, Hamilton & Buffalo Ry., Hamilton, Ont., born at Rochester, N.Y., June 4, 1860.

W. C. Bowles, Assistant Freight Traffic Manager, Eastern Lines, C.P.R., Montreal, born there, June 3, 1875.

J. H. Boyle, Superintendent, Brownville Division, New Brunswick District, C.P.R., Brownville Jct., Me., born at Waterloo, Que., June 26, 1869.

F. P. Brady, Assistant to Executive, Canadian National Rys., Toronto, born at Haverhill, N.H., June 22, 1853.

H. W. Brodie, General Passenger Agent, lines west of Revelstoke, C.P.R., Vancouver, B.C., born at Fredericton, N.B., June 8, 1874.

G. W. Coburn, Resident Engineer, C.P.R., Brandon, Man., born at Upper Melbourne, Que., June 24, 1877.

E. P. Coleman, General Manager, Dominion Power & Transmission Co., Ltd., Hamilton, Ont., born at Taunton, Mass., June 14, 1867.

W. S. Cookson, General Passenger Agent, G.T.R., Montreal, born at Port Jervis, N.Y., June 12, 1871.

E. L. Cousins, Manager and Chief Engineer, Toronto Harbor Commission, Toronto, born there, June 11, 1883.

A. Craig, City Passenger Agent, C.P.R., Hamilton, Ont., born there, June 5, 1884.

J. M. Davidson, Division Engineer, Canadian National Rys., Winnipeg, born at Glasgow, Scotland, June 4, 1877.

Edward de la Hooke, Secretary-Treasurer, Canadian Ticket Agents' Association, London, Ont., born at Chichester, Sussex, Eng., June 29, 1842.

Capt. C. P. Disney, Engineer of Bridges, Eastern Lines, Canadian National Rys., Toronto, born at Montreal, June 11, 1887.

A. E. Doucet, ex-Director of Public Works, Montreal, born there, June 9, 1860.

Knowlson Elliott, City Freight Agent, C.P.R., Calgary, Alta., born at Gorrie, Ont., June 26, 1884.

J. M. R. Fairbairn, D.Sc., Chief Engineer, C.P.R., Montreal, born at Peterborough, Ont., June 30, 1873.

W. E. Foster, Solicitor for Ontario, G.T.R., Montreal, born at Belleville, Ont., June 27, 1866.

A. A. Goodchild, General Storekeeper, Eastern Lines, C.P.R., Montreal, born at Peckham, London, Eng., June 3, 1866.

W. C. Guthrie, Superintendent, Schreiber Division, Ontario District, C.P.R., Schreiber, Ont., born at Arnprior, Ont., June 15, 1876.

L. R. Hart, General Agent, Passenger Department, C.P.R., Boston, Mass., born at Fairport, N.Y., June 3, 1877.

J. A. Heaman, Assistant Chief Engineer, Canadian National-Grand Trunk Pacific Rys., Winnipeg, born at Memphis, Tenn., June 3, 1874.

Major R. B. Jennings, Division Engineer, Canadian National Rys., Montreal, born at Paris, Ont., June 29, 1888.

M. W. Kirkwood, General Manager, Grand River Ry., and Lake Erie & Northern Ry., Galt, Ont., born at Cheltenham, Ont., June 8, 1877.

L. Lavoie, General Purchasing Agent,

Canadian National Rys., Toronto, born at Rimouski, Que., June 22, 1879.

J. D. McAuley, Soliciting Freight Agent, Canadian National-Grand Trunk Rys., Montreal, born at Plantagenet, Ont., June 11, 1884.

R. S. McCormick, Chief Engineer and General Superintendent, Algoma Central and Hudson Bay Ry., Sault Ste. Marie, Ont., born at Quaker City, Ohio, June 22, 1873.

S. J. McLean, M.A., LL.B., Ph.D., Assistant Chief Commissioner, Board of Railway Commissioners, Ottawa, born at Quebec, June 14, 1871.

C. E. McPherson, Assistant Passenger Traffic Manager, Western Lines, C.P.R., Winnipeg, born at Chatham, Ont., June 7, 1862.

James Manson, Assistant to the Vice President, C.P.R., Montreal, born at Thurso, Scotland, June 8, 1863.

W. E. Massie, Master Mechanic, Niagara, St. Catharines & Toronto Ry., St. Catharines, Ont., born at Elora, Ont., June 5, 1880.

J. D. Morton, General Auditor, Canadian National Rys., Toronto, born at London, Ont., June 15, 1857.

L. Mulkern, Division Freight Agent, C.P.R., North Bay, Ont., born at London, Ont., June 18, 1871.

R. P. Ormsby, Secretary, Canadian National Rys., Toronto, born at Arklow, Ireland, June 26, 1869.

J. E. Pinault, General Superintendent Canada & Gulf Terminal Ry., Mont Joli, Que., born at Rimouski, June 24, 1884.

F. R. Porter, Foreign Freight Agent, Canadian National-Grand Trunk Rys., Toronto, born at Stratford, Ont., June 13, 1875.

F. Price, Superintendent of Car Service, G.T.R., Montreal, born there, June 11, 1864.

L. J. Reyecraft, Solicitor, Manitoba and Saskatchewan Districts, C.P.R., Winnipeg, born in Orford Tp., Kent County, Ont., June 20, 1868.

J. R. Shaw, Passenger Agent, Ocean Traffic, C.P.R., Manila, Philippine Islands, born at Montreal, June 28, 1871.

J. L. Simpson, agent, C.P.R., Port McNicoll, Ont., born at Mount Forest, Ont., June 9, 1866.

H. H. Smith, Car Accountant, Canadian National Rys., Toronto, born at Quebec, Que., June 14, 1872.

N. Van Wyck, General Purchasing Agent, Canada Steamship Lines, Montreal, born at Hamilton, Ont., June 29, 1883.

V. G. R. Vickers, ex-Manager, Foreign Department, and Superintendent Atlantic Division, Dominion Express Co., now Vice President, The Holden Co., Montreal, born at Toronto, June 1, 1866.

W. Walkden, Assistant Bridge Engineer, Western Lines, Canadian National-Grand Trunk Pacific Rys., Winnipeg, born at Alderley Edge, Cheshire, Eng., June 1, 1885.

A. E. Warren, General Manager, Western Lines, Canadian National Rys. and Grand Trunk Pacific Ry., Winnipeg, born at Taunton, Eng., June 9, 1874.

Walter White, Trainmaster, G.T.R., Palmerston, Ont., born at Toronto, June 4, 1866.

Walker D. Hines, formerly Director-General of Railroads under the United States Railroad Administration, has been retained as Eastern General Counsel by the Great Northern Ry.

Checking and Accounting, Canadian National Railways Car Repairing Contracts.

Canadian Railway and Marine World for Nov. 1921, contained a copy of order in council 3,800, passed at Ottawa, Oct. 6, 1921, authorizing the ordering of steel rails for the Canadian National Rys. and G.T.R. in anticipation of the requirements for 1922, and for the repair of box cars by car building companies at various points. The reason for this action as stated by the then Dominion Government was to afford relief in the abnormal industrial situation obtaining, by providing employment. The order stated that in placing orders for the repair and rebuilding of freight equipment, the charges against the railway should only be the reasonable cost of the same in the company's shops, and that any extra expense involved should be a proper charge against unemployment generally and be regarded as such.

Another order in council passed Dec. 21, 1921, and published in Canadian Railway and Marine World for March, 1922, reviewed the circumstances attending the passage of the order in council, of Oct. 6, 1921, and authorized a Governor-General's warrant to provide the funds necessary in connection with the work.

As stated in Canadian Railway and Marine World for Dec. 1921, the C.N.R. management at once entered into agreements for the repair of 2,000 box cars by car building companies, the work being distributed as follows: Canadian Car and Foundry Co., Montreal, 500 cars; Canadian Car and Foundry Co., Amherst, N.S., 500; Eastern Car Co., New Glasgow, N.S., 500; National Steel Car Co., Hamilton, Ont., 500. In addition, arrangements were made for the repair of 1,000 G.T.P.R. box cars by Canadian Car and Foundry Co. at Fort William, Ont.

While the repairs were primarily in the nature of a general overhauling, there is a certain amount of standardizing being done as the cars are put through the shops. On all cars not so equipped, the door fixtures are being made to conform to C.N.R. standard, and all cars with defective roofs are being equipped with inside metal roof and outside board roof. All cars not so equipped are being fitted with metal draft arms, and the foundation brake gear is being overhauled to conform to C.N.R. standard on all cars where this work is necessary. Details of this brake rigging were given in Canadian Railway and Marine World for Dec. 1921, pg. 647.

It will readily be appreciated that great care must be taken in connection with the determination of costs in this work. In addition to the activities of inspectors of independent inspection companies who are employed on the work, the car companies and the railways have representatives at car companies' works whose sole work is to keep account of the repair costs. The system in use, involving co-operation and agreement between the representatives of the contracting parties and the inspection company, is very efficient. Robert W. Hunt & Co., Ltd., is handling the work at the Eastern Car Co's plant at New Glasgow, and at the Canadian Car and Foundry Co's works at Amherst and Montreal, and the Canadian Inspection Co. is operating at the Canadian Car and Foundry Co's plant at Fort William and the National Steel Car Co's plant at Hamilton.

At each shop there is a railway inspector for every eight to 10 cars repaired daily, who, before repairs are started,

inspects the car and authorizes in writing the repairs which are to be made. Forms are provided, on which are listed practically every conceivable kind of repair which can be made to a car, with appropriate spacing for the recording of material applied, and columns arranged for making the extensions to arrive at the total costs. The forms are 9 in. wide by 15 in. long, ruled vertically and horizontally, and there are 9 pages of classified items and a summary page to cover the work on each car. The summary page brings together the group totals of the other pages; for instance, on the summary page is entered the total for lag screws, nails, bolts, rivets, nuts, washers, flat bars, round bars, cast steel, malleable iron, grey iron, red pine, spruce, B.C. fir, and so on. When the railway representative has decided on the repairs to be made to a particular car, he hangs a copy of his written instructions on the side of the car, and no work is to be done which is not authorized by these instructions. As the work proceeds, the railway inspector, and an inspector representing the car company, keep check of the material applied and enter it on the forms provided, and when the work is completed, but before the car is painted, the inspection company's representative checks the work and ascertains that all charges as recorded are correct. The inspectors for the railway, the car company and the inspection company having been provided with copies of the forms mentioned above, three more copies are made for billing purposes, and in addition a large number of copies of the summary sheet are made, some of which go to the railway and the others remaining for the inspection company and the car company's records. On the summary sheet, the signatures of the railway representative, the inspection company representative, a railway stores representative who certifies as to the correctness of material prices and the car company's works auditor, must appear. In this way, it is evident that, after the repair bill for any car is once rendered, it has been done so only after agreement among the representatives of all parties concerned, and therefore admits of no dispute. This method of handling the work has proved very successful and has greatly facilitated the work of accounting. Part of the materials for the repairs are being supplied by the C.N.R. and part by the car companies. In the latter case the prices to be charged are decided by the C.N.R. Purchasing Department.

At the time of writing (May 11) repairs on 500 cars had been completed by the Canadian Car and Foundry Co. at Montreal, 416 at Amherst, and 780 at Fort William. The Eastern Car Co. had completed 381, and the National Steel Car Corporation had completed 245.

The following questions were asked in the House of Commons recently by C. A. Gauvreau, Temiscouata Que., the answers being given by the Minister of Railways.

Q.—Have contracts for the repairs of cars, all kinds of cars, belonging and used by the Intercolonial Ry., been given to private companies instead of having these repairs done by the different Intercolonial Ry. repair shops, and if so, to what companies? A.—Contracts for repairs to a portion of the box cars only,

belonging to the Canadian National Rys. were given to private companies in order to help out the unemployment situation in the different parts of the country. Canadian Car & Foundry Co., Eastern Car Co., National Steel Car Corporation.

Q.—Is it the Railways Department's intention to have repairs and improvements to locomotives, cars and other equipment done by the employes of the different workshops of the Canadian National Rys.? A.—The company has always, and will continue to make repairs and improvements to locomotives at their own shops. As to cars, these will be done in our own shops as far as is practicable.

Q.—What amount, if any, has been paid to private companies for repairs to the rolling stock, for the section of the Canadian National Rys. from Montreal to Halifax? A.—The amount that has been paid to date to private companies for repairs to rolling stock for the entire Canadian National Rys. is \$389,961.93. The rolling stock belonging to the Canadian National Rys. is used for the benefit of the system as a whole and it is not possible to allocate charges for repairs to equipment that is being or will be used on any particular section of the line, such as Montreal to Halifax. The amount of above paid to car companies Montreal and east was \$371,600.83.

The Pacific Great Eastern Railway's Future.

The British Columbia Government, which owns the Pacific Great Eastern Ry., secured power from the Legislature to investigate the railway's position and prospects, with a view to determine what is best to be done to promote its interests, and the Government was authorized to consult with D. B. Hanna, President, Canadian National Rys., and E. W. Beatty, President C.P.R., as to the best men to be employed to make the investigation.

After making enquiries, W. P. Hinton, formerly Vice President and General Manager, Grand Trunk Pacific Ry., and subsequently until recently consulting officer to the Minister of Railways, as receiver for that railway, made an inspection of the P.G.E. Ry., and has made a report to the Government on the office organization and operation of the railway. J. G. Sullivan, Consulting Engineer, Winnipeg, formerly Chief Engineer, C.P.R., was engaged to investigate the engineering features of the line, and to advise the Government particularly in regard to its linking up with the Canadian railway systems, and the abandonment of the heavy mountain section between Squamish and Clinton. Col. J. S. Dennis, C.M.G., Chief Commissioner of Colonization and Development, C.P.R., has also been appointed to report upon the resources and settlement possibilities along the railway.

The Witch.—Conductor: Pardon me, madam, but your girl seems more than twelve. Her Mother: Conductor! Would you take me to be the mother of a girl that age? Conductor: Lady, don't tell me you're her grandmother!—Sydney Bulletin.

Application of the Turbine to Locomotive Practice.

The steam locomotive of today, designed scientifically and equipped with all the latest economy and power increasing devices, is a vastly more efficient prime mover than that of even 10 years ago. And yet, with all of the improvements which have been made, it is still a notoriously inefficient machine. One of the most outstanding characteristic features of the progress made in locomotive design is that practically no change has been made in the principle of the locomotive, in that the combination of revolving and reciprocating parts is still the standard for the translation of the expansive power of steam into the movement of the locomotive. Improvements have consisted almost entirely of the construction of larger units, of refinements in design without radical departure from original standards, and in the addition of appliances or devices designed to secure greater economy, or more power for the same expenditure in fuel.

In view of the fact that so much study and thought has been applied throughout the years to the effecting of improvements in the standard type of steam locomotive, it is not surprising to find that study is also being given to the possibility of effecting economies in motive power costs by the introduction of locomotives of radically different type to those in use. Experiments have been conducted recently with turbine locomotives in Sweden and Switzerland, the results of which indicate that considerable progress has been made in the development of such equipment. In the latter part of Sept. 1921, tests were conducted on the Swedish State Railways, with a steam turbine locomotive, and although test figures are not available, it is stated that the trials indicated large tractive effort on a minimum fuel consumption, while the design indicates a low scale of maintenance cost. In Switzerland, a Federal Railways 10-wheeler was converted by the Swiss Locomotive Works into a turbine locomotive, by placing a Zoelly turbine at the front, the rotor being geared to a transverse shaft over the leading truck in the ratio of 30 to 1. Solid wheels on each end of the transverse shaft carried crankpins, to which driving rods were connected. A condenser was installed between the frames of the locomotive; the water from the tender, after passing through the condenser, was carried back through piping to a specially designed apparatus over the tender, from which it was sprayed into the tender, the fine streams of water being more rapidly cooled. The steam used in the operation of the turbine, after undergoing condensation, was pumped back into the boiler, so that but little new water was required. The water was not pumped directly from the condenser to the boiler, but was passed through a heater, leaving the latter with a temperature of 250 deg. F. It is worthy of note that by re-using the water in the locomotive boiler, with the addition of but a small percentage of new water, the formation of boiler scale would be practically eliminated. There being no forced draft, as furnished by the exhaust in the standard type of locomotive, the required draft on the fire was obtained by means of a blower. The locomotive was superheated. The turbine was designed for a speed of 8,000 r.p.m., giving a locomotive speed of 48 1/2

m.p.h. Three valves controlled the operation of the locomotive, one being used for starting, and for operation on heavy grades, another for ordinary forward running, and the third for backing up. Tests showed a fuel economy of 25% over compounds handling similar trains on the same runs.

Discussing the matter of the application of the steam turbine to locomotive practice, an English contemporary suggests that a great difficulty is that the steam turbine depends for its high efficiency on an almost perfect vacuum, which means the necessity of a highly efficient condensing apparatus. The opinion is expressed that water cooling apparatus will give way to condensers of the air cooled or evaporative types, but it is obvious that, in view of the large cooling surface necessary to deal with the exhaust from a large turbine, combined with the limited space available, the problem will require much study before it can be solved satisfactorily. It is further suggested that a fuel consumption of 1.6 lb. of coal per horse power hour at the turbine should be obtained, representative of about 12% of the energy in the fuel derived in power delivered by the turbine. It is worthy of note, however, that the starting torque of the turbine is not in its favor, and that efficiency is decreased as the speed in r.p.m. decreases, thus adding new problems in the work of successful development.

The progress made in Europe in connection with the development of the turbine locomotive cannot fail to be of interest to Canadian railway men, and it should be closely watched. The thing is certainly a radical departure. The present steam locomotive is a much better machine than it formerly was; maintenance costs, on the whole, are not unreasonable, while it has the ability to stand up under varying and hard conditions, this great feature of reliability being an important one. But the fact remains that if, by the introduction of a new type, great fuel economies can be introduced, while at the same time considerations of tractive power, hauling radius, reliability and maintenance costs are shown to be in favor of the new type, it is evident that the present locomotive will be gradually supplanted by such a new type. While further tests may bring to light facts which might show that the present type of locomotive is the superior machine in the long run, and while it is evident that the adoption of the turbine locomotive would be an extremely gradual process, even if its superiority can be demonstrated, it should be borne in mind that the steam turbine is a very efficient device, and that the problem of the turbine locomotive does not involve the originating of an efficient method of utilizing steam, but merely the application of such a method in a new field.

A condensing turbine electric transmission locomotive, originated by D. M. Ramsay, of Glasgow, Scotland, has been built recently at Newcastle-on-Tyne, Eng., by Sir W. G. Armstrong, Whitworth & Co. This is the second practical attempt to introduce such a locomotive in Great Britain, the first one being the Reid-Ramsay locomotive built in Glasgow and tried on the Cowlairston incline there in 1910. The locomotive built recently has the following chief dimensions:—

Length over all.....	69 ft. 7 in.
Wheelbase.....	59 ft. 4 in.
Wheelbase, rigid.....	16 ft. 4 in.
Average weight on driving wheels.....	18 tons
Driving wheel diam.....	48 in.
Height, rails to center of boiler.....	10 ft. 3 in.
Width, maximum.....	8 ft. 11 in.
Weight of front engine.....	67 tons, 5 cwt.
Weight of front engine, light.....	63 tons, 5 cwt.
Weight of rear engine.....	63 tons, 10 cwt.
Weight of rear engine, light.....	48 tons, 3 cwt.
Total weight, operating condition.....	130 tons, 15 cwt.
Total heating surface.....	1,453 sq. ft.
Grate area.....	28.4 sq. ft.
Boiler pressure.....	200 lbs. per sq. in.
Superheat.....	300 deg. F.
Adhesive weight.....	108.5 tons
Tractive effort.....	22,000 lb.
Ratio of adhesion to tractive force.....	11.05
Turbo-generator.....	890 k.w. at 3,600 revs. and 27 1/2 in. vacuum, voltage 600

The locomotive is, in effect, two separate units, which, when coupled together, resemble to a large extent a locomotive with its tender as ordinarily known. But as a matter of fact both units form separate engines. The front unit, as regards both the boiler and framing, differs but little from accepted locomotive practice, with the exception, of course, that the cylinders, valve chests, reciprocating parts, etc., are replaced by a turbo-generator supplied by a Swiss firm. The main turbine is of the impulse pressure, compounded multistage type, connected through a flexible coupling to a 3-phase generator, capable of sustaining a 25% overload for half an hour. This generator is separately excited by an auxiliary turbine-driven direct-current generator. The 3-phase generator supplies power to four 3-phase slip-ring motors, arranged in two groups on the front and rear parts of the locomotive respectively. The two motors of each group are bolted to a common stretcher, carrying a countershaft, to which they are geared. The power is then transmitted from the countershaft to the six driving wheels on each engine unit, by side rods, in the ordinary manner. Each of the motors is capable of developing 275 h.p.

The rear engine incorporates the coal bunker and cooling water tank, as well as the condenser and its appurtenances. The condenser is of the evaporative type, supplied with air by a fan at the rear of the engine. The exhaust steam from the turbine is discharged into the condenser through a large diameter pipe, being expanded down from boiler pressure to a vacuum of 27 1/2 in., the condensate being drawn off from the condenser by a rotary extracting pump, and returned to the well, from which a feed pump delivers the water into the boiler, thus completing the cycle. The steam tubes of the condenser are arranged in the form of a cage, which is caused to revolve in water at slow speeds, and through which the air is impelled by the fan, in a radial direction, over the tubes.

The boiler, hand-fired and fitted for forced draft, is equipped with a superheater, the heating surface, including the superheating surface, being 1,453 sq. ft. The driver manipulates the locomotive by a master controller placed in the cab.

The locomotive, which was built by Sir W. G. Armstrong, Whitworth & Co., at Newcastle-on-Tyne, has been sent to Horwich and will be tested on the London & Northwestern Ry. under actual operating conditions. The foregoing description of this locomotive is abstracted from an article in the Railway Gazette, London, Eng.

This latest development in locomotive

design and construction is certainly worthy of attention. It has been said by men qualified to know that the development of the steam locomotive, as at present known, has about reached the limit, with the various power-increasing and economy-producing factors taken into consideration. The advocates of steam railway electrification maintain that the day of the steam locomotive is about done, and insist that cheap and efficient railway transportation will require, henceforth, electric locomotives, with power distribution from a central station. It is recognized that such a scheme of electrical operation has many advantages on divisions of heavy traffic, but the difficulties of financing are always present, and for the past few years have been particularly great. Does the development recorded above represent an intermediate stage between the steam locomotive and complete railway electrification? Being an electrically-driven locomotive, generating its own power, it would seem that it does, and the success met with in testing this locomotive on the London & Northwestern will be watched with interest. It is expected that large economies in fuel will be obtained, that maintenance expenses will be cut down, and that locomotives of this type will be demonstrated as suitable for regular main line service. Time and test alone will serve to prove the value of the design, which is certainly representative of a radical departure from accepted standards, but the experiment is expressive of the ever-present quest for improvement in the railway motive power field.

Proposal for Another River Bridge at Montreal.

A deputation of nearly 400 persons, representing Montreal City and South Shore municipalities as far east as Sorel, Que., waited upon the Dominion Government at Ottawa recently and urged the provision of additional bridge accommodation across the St. Lawrence River between Montreal and the South Shore. The petition which was presented contained resolutions passed by 125 interested municipalities, and about 75,000 signatures, and asked that the Government provide \$50,000 to enable the Montreal Harbor Commission to prepare plans for the construction of a bridge. J. Archambault, M.P. for Chambly-Verchères, introduced the deputation, and explained that while the proposed bridge and road approaches would be entirely in Quebec Province, the project is of an international character. The highway communications between Montreal and the south shore are the same as in 1859. During 1921, over 42,000 motor cars crossed the Victoria Bridge on a 13-ft. highway, and the population of Montreal and the south shore areas is increasing. Sixteen miles of the Montreal Harbor area lies on the south shore, which is an argument in favor of the construction of the bridge, a span of which could be connected with St. Helen's Island and open up that island for the people. W. Ramsay, chairman of the committee in charge of the project, stated that during 1920-21, the Victoria Bridge was crossed by 1,181,000 people in 59,000 vehicles, in addition to those who crossed on trains and street cars. During 1921 the traffic over the bridge increased by about 30%. R. Prieur, Secretary of the Quebec Union of Municipalities; A. Lambert, Presi-

dent Montreal Chamber of Commerce, and W. M. Birks, President Montreal Board of Trade, also spoke in favor of the project. The Premier promised careful consideration of the project by the Government; and Sir Lomer Gouin expressed his opinion that the bridge is a necessity for the whole country, and stated that he would fervently support the proposal.

In connection with this matter, it has been pointed out that at the time of the rebuilding of the C.P.R. Lachine bridge about 1907, a proposal was made to have it built as a highway as well as a railway bridge. The C.P.R. was willing to make the necessary arrangements, but the Government did not take any action. After a start had been made on the work, the C.P.R. was approached by the Government to have the design altered so as to include a highway section, and the C.P.R. expressed its willingness to co-operate provided it was reimbursed the expenditure incurred, estimated at about \$200,000. This the Government declined to entertain, and the bridge was completed as a strictly railway one. A suggestion appears to have been made that a highway section could be added to the Lachine Bridge as it now stands, but P. B. Motley, Engineer of Bridges, C.P.R., is reported to have stated that to make provision now for highway traffic would mean that the company would have to reduce the weight of its trains, as the bridge, being designed for railway traffic only, could not carry increased strain, and that the only course open is to build a new bridge.

C.P.R. Officers as U.S. Railway Officers.

The U.S. Interstate Commerce Commission passed the following order recently: In the matter of authorization, under the Interstate Commerce Act, sec. 20a, paragraph (12), to hold the positions of officer or director of more than one carrier: Application of Canadian Pacific Ry. Co. in behalf of sundry persons—The application, under said paragraph, in behalf of the persons herein-after named being under consideration, and it appearing, upon due showing in form and manner prescribed by the Commission, that neither public nor private interests will be adversely affected thereby, it is ordered that each of the persons named in this paragraph be authorized to hold, until further order of this Commission, positions with carriers as follows, respectively:—

Lord Shaughnessy, director, Minneapolis, St. Paul & Sault Ste. Marie Ry. Co.; President and director, Sault Ste. Marie Bridge Co.

I. G. Ogden, director, Minneapolis, St. Paul & Sault Ste. Marie Ry. Co., Duluth, South Shore & Atlantic Ry. Co., Aroostook River Rd. Co.; Vice President and director, International Ry. Co. of Maine, Midland Rd. Co.

W. R. MacInnes, director, Aroostook River Rd. Co., International Ry. Co. of Maine, Midland Rd. Co.

A. D. MacTier, President and director, Aroostook River Rd. Co., International Ry. Co. of Maine, Midland Rd. Co.

G. M. Bosworth, Vice President and director, Aroostook River Rd. Co.; director, International Ry. Co. of Maine.

W. R. Baker, director, Aroostook River Rd. Co., International Ry. Co. of Maine, Midland Rd. Co.

F. R. Perry, director, American Nia-

gara Railroad Corporation, Sault Ste. Marie Bridge Co.

It further appearing that the Pennsylvania-Ontario Transportation Co. is not a carrier within the meaning of that term as used in said section 20a, it is further ordered that so much of said application as requests that W. R. MacInnes and A. D. MacTier be authorized to hold positions with said Pennsylvania-Ontario Transportation Co., be dismissed.

British Columbia Wants Representation on Canadian National Railways Board.

A Vancouver press dispatch reports members of the local board of trade as stating that renewed pressure will be brought to bear on the Dominion Government to secure the selection of a British Columbia man as a director of the consolidated Canadian National Rys. system. W. F. McClintock, a member of a delegation which visited Ottawa recently, is reported to have said: "The sooner the projected organization is completed, the better it will be for Canada and its railways. In the first place, the Government should see that men of ability, foresight and experience are appointed, and that this province is given representation on the Board. The railway question in this province is one of the most serious confronting it, and we must have a representative on the Board if we are to receive the consideration to which we have been looking for so long."

J. B. Thomson, Vice President, Vancouver Board of Trade, is reported as having said: "We will now take up with renewed energy our request for the appointment of a representative from British Columbia on the National Railways Board. The Board of Trade has repeatedly urged that such representation be given this province, and since it was shown so plainly before the Board of Railway Commissioners that the great bulk of freight originates in or is destined for the west, it is only reasonable to suppose we will be granted our request."

Division of Wheat Transportation Between the Railways.

Geo. Stephen, Freight Traffic Manager, Canadian National Rys., has issued the following statement as to the division of the handling of the prairie provinces' grain crops of 1920 and 1921 by the Canadian National, Canadian Pacific and Great Northern Rys. from Sept. 1 to March 31, both inclusive:—

	1920 Crop		1921 Crop	
	Cars	%	Cars	%
C.N.R.	74,946	45.5	93,931	50.5
C.P.R.	89,695	54.4	91,434	49.1
G.N.R.	162	00.1	791	00.4

164,803 186,156
The C.N.R. and C.P.R. shipments were both to the head of the Great Lakes and to Vancouver, B.C. The G.N.R. shipments were to Duluth, Minn.

Sir William Van Horne's Estate.—The Quebec Superior Court gave judgment recently in an action brought by the collectors of succession dues for the province against the Royal Trust Co. and other executors of the late Sir William Van Horne, claiming duties on an estate valued at \$3,127,927.10 outside the province. The court held that the right of the province to collect duties on the estate was amply provided for in the statute, and gave judgment for \$243,749.

The Canadian Pacific Railway Company's Annual Meeting.

The C.P.R. Co.'s shareholders' 41st annual meeting was held at Montreal, May 3, the President, E. W. Beatty, K.C., in the chair. In moving the adoption of the report for the calendar year 1921, as published in Canadian Railway and Marine World for May, Mr. Beatty said:—The annual report, which is now submitted for your consideration and approval, indicates in a vivid way the effect on your company's operations of the acute depression through which the business of the country passed during 1921, and it is a matter of gratification that, notwithstanding the decrease in gross earnings of \$23,619,000, the economies which were effected resulted in somewhat increased net earnings, and, of course, a slightly larger surplus; after paying fixed charges and usual dividends on the preferred and common stocks. The results reflect great credit upon the ability of the company's officers and men, and are also a tribute to the physical condition of the property, which permitted reduction of expenses without in any degree affecting the efficiency with which traffic was moved. During October and November especially the heavy grain traffic was transported most expeditiously, with distinct advantage to the company's revenues.

Immigration.—The sales of agricultural lands were small, due to the general depression and the absence of the immigration of agriculturalists during the year. In my opinion, Canada cannot afford to be without a definite and forward immigration policy much longer. While it is urged that the depression both in agriculture and in general industry, with consequent unemployment during the past winter, is a reason why active immigration measures should not be taken, it must not be forgotten that there are types of immigrants that can be readily obtained and brought to Canada without the possibility of adding to the country's burdens. The immigration of young people of British stock can be accomplished without affecting in any material degree the existing situation respecting unemployment. The immigration of domestic servants in substantial numbers may reasonably be encouraged and the immigration of agriculturalists from Northern Europe, Great Britain and the United States, who can only be secured in limited numbers, should be actively prosecuted. In addition, the Government would, I think, be well warranted in framing a policy designed to permit more general immigration of carefully selected types from countries the people of which have heretofore come to this country and succeeded under Canadian conditions. It must not be forgotten that Canada's opportunities deserve widespread recognition, and even if adequate machinery is now begun to be set up, it will not be until 1923 that the results of the Government's activities will be felt. Unless we feel that the conditions in this country will not be improved for some considerable time to come, it would appear that the preliminary steps to obtain immigrants in substantial numbers should be taken without further delay. The C.P.R. has for many years been the most active colonization agency in Canada, 54,000 settlers having been placed upon its lands alone, and the cost of the company's activities in land selling, irrigation and colonization, since its incor-

poration, has been extremely large, amounting in the aggregate to approximately \$68,000,000, an amount in excess of the Dominion Government's total expenditure for immigration during that period.

Freight Rates.—As forecasted in the address at the last annual meeting, reductions took place during the year in both rates of wages and in freight and passenger rates; the former, which became effective July 16, 1921, was equivalent to a reduction of 9.03% on the company's then existing payrolls. The demand for further freight rate reductions is still persistent throughout Canada and to the existing scale of rates is attributed much of the present slackness in business. It is, in my opinion, an entirely erroneous impression that the existing freight rates are the cause, rather than the result, of the present economic conditions, the most important of which, from a transportation standpoint, is the present scale of wages and working conditions which the railways were compelled by Government authority to accept during the war. It is your directors' view, and it has been their view for some time, that the scaling downward of freight rates should be begun with reductions on basic commodities, especially in those industries which have felt the general depression most severely. Notwithstanding the willingness of the companies to make sacrifices in their revenues, in the hope that a lower scale of rates on basic commodities would give an impetus to business activity, they have been precluded from agreeing on a definite policy because of the approaching expiration on July 7 next of the provisions of the Railway Act allowing the Board of Railway Commissioners to make rates irrespective of agreements, statutory or other. In 1897 an agreement was made between this company and the Government, and confirmed by Parliament, whereby in consideration of the receipt by the company of a subsidy of \$3,300,000 in aid of the construction of a railway to the Crowsnest and Southern British Columbia, reductions in rates on certain named commodities shipped from eastern Canada to points in the west, and on grain to Fort William were exacted, with the obvious intent of assisting the colonization of the prairie provinces. The so-called Crowsnest rates on the commodities specified are from 19% to 49% lower than the rates at present being charged. The intention of Parliament at that time undoubtedly was to create special rates, which the company would be entitled to collect, and which would be legal, though not bearing a fair relation to other rates. At that time the C.P.R. operated about 7,300 miles of railways, but in a desire to give equality of rates to territories contiguous to those mentioned in the statute, though not supplied with railway facilities at the time the statute was passed, the company extended the application of rates to the lines subsequently constructed, or acquired, so that in 1918 the application of the rates had been extended to 13,772 miles of railway. During the period subsequent to 1897 many thousands of additional miles of railway were constructed by other companies now included in the National Railway System. The rates effective on this company's lines were naturally put into effect on the lines of these railways, so

that it is safe to say that the so-called Crowsnest rates were in practice applied to five times the mileage in operation at the time the agreement was made. The Crowsnest scale of rates, if applied literally, would bring about an inequality of treatment between different parts of western Canada which must, of necessity, favor some districts against others which now enjoy relatively equal rates. The Government desires to have the facts considered by a special committee of Parliament, with particular reference to the operating costs of the railways and to the result of the application of the Crowsnest scale upon the revenues of the National Railways and of other railways. The situation has been twice reviewed by the late Government, once in 1918, when the rates were suspended by order-in-council under the War Measures Act, because of the inability of the companies, in view of the heavy costs of operation, otherwise to carry on successfully, and to perform the transportation service so peculiarly essential at that time; and again in 1919, when power to deal with the rates, irrespective of the provisions of special agreements, was conferred upon the Board of Railway Commissioners. In both instances the Government's view apparently was that Parliament, in establishing the Crowsnest rates, had not in contemplation the extraordinary and abnormal conditions under which the operations of the railways have been carried on in recent years, or the inequalities and discriminations which might be created under the scale of rates then imposed. While considerable progress has been made in reducing expenses, there still exists a serious increase above pre-war costs, and the wage scales of 1921 are higher, by percentages ranging from 82% to 368%, than those existing in 1898 and 1899, and the cost of principal commodities, including fuel and rails, is also substantially higher; the increase in the case of rails being 92.32%, and fuel 177½%. The company's operating ratio in 1897 was 57.16%, while for 1921 it was 82.28%. The situation is one which should have frank recognition. The matter is in the hands of Parliament, which alone can deal with it, because of statutory restrictions.

I regard the stability of railway rates in Canada (even if readjustments downward are bound to continue until normal operating conditions are reached) as being of the greatest possible importance to all Canadian railways. For the past four years the extraordinary conditions which prevailed have compelled drastic economies, and the conserving of the resources of the companies wherever possible. It has prevented the increasing of facilities and improvements in maintenance, and the construction of new lines, because no company would be justified in spending freely for these purposes, in the absence of adequate revenues. The large railway systems of Canada are, of course, the chief purchasers of material and supplies and to the extent to which their purchases for any purpose, including new construction, are prevented by the uncertainty of financial return upon the money invested, a return to prosperity is retarded.

Maintenance and Construction.—I had been hopeful that the present year would see a resumption of at least normal activity in maintenance and construction

works, the necessity for which always prevails on a system the size of the C.P.R. Apparently, however, we have not reached the period at which we can say that large expenditures are warranted, especially in view of the freight rate situation.

Wages.—The steps preliminary to the readjustment of wage scales and working conditions are proceeding both in the United States and in Canada. The procedure being followed is that required by the agreements with the labor unions and by the laws of the United States and Canada. An early decision is hoped for in respect of some of the matters in dispute, but the proceedings are, of necessity, protracted, and decisions are not, therefore, reached speedily.

Gross earnings on all Canadian roads still show substantial decreases under those of the corresponding period of 1921. Crop conditions, however, so far as they can be judged at this date, are very favorable, and there is a returning spirit of optimism and activity which should grow in volume if the agricultural prospects are realized.

The company's taxation is not unnaturally increasing from year to year, approximately \$10,000,000 having accrued in Federal taxes during the last five and a half years.

Finances.—As indicated in the annual report, the company's finances are in splendid condition, and its credit has been well maintained and is extremely high, and it is, I think, of national importance that it should be so maintained.

Business Situation.—While there are some serious and difficult problems yet to be solved, the general sentiment of the country shows a distinct improvement over that prevailing at the end of 1920 and the beginning of 1921. I am very hopeful that the importance of Canada's transportation agencies being permitted to undertake their full share in the country's advancement, will receive due recognition, and if it does, I am convinced that the return to normal conditions will be greatly accelerated. Your company will, as always, endeavor to perform its part with the purpose of advancing the expansion of the country agriculturally and industrially. Few institutions are so linked up with the prosperity of Canada as is the C.P.R., and its ability to maintain a high credit has in a large measure contributed to the support received by other Canadian enterprises. Its progression should be step by step with that of the country itself.

Sir John Eaton's Death.—Since the publication of the annual report, the board has lost one of its members through the death of Sir John Eaton, who joined the directorate on Dec. 8, 1919. He was in the prime of life, a man of tremendous personal influence, and of extraordinarily generous qualities. His loss will be very much felt throughout Canada and particularly in Toronto. His counsel and assistance were greatly appreciated by the board and his death is deeply deplored. The vacancy created by his death has not yet been filled.

Officers and Employees.—I cannot speak too highly of the morale and efficiency of the company's officers and men. A more loyal group of men does not, I think, exist in any corporation in the world.

The report was adopted unanimously. **Interprovincial & James Bay Ry.**—A

lease to the C.P.R. Co. of this railway, from near Lumsden's Mill to near Des Quinzes River, Que., about 77 miles, and all the branches of and additions thereto which may be built, at an annual rental equal to the interest, not exceeding 5%, payable on securities issued or which may hereafter be issued by the I. & J.B.R. Co. with the C.P.R.'s consent, the total of such securities not to exceed at any time \$50,000 a mile, was approved.

Consolidated Debenture Stock.—The following bylaw was approved: "Certificates of ownership of consolidated debenture stock, may if the directors so determine with respect to any stock issued, be made in bearer form transferable by delivery, with coupons for interest payable to bearer, and any holder of stock with respect to which the directors shall have so determined shall on surrender of a certificate in bearer form with all unmatured coupons be entitled to receive in exchange therefor a certificate for the same amount of stock registered in his name bearing interest payable at the same rate, time and place but with coupons and any such registered certificate may in like manner be exchanged for a bearer certificate for the same amount of stock bearing interest coupons payable to bearer. After all interest coupons attached to a certificate in bearer form shall have matured, the holder of such certificate, upon presentation and surrender thereof shall be entitled to a new certificate bearing coupons for future interest."

Directors, Officers, etc.—The retiring directors, J. K. L. Ross, Lord Shaughnessy and Sir Thomas Skinner, were re-elected. At a directors' meeting, held immediately after the annual meeting, the following officers were re-elected: Chairman of the company, Lord Shaughnessy; President, E. W. Beatty, K.C.; Vice President, Grant Hall. The following were appointed as the executive committee: R. B. Angus, E. W. Beatty, Grant Hall, Sir Herbert Holt, Sir Vincent Meredith, Sir Edmund Osler, Lord Shaughnessy.

Pensions for G.T.R. Strikers of 1910.

W. A. Boys, South Simcoe, Ont., moved in the House of Commons on May 3, "That in the opinion of this House, immediate steps should be taken by the Government to restore the pension rights and status of all employes and ex-employes of the G.T.R. who were deprived thereof owing to participation in a strike on the system in 1910, to the end that all such may secure their just rights pursuant to the terms and true intent of the settlement made between the parties." Mr. Boys said: "In my absence on April 10, the Prime Minister, referring to this resolution, said: 'There is no need for this resolution, inasmuch as the Government has already taken steps in the direction proposed. The Government has been negotiating with a view of seeing that a long standing injustice should be remedied without further delay: If it is not possible to effect by negotiation what we hope and believe will be attained by negotiation, then the Government will bring in the necessary legislation to see that the injustice that was done to G.T.R. employes involved in the strike of 1910, in virtue of the terms and conditions of its settlement not having been complied with, is duly remedied.'" Mr. Boys continued:—"I read the Prime

Minister's remarks with great interest and satisfaction, and in view of what he said on that occasion I certainly have no desire at present to press this motion. I should be glad, however, if he could see his way clear to give me an opportunity later on in the session, if perchance negotiations fail, or if no legislation is brought forward, to deal with the subject matter of this motion. I am very much in earnest about it, and I realize that the Government is as well. Apparently we are in accord in our views, and if the Prime Minister would be kind enough to promise me this consideration I should appreciate it very much and, on the strength of such an assurance, I would move the adjournment of the debate on the motion."

Prime Minister King:—"Not only am I very much pleased to meet my hon. friend's wishes, but should negotiations fail and should it be necessary for the Government to consider introducing legislation, I will assist the hon. member in carrying his resolution."

Mr. Boys:—"I am entirely satisfied with the Prime Minister's statement and I move the adjournment of the debate." The motion was agreed to and the debate adjourned.

Railway Earnings.

Canadian National Railways.

Following are total operating revenues total operating expenses, and net operating revenues or deficits, for the Canadian Northern Ry. System, Grand Trunk Pacific Ry., and Canadian Government Rys., the last including the Intercolonial Ry., Prince Edward Island Ry. and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government:—

	Revenue	Expenses	Net deficits
	1922	1921	
Jan.	\$8,210,401	\$10,433,564	\$2,223,163
Feb.	7,650,743	10,026,572	2,375,829
March	9,418,100	10,397,547	979,447

	\$25,279,244	\$30,857,683	\$5,578,439	\$8,383,015
Deer.	\$6,174,338	\$8,978,914	\$2,804,576	.....

Approximate gross revenue for April, \$8,035,358, and for two weeks ended May 14, \$4,489,814, against \$9,427,595 for April and \$3,696,856 for two weeks ended May 14, 1921.

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1922, compared with those for 1921. The discrepancies between these figures and those issued by the Dominion Bureau of Statistics are owing to the fact that the Bureau is, at its request, furnished with figures by the C.P.R., including the Esquimalt & Nanaimo Ry., and the Montreal & Atlantic Ry. earnings, as well as the C.P.R. ones. The figures supplied the Bureau are exclusive of certain income items which are included in figures supplied Canadian Railway and Marine World:—

	Gross	Expenses	Net	Decreases
	1922	1921		
Jan.	\$11,337,975	\$10,854,498	\$483,477	\$157,948
Feb.	11,303,693	10,649,205	654,488	158,904
March	13,847,627	11,427,120	2,420,507	30,402

	\$36,489,295	\$32,930,823	\$3,558,472	\$347,254
Deer.	\$5,450,849	\$5,103,595	\$347,254	.....

Approximate gross earnings for April, \$11,970,000, and for two weeks ended May 14, \$5,778,000, against \$13,411,000 for April, and \$5,879,000 for two weeks ended May 14, 1921.

Grand Trunk Railway.

	Gross	Expenses	Net	Increase
	1922	1921		
Jan.	\$5,354,317	\$4,984,953	\$369,364	\$1,070,530

Incr.	.....	.....	\$1,070,530	.....
Deer.	\$864,048	\$1,934,578	.....	.....

Approximate gross earnings for February, \$7,171,691; March, \$8,420,021; April, \$6,803,191, against \$5,732,242 for February; \$7,916,196 for March, \$7,349,351 for April, 1921.

Australian Railway Gauges.—The Commission on the unification of railway gauges in Australia, which was appointed by the Commonwealth Government Feb. 8, 1921, has recommended the adoption of the 4 ft. 8½ in. gauge as the standard. The cost of the conversion of all lines is estimated at £57,200,000.

Railway Wages and Working Conditions in Canada and the United States.

As stated in Canadian Railway and Marine World for May, p. 243, the Railway Association of Canada had begun negotiations with the United Brotherhood of Maintenance of Way Employees' officials, for a revision of rules and working conditions affecting the employment of maintenance of way men, but the employees' representatives had asked for time to refer the proposals to the men. After this had been done, the employees' representatives and the Railway Association's wage committee met again, and a mutually satisfactory agreement was reached. Generally speaking, the agreement provides that for certain kinds of work in connection with which overtime, Sunday service and holiday service, is unavoidable, pro rata rates of pay shall in future apply for such service within certain limits, instead of punitive overtime at the rate of time and a half as heretofore. The agreement has been made without prejudice to future negotiations on 30 days notice, any change as a result of such negotiations to be effective from a date subsequent thereto.

An agreement has also been reached between the Railway Association of Canada and the shop employees included in the American Federation of Labor, Railway Employees' Department, Division 4. After some weeks of negotiation at Montreal, an agreement was arrived at, effective May 22, by which wage agreement 4 was amended. The C.P.R. was represented by Geo. Hodge, Assistant to Vice President, Eastern Lines; the G.T.R. by C. F. Needham, Assistant to General Superintendent, Motive Power and Car Departments; the Canadian National Rys. by C. E. Brooks, Mechanical Assistant, Locomotive Department; the A. F. of L. Railway Employees' Department, Division 4, by R. T. Tallon, President, Dickie, Secretary, and delegates representing the various trades. The railways affected by the agreement are: Canadian National; Canadian Pacific; Dominion Atlantic; Esquimalt and Nanaimo; Grand Trunk; Grand Trunk Pacific; Kettle Valley; Quebec Central; Timiskaming and Northern Ontario; Winnipeg Joint Terminals; Toronto, Hamilton and Buffalo; Edmonton, Dunvegan and British Columbia.

The agreement is the usual voluminous document, a summary of which is impossible in the space at our disposal. Except as provided in specific instances, 8 hours constitutes a day's work, and with the exception of employees regularly assigned to road work and paid on a monthly basis, all employees will be paid on an hourly basis. The chief overtime provisions are as follows: Rule 6. "All overtime continuous with regular bulletined hours will be paid for at the rate of time and one half until relieved, except as may be provided in rules hereinafter set out. Work performed on Sundays, New Year's Day, Good Friday, Victoria Day, Dominion Day, Labor Day, Thanksgiving Day, and Christmas Day (provided when any of the above holidays fall on a Sunday the day substituted by the Federal Government will be observed), will be paid for at the rate of time and one half, except as follows: (a) Employees necessary to the operation of power houses, millwright gangs, heat treating plants, pipe line maintenance gangs, train yards, running repair and inspection forces, will be paid time and one half if required to work to New

Year's Day, Labor Day and Christmas Day, and straight time for other specified holidays unless such holidays fall on regularly assigned seventh day off duty. (b) Employees necessary to the operation of train yards, running repair and inspection forces will be assigned one regular day off duty in seven, Sunday if possible, and if required to work on such regular assigned seventh day off duty, will be paid at the rate of time and one half, and where such assigned duty is not Sunday, work on Sunday will be paid for at the straight time rate. (c) Sunday and holiday work will be required only when absolutely essential to the continuous operation of the railways."

Rule 7. "For continuous service after regular working hours, employees will be paid time and one half on the actual minute basis, with a minimum of one hour at straight time rates for any such service performed. Employees shall not be required to work more than two hours without being permitted to go to meals. Time taken for meals will not terminate the continuous service period, and will be paid for up to 30 minutes at straight time rates. Employees called or required to report for work and reporting but not used will be paid a minimum of 4 hours at straight time rates. Employees called or required to report for work and reporting will be allowed a minimum of 4 hours for 2 hours and 40 minutes or less, and will be required to do only such work as called for or other emergency work which may develop after they were called and cannot be performed by the regular force in time to avoid delays to train movement. Employees required to attend passenger trains for inspecting, icing, watering, cleaning and putting on supplies, outside of regularly assigned working hours, will be allowed a minimum of 2 hours at straight time rates, except that when called between 22 o'clock and 6 o'clock a minimum of 4 hours at straight time rates will be allowed. Employees will be allowed for services performed continuously in advance of the regular working period a minimum of 2 hours at straight time rates, the advance period to be not more than one hour. Except as otherwise provided for in this rule, all overtime beyond 16 hours service in any 24-hour period, computed from starting time of employees' regular shift, shall be paid for at the rate of double time."

The individual railways are negotiating with officers of the telegraphers' organization, to secure changes in the rules and working conditions affecting telegraphers' employment. No action has been taken toward securing changes in the train service employees' schedules.

On May 16, A. R. Mosher, President of the Canadian Brotherhood of Railway Employees, accompanied by a deputation, appeared before the Ontario Minister of Labor, to complain against alleged discrimination against the brotherhood by officers of the Timiskaming and Northern Ontario Ry. officers for having taken measures to prevent employees from joining the brotherhood. We are advised by the Chairman of the T. & N.O. Commission that the Commission has always given sympathetic consideration to every request presented by its employees, and allow confidential clerks and secretaries labor, but that it cannot be expected to join any labor organization.

A Board of Conciliation, consisting of

W. R. T. Preston, Chairman, F. H. McGuigan, representing the company, and F. Bancroft, representing the men, was appointed to hear the dispute in connection with wages on the Algoma Eastern Ry. The employees affected are carmen and shopmen. The rates which have been in effect are as follows: Machinists, 77c. an hour; blacksmiths, 77c.; car repairers, 72c.; helpers and stationary boiler firemen, 54c. and 50c. The rates which the company proposed putting in are as follows: Machinists, 65c.; blacksmiths, 65c.; car repairers, 60c.; helpers and stationary boiler firemen, 45c.

United States.—Details of the hearings by the Railroad Labor Board in connection with the applications made by the railways for reductions in the rates of pay of shopmen were given in Canadian Railway and Marine World for May, p. 243. Following the termination of the hearings on the shopmen's wages, evidence was presented concerning clerical employees' wages. The railways were represented by J. H. Higgins, for the Western roads, J. G. Walber, for the Eastern roads, and W. A. Northcutt, for the Southwestern roads, and the employees were represented by E. H. Fitzgerald, President, Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees. Hearings were also held by the Board in the latter part of April in connection with the telegraphers and train dispatchers' wages. J. G. Luhrsén, of the train dispatchers' organization defended the present rates of pay, on the ground that any reduction would destroy the differentials existing between the rates of pay for train dispatchers and for employees in train service. He also placed great emphasis on the degree of training and skill required in the work in which the members of the organization are engaged.

The dispute between the railways and their signal employees was also heard by the Board in the latter part of April. The roads asked for a reduction of from 5½c. to 14c. an hour, and the employees contended that no reduction would be justified. The employers were represented by D. W. Helt, President, Brotherhood of Railroad Signalmen.

The hearings were proceeding satisfactorily until April 28, when the representatives of all the labor brotherhoods concerned withdrew as a protest against the appearance of representatives of the National Industrial Traffic League, and the National Industrial Conference Board, before the Board. B. M. Jewell, President American Federation of Labor Railway Employees' Department, in a statement giving the reason for this action, said that the Labor Board had no authority to listen to evidence which had nothing to do with the determination of just and reasonable wages for railway employees, and that decisions based on, or affected by, such evidence, would have no value. The National Industrial Traffic League was represented at the hearings by J. S. Burchmore, who advocated that the Government stop trying to regulate railway labor matters. He defended his appearance before the Board by saying that the League represents a large part of the shipping public, and that the public is vitally interested in the matter of railway wages. J. H. Lipby, representing the National Industrial Conference

Board, presented figures to show that railway labor is overpaid. The figures showed that the "real" earnings of railway employees are on the average, 20% higher than in 1914. The wage hearings were ended by the presentation of evidence by the representatives of the two public bodies named above, and the Board has since had the matter of wages for all employees concerned under advisement.

On April 21, when representatives of the shopmen who are members of the American Federation of Labor Railway Employees' Department, met in convention in Chicago, they voted to send out strike ballots and took steps to prepare for the launching of a country-wide shopmen's strike. Much dissatisfaction was expressed with methods used by many railways in contracting out their repair work, it being claimed that this was but a method of escaping the necessity of paying the wages ordered by the Labor Board. No announcement of strike ballots having been sent out has been made.

The Labor Board had intended proceeding with hearings concerning the rules and rates of pay of locomotive men and firemen, beginning May 1, but the hearings were indefinitely postponed. Eastern railways have asked for separate hearings on the question of wages for these employees, which request the Board has granted, but no date for hearings has been announced.

Details were given in previous issues of Canadian Railway and Marine World concerning the dispute between the Labor Board and the Pennsylvania Rd. The Board ordered the railway to negotiate with the employees' organizations, and to deal with representatives of unorganized employees appointed in a manner specified by the Board, but the railway had arranged to negotiate with employees' representatives elected by the employees at elections arranged by the railway company. When the Board was about to issue an order censuring the railway for disobeying its previous order, the company obtained a temporary injunction restraining the Board from publishing such an order. At the end of April, Judge Page of the U.S. District Court at Chicago, upheld the railway's contention, stating that the only power given the Board by the Transportation Act, p. 301, is to hear and decide disputes jointly referred to it by parties interested in the dispute. From this decision, it would appear that the Board is subject to the jurisdiction of the Federal Courts, and that the only backing that it has in the enforcement of its rulings is that given by the existence of a favorable public opinion. Incidentally, in Judge Page's decision, the constitutionality of the labor provisions of the Transportation Act was upheld. The Board is not going to let matters rest at this point, and its Chairman having conferred with the U.S. Attorney General and Solicitor-General, it was decided to appeal to the Supreme Court. The U.S. Department of Justice will support the Board's position in the appeal, the hearing of which has been set for June 2, in the District Court of Appeals at Chicago.

Previous issues of Canadian Railway and Marine World have given details of the way in which many U.S. railways have been contracting for their repair work, and as to how labor organization representatives protested against this procedure in hearings before the Labor

Board. In a decision given by the Board recently in the case of the Indiana Harbor Belt Rd., it was stated that the road's action in contracting out its repairs was in violation of the Transportation Act. The decision points out that by the terms of contracts entered into by various railways, employees embraced in the six shop crafts, firemen and oilers, signal employees, hostlers and certain clerical employees, have suffered reductions in wages. It says that the principle involved in all these cases is the duty and responsibility of the employer toward the employee, and that the contracts involved violate the spirit and purpose of the Transportation Act, and in effect set aside the wage decisions made by the Board. The decision applied only to the Indiana Harbor Belt Rd., and it was stated that further decisions will depend on the circumstances in each particular case, but it would appear that the Board will hold all of this repair and maintenance contracting work unlawful.

B. W. Hooper, a public member of the Board, and formerly Governor of Ten-

nessee, was elected to the Chairmanship of the Board on April 27, succeeding R. M. Barton. G. W. W. Hanger, also a public member, was elected Vice Chairman. It was reported that Albert Phillips, a labor member of the Board, was about to resign on account of ill health, but it is now stated that he will finish his term of office. The Labor Board has now been in operation for two years, and has passed upon 632 cases placed before it. In 1920 it issued 42 decisions and various interpretations, and in 1921 it issued 539 decisions and numerous interpretations and addenda.

It is felt that the Board will soon render decisions in the disputes having to do with the wages of all employees, excepting train and locomotive service, as the hearings were concluded before May 1. Since the conclusion of the hearings the Board has been in executive session almost continuously, and decisions on wages for the various classes of employees affected are being awaited with interest by both railway managements and employees.

Grand Trunk Railway Construction, Betterments, Etc.

Bonaventure Station.—The Montreal City Council passed the following resolution recently:—"That the executive committee be requested to ask the Dominion Government or the Board of Railway Commissioners of Canada to consider the advisability of transferring Bonaventure station to a location near McGill St., which would have the effect of settling the intricate question of level crossings, as well as that of the construction of viaducts, which would entail an expenditure of several millions of dollars upon the Government and the city, and would also enable the Government to sell the large extent of land occupied by such station and by the G.T.R. tracks, and that the committee be further requested to report to council on the result of its negotiations."

Lachine Station.—Plans for a new station on the boundary line between Lachine and Dorval were approved by Lachine City Council recently. The new building will be erected on the south side of the G.T.R. tracks and will occupy a site 49 x 16 ft., with extensive platforms for both up and down tracks. The building will be of the usual small-town railway station type and will include a ticket office, general waiting room, women's waiting room, station agent's office and baggage room. The building is estimated to cost \$25,000 and it is expected it will be completed by the end of the summer.

The Lachine City Council has since discussed a suggestion to have a union station located between 15th and 20th Avenues, and it was decided to send a delegation to the G.T.R. management to discuss the matter.

Oshawa Water Supply.—We are officially advised that the company has made a contract with the Oshawa, Ont., town council for a water supply there. A press report states it provides for the supply at 8½c. per 1,000 gall. The company now pumps its water from a creek adjoining the station.

Toronto Belt Line Ry. Bridge.—In connection with the lengthening of the bridge carrying the Toronto Belt Line Ry. over Yonge St., we are officially advised that the necessity for the work has arisen through the widening of Yonge

St., along this section from 66 to 86 ft. The bridge has therefore to be lengthened by 20 ft. This is being economically achieved by moving the present half through plate girder span 10 ft. to the west and supporting it on steel bents placed just behind the east and west curb lines. New steel stringers will bridge the gaps at each end between the end floor beams of the girder span and the floor beams resting on the abutments. The present east abutment remains in place, the west abutment has been removed, and a new west abutment has been erected on piles. The clearance underneath the bridge, when the new roadway is regraded, will be 18 ft. The gradient of the sidewalk remains as heretofore. The new roadway will be 54 ft. wide between curbs. The work is being done at Toronto's expense.

Huttons Bridge.—Work is reported to have been started on the approaches and abutments for a new bridge at Huttons, London Tp., Ont. When the railway was double tracked some years ago, a dangerous turn was created in the roadway, which is now to be straightened out.

Wanstead, Ont., station was destroyed by fire, April 27. It was a frame building and contained, in addition to the ordinary station accommodation, the agent's residence. It is stated that another building will be erected immediately.

Petrolea Spur Line.—An agreement is reported to have been entered into with the G.T.R. for the construction of a spur line from Petrolea, Ont., to the Peninsular Sugar Co.'s proposed factory site.

Glencoe-St. Thomas Track Relaying.—We are officially advised that about 18 miles of track between Glencoe and St. Thomas, Ont., is to be relaid this year with re-rolled 90 lb. rails.

The Northern Pacific Ry. directors have declared a quarterly dividend of 1¼% on common stock, representing an annual dividend of 5% instead of 7% as heretofore. Howard Elliott, Chairman of the Board, said he was hopeful that conditions would warrant resumption of the 1¼% quarterly dividend in the near future.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Abitibi Pulp and Paper Co., Ltd.—We are officially advised the company has let a contract to build this year a standard gauge logging railway, from Iroquois Falls, Ont., to a junction with the National Transcontinental Ry. at Hughes, Ont., 16 miles. Iroquois Falls is the terminus of a 7-mile branch of the Timiskaming and Northern Ontario Ry., from Porquois Jct., Ont., 225.7 miles north of North Bay. Hughes is 29 miles east of Cochrane.

Alberta and Great Waterways Ry.—The report of the Alberta Minister of Railways for 1921, states that a complete investigation was made by the Department's engineers relative to the completion of the railway from the point where the navigation of the Clearwater River was first reached at mile 282, to Fort McMurray, and it was ascertained that the cost would not be justified by the amount of traffic in sight. The estimated cost to complete the additional mileage was approximately \$210,000. As the company has title to 875 acres of land at this point on the line, situated on a heavily timbered flat well above high water level, it was determined to utilize this area. A spur 3,400 ft. long was paid from the main line to the river front, where there are wharfage sites and companies, operating steamboats on the river. The investigation of conditions at Fort McMurray showed the site selected previously for a steamboat landing and a terminus for the railway, to be altogether reasonable. The deviation from the original Clearwater Valley line, built in 1921, leaves the original line at mile 272, follows Deep Creek, and rejoins the Clearwater Valley location to Fort McMurray at mile 282. The location shows the first three miles of the deviation to be practically level, followed by 4 miles of 1% gradient, the remaining three miles having a 2% gradient. The deviation is situated on a sliding clay formation, and may be found uneconomical to maintain. The cost of the deviation to Dec. 31, 1921, was \$347,496.24, and it is estimated that it will cost \$42,670 to complete it.

A press report states that considerable ballasting will be done on the line from Lac la Biche, to the Clearwater River. The first gang of men was reported to have arrived on May 2 at Waterways, where a start was made upon the erection of a frame storehouse for track supplies, 32 ft. x 80 ft. It is reported that some small land slides have already occurred on the Deep Creek deviation. (May, p. 236.)

Canadian Transit Co.—The House of Commons railway committee gave consideration recently to the company's bill, which provides among other things for the changing of the office from Windsor, Ont., to Detroit, Mich., and the granting of power to the American Transit Co., which is the United States end of the undertaking, to issue bonds for the entire undertaking, and to dispose of the same in Canada. Objection was taken to both these features, both in committee, also in the House, on May 12, and May 14, when the bill was read a third time.

C. N. Monsarrat, Montreal, a member of the board of engineers for the construction of the bridge, is reported to have stated recently that there was every indication that construction would be

started at an early date. Field work had been completed and borings for the foundations made. It was intended to complete the highway section of the bridge and the approaches first, and then proceed with the construction of the railway deck. Owing to the reduction in the prices of steel, and the condition of the labor market, it was expected that the bridge would cost less than the original estimates. (Feb., pg. 76.)

Dominion Atlantic Ry.—A press report states that a contract has been let to Cornwallis Construction Co., Kentville, N.S., for the erection of a station at Round Hill, N.S. (April, pg. 185.)

Esquimalt & Nanaimo Ry.—A recent call for tenders for the superstructure of the Johnson St. bridge, Victoria, B.C., other than the bascule span, resulted in several offers being made, but as the prices were considered too high, tenders were again invited to be sent in by April 17. Three were received, and that of the Canadian Bridge Co., Walkerville, Ont., which has just about completed the erection of the bascule span, was accepted. The bridge is being built by the city under an arrangement by which the E. & N. R. Co. and the British Columbia Government contribute portions of the cost. Owing to a variety of circumstances, the cost of the work is exceeding the amount fixed in the bylaw by \$110,000. The city has been negotiating with the E. & N. R. Co. and the government to contribute a share of the increased cost, but without success. It was finally arranged to submit a new bylaw, to provide the \$110,000 by the issue of city debentures, and this was carried May 12 by 2,465 votes to 692.

The work on the bascule span is reported to be proceeding rapidly, the main part of the work having been completed early in May. The span is a 150 ft. single leaf combined railway and highway bridge, built to the Strauss Bascule Bridge Co.'s specifications and under its inspection by the Canadian Bridge Co. A general description of the whole structure was given in Canadian Railway and Marine World for March, 1920, pg. 135. The then estimated cost of the bridge was \$720,000, towards which the E. & N. R. Co. was to contribute \$100,000. The entire structure is expected to be completed by Dec. 31.

The company's application to the Dominion Parliament for an extension of time for two years for the starting of construction, and for five years for the completion of the extension of the line from the present terminus at Courtenay to Duncan's Bay on the east coast of Vancouver Island, met with considerable opposition in its passage through the House of Commons, where it was read a third time May 9. The opposition developed before the railway committee, where an effort was made by A. W. Neill, M.P. for Comox-Alberni, to have the time limited to one year for starting the extension, and to three years for completing it, and was continued on the motion to consider the bill in committee of the whole house. Mr. Neill's motion to send the bill back to the committee was defeated by 95 to 91, but it was again brought forward when the House gave consideration to the bill in committee, May 2, and was again defeated on the chairman's casting vote. Some

other amendments were proposed by Mr. Neill, and were also negated on May 9, when the bill was read a third time. (April, pg. 185.)

Hudson Bay Ry.—A deputation of western members of Parliament and others representing the district served by the Hudson Bay Ry. from Pas to the point to which it is being operated near the Kettle Rapids, waited upon the Minister of Railways and other members of the Dominion Government recently in connection with the condition of the railway, and to press for its completion to Port Nelson. We are officially advised that the Minister informed the deputation that provision has been made this year by the Canadian National Ry. directors to retie the portion of the line now in use where necessary so as to keep the portion of the road serving the public in proper repair, until such time as the railway management and the Government can determine upon a definite policy with reference to the whole line.

A train service is being operated over the line from Pas to mile 214 by the Canadian National Ry. The track is laid as far as the Kettle Rapids, mile 332, and grading is practically completed to Port Nelson, mile 424. (May, pg. 236.)

Kettle Valley Ry.—We are officially advised recently that track had been laid on the branch from Penticton, B.C., to the head of Dog Lake, and that approximately 71% of the grading had been done between Okanagan Falls and the Government Demonstration Farm at Oliver, on the extension from the south end of Dog Lake. The barge for use on the lake to connect the two sections of the line has not yet been built. (April, p. 185.)

Michigan Central Rd.—A press report states that a contract has been let to Dominion Construction Co., Toronto, for the construction of the greater part of the second unit of the freight terminal and classification yards at Niles, Mich. The first unit was completed in Dec. 1919, and it is intended to have the entire project finished in 1923. (May, pg. 237.)

Lake Huron & Northern Ontario Ry.—The Ontario Government is reported to be opposed to granting an extension of time for the construction of this railway, and that the bill, in consequence will be thrown out. The matter was brought up in the Legislative Assembly May 22, when the Premier was reported to have stated that the Timiskaming & Northern Ontario Railway Commission had been instructed to make a report, not only on the existing line from Bruce Mines to Rock Lake, but also into the prospects of extending it. The Government's policy, if the report should be favorable, would be to take over the existing line, operate it to serve the present needs of the locality and extend it farther north as the time becomes opportune. The line might be taken over at once. (May, pg. 235.)

Montreal Central Terminal Co.—The House of Commons railway committee decided May 18 to recommend the refusal of the company's application for an extension of time for the construction of its projected bridge and tunnel, or either, from Montreal to the south shore of the St. Lawrence River, and for the laying out of a terminal station and yards in Montreal. The Minister of Railways informed the committee that the

Railways Department had had a report made upon the bill. In view of the need of heavy expenditures for the National Rys. terminals in Montreal, it was feared that the powers asked in the bill might interfere with the success of the National lines plans. (March, pg. 124.)

Montreal, Joliette & Transcontinental Junction Ry.—A bill granting an extension of time for the construction of this projected line from Montreal to a junction with the National Transcontinental Ry. at Parent, Que., was read a first and second time in the House of Commons recently and referred to the railway committee, which considered it on April 20, when it was claimed that the company had not done anything in the way of surveys, etc., since 1918. It was asserted on behalf of the promoters that they were prepared to build 60 miles of the line this year, and to consent to the insertion of a provision binding them to build a certain mileage every year until the line is completed. The present directors of the company are United States citizens. Consideration was adjourned, and when the committee again took the bill up, on May 9, it was stated the Premier of Quebec had intimated that that province would not grant a subsidy in aid of the construction of the line. The committee decided to report the preamble not proved, which means that the bill is thrown out. (April, pg. 185.)

Pacific Great Eastern Ry.—Some recent press reports credited W. P. Hinton, ex Consulting Officer to the Receiver, Grand Trunk Pacific Ry., with having advised the British Columbia Government to abandon the line from Quesnel to Prince George, in favor of a line into the Cedar Creek District, or a more westerly line to a connection with the Grand Trunk Pacific Ry. Mr. Hinton immediately denied this report. We were officially advised subsequently that Mr. Hinton had made a report upon the railway to the Government, but that it was simply for the directors' guidance. J. G. Sullivan, formerly Chief Engineer, C.P.R., is reported to have completed his inspection of the railway, and to be reporting upon its engineering problems to the Government. (April, pg. 185.)

Pere Marquette Rd.—We were officially advised recently that appropriations had been made for relaying track between Sarnia and Wallaceburg, Ont., 31 miles, with 85 lb. rails, and for ballasting between Sarnia and Chatham, Ont., 54 miles, but that the carrying out of the work this year would depend upon business conditions.

A press report states that it is proposed to build a new station, on Wilson Ave., St. Thomas, Ont., at an approximate cost of \$40,000. (April, pg. 185.)

St. John & Quebec Ry.—In the House of Commons on May 1, T. W. Caldwell, Victoria and Carleton, N.B., moved that it is advisable that a branch line connecting the St. John & Quebec Ry. with the Eastern Maine Ry. be built as soon as financial conditions will permit. He stated that two thirds of the traffic originating on the Canadian National Rys. was destined for the U.S., and that in default of such a connection as he proposed the traffic had to be routed by the C.P.R. Shippers, he claimed, were thus paying about \$100,000 a year in additional freight charges. The estimated cost of the connection he stated as \$1,000,000. The construction of such a connection would enable the New Brunswick Government to proceed with the construction of the projected extension

of the St. John & Quebec Ry. northerly from Centerville, thus completing the opening up of probably the best section of the province. The Eastern Maine Ry. had surveyed a route for a line from Houlton to Bancroft, Me., and was prepared to build a spur line to the International Boundary to meet such a line as he suggested, the length of which would be about 22 miles. The Minister of Railways stated that the Canadian National Rys. directors had investigated this particular project, and while quite willing to admit that from the standpoint of interchange of traffic there is much to be said in favor of its construction, yet they do not feel that the line is opportune. There are five possible connections with two lines of railway, and it was not thought wise for the C.N. Rys. management to commit itself to any one of them at present. The Department and the C.N. Rys. board would keep the matter before them, and he suggested that the motion be withdrawn. Mr. Caldwell did not agree, and the motion was declared lost on division.

In this connection it is to be noted that the Mattawamkeag & Eastern Rd. Co. is applying to the Interstate Commerce Commission for authority to issue \$80,000 of stock and \$500,000 of 30 year 7% gold bonds towards the construction of an extension of the Eastern Maine Ry. (See Mattawamkeag to Drews Plantation, April, pg. 185.) Oct., 1921, pg. 529.)

Timiskaming & Northern Ontario Ry. We are officially advised that Grant Smith & Co. and McDonnell, Ltd., the general contractors, and the sub contractors on the extension of the line from Cochrane, Ont., got in their supplies and prepared camps during the winter. Actual construction is now in full swing, and it is expected to get track laid to the second crossing of the Abitibi River, 46 miles from Cochrane this year. The members of the T. & N.O. Ry. Commission returned to North Bay, May 9, after making a trip over the line, and on to the extension. Lt.-Col. L. T. Martin, one of the Commissioners, is reported to have said it was expected to begin laying track by June 30, and that grading, culvert building, etc., was being pushed forward all along the 46 mile stretch.

The T. & N.O. Ry. Commission is reported to have appropriated \$200,000 for extra expenditure on tracks, to bring the line up to the standard of any other in Canada. Six new section gangs are to be put on and all section gangs are to be increased by two men each. A steam shovel and a ditcher is to be added to the track work equipment.

The question of the development of water powers and the generation and distribution of electrical energy, along the line has been under consideration. It is reported that the Commission has decided to reserve the water power at the Long Sault falls of the Abitibi River, estimated to develop 60,000 h.p., for its own purposes, and to waive its rights to other falls on the river from Iroquois Falls to Tin Can Portage, a few miles short of New Post, nearly opposite to the terminus of the extension now under construction. The Commission will, it is stated, develop a water power on the Frederick House River, which runs into the Abitibi River at Long Sault Rapids, and will reserve at least two water powers between Tin Can Portage and James Bay. The question of regulating the flow of the Abitibi River is being considered. (May, pg. 237.)

Canadian Railway Club's Annual Meeting.

The 20th annual meeting of the Canadian Railway Club was held May 9. The retiring President, A. Crumpton, Valuation Engineer, G.T.R., Montreal, was presented with a jewelled emblem by W. Macnab, Chairman Valuation Committee, G.T.R., as a souvenir of his term of office. The officers were elected as follows: President, G. M. Wilson, Superintendent Machine Power Shops, G.T.R.; First Vice President, H. R. Naylor, Assistant Works Manager, C.P.R., Angus Shops, C.I.M.; Second Vice President, C. E. Brooks, Mechanical Assistant, Canadian National Rys., Toronto; Executive Committee: E. R. Battley, Superintendent Motive Power, Eastern Lines, G.T.R.; J. A. Shaw, Electrical Engineer, C.P.R.; W. U. Appleton, Mechanical Superintendent, Canadian National Rys., Moncton, N.B.; R. J. Needham, Mechanical and Electrical Engineer, G.T.R.; J. F. Burns, Works Manager, Angus Shops, C.P.R.; W. C. Hunter, Air Brake Inspector, Canadian National Rys., Montreal. Auditors: C. F. Needham, Assistant to Superintendent Motive Power and Car Departments, G.T.R.; J. W. Fontain, Chief Clerk, Stores and Mechanical Accounts, C.P.R.; J. D. Brandon; Secretary, W. A. Booth, Engineer, Locomotive Construction, G.T.R.; Treasurer, P. P. Reynolds, Chief Clerk, Mechanical Engineer's Office, C.P.R. Except where otherwise stated the officers and executive committee reside in Montreal. After the business had been transacted, an interesting programme of songs, speeches, etc., was presented.

Boosters on Timiskaming & Northern Ontario Railway's Locomotives.—As stated in Canadian Railway and Marine World a little over a year ago, the T. & N.O.R. had five locomotives, 4 Pacifics and 1 mikado, equipped with the locomotive booster. One locomotive of each type, so equipped, was tested in May 1921, and the results were given in Canadian Railway and Marine World for June and July 1921. We enquired recently as to the T. & N.O.R.'s experience with the locomotives during the past winter and have received the following reply from S. B. Clement, Chief Engineer:—"The boosters installed on our locomotives are giving excellent satisfaction. They have come through a very rigorous winter without giving any trouble. We are not in a position to give any information regarding maintenance costs, as they have not been installed a sufficient length of time to enable us to form an opinion in regard thereto."

Investigation of a collision between a New York Central Rd. passenger train and a motor bus at Painesville, Ohio, recently, when 16 people were killed, resulted in the crossing watchman being found guilty of negligence in allowing the bus to get on the railway crossing, he having given the driver no signal to warn him of the approaching train.

Railway Mileage, 1877 and 1921.—The Minister of Trade and Commerce gave the following information in the House of Commons recently, in answer to a question: On June 30, 1877, there were 5,574.25 miles of railway in Canada, including 25.5 miles of wooden rails. On Dec. 31, 1920, there were 39,389 miles of railway. The mileage estimated at Dec. 31, 1921, was 40,041 miles.

Canadian Pacific Railway Construction, Betterments, Etc.

Douglas Ave. Diversion, St. John.—We are officially advised that the C.P.R. submitted a general design for the proposed concrete arch at the diversion of Douglas Ave., near to the approach to the cantilever bridge across the St. John River, at the Reversing Falls, and that the same has not yet been approved by the St. John City Council. Nothing is being done in the matter pending the hearing of the New Brunswick Government's action as to navigation rights on the river, which is before the Courts.

Three Rivers Station.—Grant Hall, Vice President C.P.R., is reported to have said at a dinner given by the Three Rivers, Que., Board of Trade, recently that the company had been ready for two years to build a commodious station there, but will not do so until St. Maurice St., across which the railway tracks run, is closed.

Gatineau River Bridge.—We are officially advised that a contract has been let to the Dominion Bridge Co., for the erection of the steel superstructure of a bridge across the Gatineau River, mile 115.9, Lachute Subdivision, Que. The superstructure will consist of four 200 ft. phoenix truss spans, to replace the existing four 200 ft. through truss spans. The new spans will be placed on the present substructure, and the work is expected to be finished in the autumn.

Interprovincial and James Bay Ry.—We are officially advised that the grading of the extension to Des Quinze River Falls, from mile 10, from Kipawa to pleted. It is expected to begin tracklaying in June, and to also start grading in June, and to also start grading from mile 40 to mile 70 at Des Quinze River.

Kingston, Ont.—A recent press report stated that it was proposed to build an overhead crossing of the G.T.R. tracks, west of Kingston, Ont., at a cost of \$50,000, rather than comply with a Board of Railway Commissioners' order for the to protect the crossing on the level. The overhead crossing will be a little to the west of the present diamond.

Sangeer Jct., Ont.—A press report states that the Osprey, Ont., Township Council is asking the company to build a line from Sangeer Jct., on the Toronto-Owen Sound line, through Osprey and Collingwood townships to Collingwood, Ont.

London Division.—Work was expected to be started by May 31, on track relaying work on the London Division. A considerable mileage is to be relaid, and the rails removed are to be used to replace light ones on branch lines.

Windsor Freight Shed, Etc.—A press report states that a contract has been let for laying out the new freight yard, and erecting a new freight shed at Windsor, Ont., to Jno. Hayman & Sons, Co., London, Ont. The estimated cost of the work, which was described in Canadian Railway and Marine World for March, p. 131, is said to be \$200,000.

Kama Deviation.—We are officially advised with regard to the recent deviation of line at Kama, on the Algoma District, Nipigon Subdivision, that the work consisted of the installation of a bridge 109 ft. 9¼ in. long over the Kama River, giving a clearance of 10 ft. 2 in. In placing the new bridge the roadbed was raised 7 ft., thus removing a sag in the line. By moving the tracks on the east end of the bridge the curvature was

reduced by 22 degrees 6 minutes, so that the maximum curvature was reduced from 5 to 2 degrees.

Fort William Yard Office.—Tenders were invited recently for building a two story frame structure for a yard office on Hardisty St., Fort William, Ont. The building will be erected on the basement of the structure burned some time ago.

Manitoba Pipe Lines.—A contract is reported to have been let to the Hurst Engineering and Construction Co., Winnipeg, for relaying pipe lines for water supply at a number of points in the Manitoba District.

Coaling Plants on Western Lines.—We are officially advised that contracts for the erection of mechanical coaling plants have been let as follows: The Claydon Co., Winnipeg, for plants at Eagle River, Ont., and at La Riviere, Man.; to G. E. Hughes, Calgary, Alta., for plant at Medicine Hat, Alta. The plant at Swift Current is to be built by the company's own forces. These plants will be of 100 tons capacity, and will be of the usual C.P.R. type with continuous chain and bucket conveyors.

Sheho Northwesterly.—We are officially advised that some years ago a small piece of grading was done north of the Manitoba and Northwestern Ry. at Sheho, Sask., but the project was abandoned. The C.P.R. has a charter to build a line from near Tuffnell, on the same line, to Prince Albert, and an engineering party is working in the vicinity of Sheho, making a survey for a line from Tuffnell to Prince Albert.

Saskatchewan and Alberta Branch Lines.—The House of Commons Railway Committee during April considered the C.P.R. bill to authorize the construction of branch lines in Saskatchewan and Alberta. A list of these branches was given in Canadian Railway and Marine World for February, p. 70. Gerard Ruel, General Counsel, Canadian National Rys., opposed the bill in respect of one of the branch lines—viz., the proposed Manitou Lake extension. In 1919 the C.P.R. asked for authority to build a line from Tp. 43, Range 21, west 3rd meridian, on its Manitou Lake branch, Sask., Whitford Lake, in Tp. 56, Range 15, west northwesterly, through Lloydminster to 4th Meridian, Alta. The Canadian National Rys. have a charter covering practically the same ground, and had graded an odd mile or two on the upper end, and was building at the lower end. The C.N.R. claimed that if the C.P.R. wanted to build into the Whitford Lake territory it should only be permitted to do so on the terms that the portion west of Lloydminster might be made a joint section, and a proviso was inserted to the effect that for the purpose of avoiding duplication of construction west of Lloydminster the approval of the route map should be made subject to joint construction or operation with the C.N.R., on terms to be agreed upon between the companies or settled by the Board of Railway Commissioners. The C.P.R. did not begin construction on the line within the two years, and the recent application was for a reversal of the powers granted in 1919. The C.N.R. asked for the reinsertion of the proviso, which, after some argument, the C.P.R. agreed to, and the bill went through committee. The details of the bill were discussed further when it came before the com-

mittee of the whole house, May 9, and further consideration was postponed.

British Columbia District Betterments.—We are officially advised that the betterments authorized for this district for this year include the following: Revelstoke Division.—Relining of tunnel, mile 21.45, Mountain Subdivision, extension to icehouse at Okanagan Landing, both completed.

Vancouver Division.—Repairs to washouts which occurred in Oct., 1921, the largest being at mile 104.5, Thompson Subdivision, where a 25 ft. masonry arch was damaged, and at mile 112.3, Cascade Subdivision, Coquitlam River (see under Coquitlam River Bridge below.) No decision had been reached with regard to the new structure at mile 104.5.

Cranbrook Subdivision.—Replacement of timber abutments at bridge 81.5, Sirdar Subdivision.

Palliser Tunnel Relining.—The Board of Railway Commissioners passed an order April 4, authorizing the company to rebuild tunnel 21.45 on its Mountain Subdivision, B.C., the lining of a portion of which gave way as the result of an accident. The construction work has been completed and the tunnel is now again in use.

Coquitlam River Bridge.—We are officially advised that a contract has been let to W. D. Grant, Vancouver, B.C., for the construction of the concrete abutments for the new bridge across the Coquitlam River, at mile 112.3, Cascade Subdivision. The concrete abutments proper will be each supported on three reinforced hollow concrete cylinders, having an outside diameter of 14 ft. filled with concrete. The superstructure will consist of a 200 ft. through truss double track steel span, the contract for which has been let to the Canadian Bridge Co. This bridge will replace the one washed out by floods last winter, and which was erected in 1912 at the time of the double tracking of the line. It consisted of two 80 ft. half deck plate girder spans, triple track, on two concrete abutments and one concrete pier.

Vancouver Pier.—We are officially advised that an appropriation has been made for building a new pier at Vancouver, to be known as Pier B.C. No definite particulars as to the work to be done this year are available, as the engineers have not yet determined the type of structure. The pier is to be 800 ft. long, with provision for extending it a further 400 ft., when conditions demand. The width of the structure will be 333 ft., and there will be erected on the pier, 2 sheds each 100 ft. wide, with 4 tracks between them, and 2 tracks on the outside. The estimated cost of the pier is \$2,500,000.

A contract is reported to have been let to W. D. Grant & Co., for dredging alongside Pier H, in order to enable the largest ships to be berthed alongside.

Newfoundland Loan for Railway Purposes, etc.—A new loan of \$6,000,000 is to be raised by Newfoundland, of which \$2,110,000 is for railway purposes. The following particulars are given: Railway Commission account, \$3,260,000, less \$2,500,000 provided for in 1921 loan, \$760,000; railway capital account, spent \$200,000, to be spent, \$150,000, \$350,000; required to meet deficits on railway operations for 1922-23, \$1,000,000.

Self Propelled Cars on Steam Railways.

Canadian National Rys.—As noted in Canadian Railway and Marine World for May, pg. 231, the C.N.R. management is having two gasoline railway motor cars built by Ledoux, Jennings, Ltd., Montreal, for branch line operation. The accompanying illustration gives plan and elevation of one of them. The chief dimensions will be:—

Length over end frames	23 ft. 6 in.
Height, rail to top of roof	10 ft. 2 in.
Width inside passenger compartment	7 ft. 1 in.
Width over eaves	7 ft. 8 in.
Width over side frames	7 ft. 6 in.
Wheel base	18 ft.
Wheel base, leading truck	3 ft.
Wheel base, rear truck	4 ft.

The car underframing will be built up of special steel members, the center sills, 2 ft. 8 in. c. to c., being fish belly channels 14 in. deep. The side sills will be 3 x 2½ x 3/16 L sections. The sills will be braced by transverse members, with gussets, etc., the underframing being securely riveted throughout. Side framing will consist of steel posts 1½ x 1½ x 3/16 in. T section, and the door posts will be of steel 2 x 2 x 3/16 in. L sec-

door at the rear of the car.

The interior of the car will be finished in white and mahogany stain. The floor will consist of a lower layer of wood flooring, laid diagonally on 1¼ x 2½ in. nailing strips, and an upper layer of wood flooring laid longitudinally, with a layer of tar paper between the lower and upper flooring. The seating arrangement is shown in the accompanying plan, the total seating capacity being 33. The seats will be finished in rattan. The partition between the passenger compartment and the space for the car operator will be removable, and a double rack will be provided at the front, in the operator's compartment, for hand baggage. The window arrangement provides for adequate natural lighting. Artificial lighting will be by engine driven dynamo, and heating will be from the engine exhaust. The car will be equipped with locomotive type pilot and warning bell.

Delivery of the first of the two cars was at the time of writing, May 10, expected by the end of May, and it will be

p.m., arrive Trenton 9 p.m.; leave Trenton as train 308 at 9.15 p.m., arrive Picton 10.30 p.m.

Construction has been begun on the second car, which will, on delivery, be placed in service on the Ontario District, Ottawa Division, Brockville Subdivision, between Brockville and Westport, 44.4 miles.

We are officially advised that when the first of the two cars now under construction in Montreal, is ready for delivery, it will be run from Montreal to Trenton by its own power.

Grand Trunk Ry.—We are officially advised that the use of self-propelled cars for branch line service is being given consideration and investigation on one of the company's branch lines west of the Detroit and St. Clair River, but that nothing definite has been decided upon.

Greater Winnipeg Water District Ry.—The Greater Winnipeg Water District commissioners, who operate a railway from St. Boniface, Man., to Shoal Lake, adjoining Lake of the Woods, 92 miles, have ordered a gasoline driven railway passenger car from the Service Motor Truck Co., Wabash, Ind., which was described fully in Canadian Railway and Marine World for May, p. 231. We are officially advised that the car will probably be placed in operation about June 1.

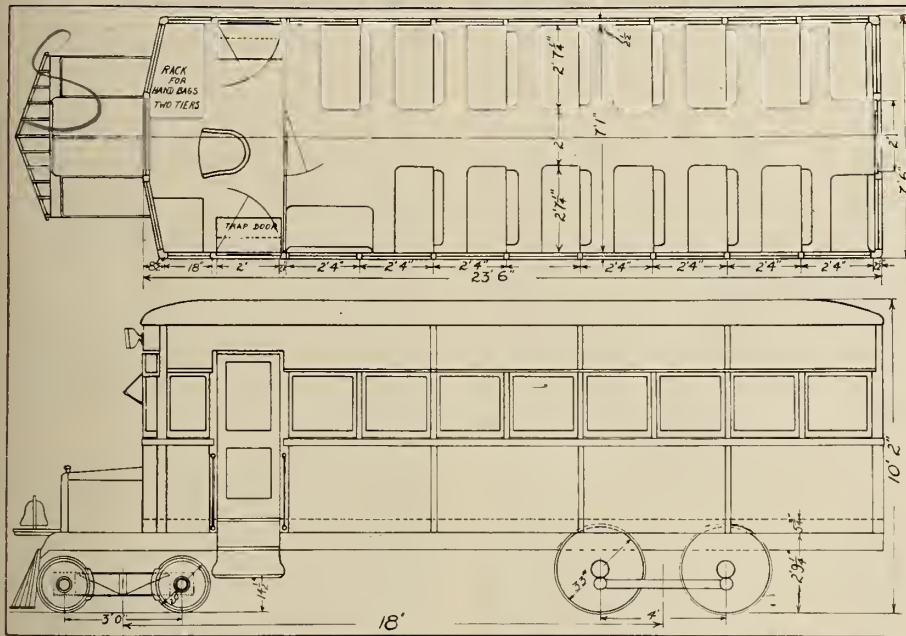
Pacific Great Eastern Ry.—A U.S. contemporary stated recently that this railway had bought a gasoline driven passenger motor car from the Northwestern Motor Co. for operation out of North Vancouver. We were officially advised, May 9, that such a car had not been bought, but that the management was investigating a type of gasoline car with a view to purchase.

Pennsylvania and Atlantic Rd., Union Transportation Co., lessees, which extends between Hightstown and Pemberton, N.J., 25 miles, is operating a 43-passenger gasoline driven rail car 150 miles daily between the points named, with a 2-man crew. Operating costs average 20c. a mile; the car will run 6.75 miles on one gallon of gasoline and 75 miles on one quart of oil. A steam train was replaced by the car, the estimated saving being \$15,000 a year.

The car was run to Washington for the American Short Line Railroad Association's annual meeting, and was one of the most interesting exhibits. It made daily trips over the Washington and Old Dominion Ry., with grades running as high as 4% and curves as sharp as 10 deg., and it is stated that the results showed a high degree of efficiency. Union Transportation Co.'s officials state that passengers prefer riding in the gasoline cars to the steam trains.

With the recent improvements made in self propelled cars, railway executives are keenly alive to the situation, and are genuinely interested in the possibilities of the car as a solution for the branch line problem. Recent months have seen much attention paid the gasoline and storage battery types on many roads, and it is evident that the method of operation provided for by their use is worthy of serious consideration.

Railway Lands Patented.—During April letters patents were issued in respect of Dominion railway lands in western Canada, to the C.P.R., for 294.60 acres.



Canadian National Railways Gasoline Railway Motor Car.

tions. Plate will be 1/16 in. The roof will be of ¾ in. t. and g. boards, covered with canvas, and painted.

Each car will be driven by a Reo 6-cylinder 50 h.p. engine, equipped with self starter. The water cooling system will include a centrifugal pump. The drive will be through a shaft to the front axle of the rear truck, and side rods will be employed to transmit the drive to the trailing wheels of this truck.

The front truck wheels, of chilled iron, 20 in. diam., will conform to M.C.B. specifications, and the leading truck axles, of heat treated steel, will be 2½ in. diam. The rear truck wheels will be 33 in. diam., and the axles 3½ in. diam. The brakes, hand operated, will be controlled by a brake wheel convenient to the car operator, the brake shoes being applied through an arrangement of rods and levers controlled by the brake wheel and shaft. The car body will be equipped with two side doors at the front, the clear door opening being 2 ft., and the lower step will be 10½ in. from top of rail. There will also be an emergency

placed in service on the Ontario District, Ottawa Division. Service will be given between Picton and Trenton, 30.6 miles, on the Picton Subdivision; between Trenton and Trenton Jct., 1.6 miles, on the Maynooth Subdivision, and between Trenton and Napanee, 34.6 miles, on the Rideau Subdivision. The following is the schedule on which it is intended to operate:—Leave Picton as train 301 at 6.30 a.m., arrive Trenton 7.45 a.m.; leave Trenton as train 310 at 7.46 a.m., arrive Napanee 9.05 a.m.; leave Napanee as train 309 at 9.15 a.m., arrive Trenton 10.35 a.m.; leave Trenton as train 302 at 10.40 a.m., arrive Picton 12 noon; leave Picton as train 303 at 12.45 p.m., arrive Trenton 2.10 p.m.; leave Trenton as train 303 at 2.15 p.m., arrive Trenton Jct. 2.20 p.m.; leave Trenton Jct. as train 304 at 2.40 p.m., arrive Trenton 2.45 p.m.; leave Trenton as train 305 at 5.30 p.m., arrive Trenton Jct. 5.40 p.m.; leave Trenton Jct. as train 306 at 5.55 p.m., arrive Trenton at 6 p.m.; leave Trenton as train 306 at 6.15 p.m., arrive Picton 7.35 p.m.; leave Picton as train 307 at 7.45

Enquiry into Railway Freight Rates by Parliamentary Committee.

The Minister of Railways, W. C. Kennedy, moved in the House of Commons on May 4:—"That notwithstanding that the regulation of railway rates is a matter within the jurisdiction of the Board of Railway Commissioners, it is advisable that a select special committee be appointed to make enquiry into the question of railway transportation costs, it having been disclosed by recent conferences, held between the Government and the chief executives of the various railways, with respect to the reduction of freight rates, that the representatives of the railways deem it advisable immediately to reduce rates on basic commodities because of the expiration on July 6, 1922, of the suspension of the Crows Nest Pass agreement; that, in the circumstances, it is advisable to afford opportunity to all interested parties to submit their views upon the subject matter of the enquiry to the said committee with particular regard to the effect of the rates established by the Crows Nest Pass agreement upon Canadian National Railways and other lines, as well as upon agricultural development and Canadian industry generally; and that the said committee shall have power to send for persons, papers and records, including the minutes and evidence taken before the committees of this House in previous sessions, to examine witnesses under oath, and to report from time to time."

Mr. Kennedy said that while the Government was anxious for an immediate and substantial rate reduction, and while this could be effected in part by allowing the Crows Nest agreement to again become operative, it was felt that a committee should enquire into the effect which such a revival of the agreement might have. He stated that a conference had been held with the C.P.R., Canadian National and Grand Trunk Rys. managements, but that it had been claimed by the railway officials that it was not advisable to make any rate reductions, on account of the suspension of the Crows Nest agreement expiring on July 6. He traced the operation of the agreement from 1897, when it was entered into between the C.P.R. and the Dominion, until it was suspended in 1918 by order-in-council, and further suspended until July 6, 1922, by the Railway Act, 1919, sec. 325, sub-sec. 5. He claimed that the matter was beyond the Board of Railway Commissioners' jurisdiction; that there was no desire to interfere with the Commission's duties; but that the Crows Nest agreement was a matter of statute, and that a determination of what was to be done with it would be necessary before the Commission could act.

Arthur Meighen, leader of the Opposition, emphasized the need for low railway rates in Canada, and stated that railway rates must come down, at all costs. He reviewed the rate changes which have taken place in recent years, and contended that the Board of Railway Commissioners is unable to do anything till the Crows Nest matter is decided. The ability of the proposed committee to learn anything about railway rate structures in the time at its disposal he regarded as a farce, and showed the impossibility of any committee of the House of Commons being able to pass upon rate questions. He accused the Government of lacking courage in

not having a policy in connection with rates. He stated that the resolution, if passed, would have the effect of shelving the whole question. The Government should go the Board of Railway Commissioners for information, then decide on the action to be taken, and submit such decisions to Parliament.

G. P. Graham, Minister of Militia and Defence, stated that no one suggested for a moment to deprive the Board of Railway Commissioners of any of its statutory powers, and contended that the Crows Nest agreement is outside of the Board's jurisdiction. He defended the Government for proposing a committee of investigation, stating that it did not desire to evade responsibility, as suggested by Mr. Meighen, but merely wished to have all the facts in the case brought to light before deciding on the action to be taken.

T. A. Crerar, leader of the Progressive party, stated that he would oppose the formation of a committee to determine whether the Crows Nest agreement should be further suspended, for the reason that he was convinced that it should not be further suspended. While Mr. Meighen opposed the resolution on the ground that it was impractical, that it constituted an evasion of duty by the Government, and that the Government should get its information from the Board of Railway Commissioners, Mr. Crerar opposed it on the one ground, that there was no doubt in his mind that the agreement should be put into operation on July 6. He spoke at length in favor of lower freight rates in the west, and claimed that high rates are depriving the railways of a large volume of business. Continuing he said: "It is argued in some quarters that it is necessary to keep the C.P.R. prosperous in order that Canada's credit may be maintained; that it is necessary that the C.P.R. be given rates to enable it to pay dividends on its stock. I submit that that is not a sound argument. . . . There is scarcely a single railway in the U.S. that has not, at some period or other in its career, gone through the hands of a receiver. Has that affected the national credit? He ended by urging that the agreement be put back into force to see what the effect would be; if it should prove an undue handicap upon the railways, Parliament could again consider the matter a year or two hence, and if necessary the C.P.R. could pay its dividends in the meantime out of accumulated surplus."

J. S. Woodsworth, Center Winnipeg, in endorsing Mr. Crerar's position, stated that if the proposed committee were to recommend that the Crows Nest agreement be further suspended, the west simply would not tolerate it.

A. K. McLean, Halifax, N.S., contended that the Crows Nest agreement is not a western matter only, but that it affects the whole of Canada; it is a national question. He showed how the application of the agreement would affect the National railway earnings, thus making greater demands on the taxpayers and believing that the fullest possible enquiry should be made, he supported the resolution.

J. Morrison, Weyburn, Sask., stated that the agreement should be brought into operation as soon as possible, and that high railway rates are depriving the railways of traffic so that their net

earnings are lower than they would be if the rates were reduced.

J. A. Stewart, Lanark, Ont., opposed the resolution on the ground that it was the Government's duty to outline its policy and submit it to Parliament, so that if Parliament approved of it, the Board of Railway Commissioners could go ahead and fix the rates as they should be fixed. He showed how conditions had changed since the Crows Nest agreement was made, and stated his belief that while it should not be scrapped, it should not be revived, but should be revised. He said that any finding returned by the committee would be a half-baked affair, because of lack of time and opportunity to learn, even if the members of the committee had the requisite ability.

Prime Minister King said that the question in connection with the proposed committee was whether, on a great national question, the Government should endeavor to become as fully informed as possible before reaching a final decision. He said that all the Government was asking was that there should be an opportunity for the Government, for Parliament and the country to understand all that is involved in the Crows Nest agreement matter, and that he therefore considered the resolution wise.

A. W. Neill, Comox-Alberni, B.C., in supporting, stated that if the Crows Nest agreement were put back into force without amendment, a great injustice would be done to British Columbia. The reduction in the westbound fruit rate, for example, would constitute a gross discrimination against the B.C. fruit growers.

E. M. Macdonald, Pictou, N.S., in supporting the resolution, claimed that the east as well as the west wants lower rates, and that even if the Crows Nest agreement were revived, it would apply only to the C.P.R. lines, which were in operation in 1897.

Sir Henry Drayton, West York, Ont., reviewed the rate situation and pointed out how discriminations were caused by agreements entered into between railways and municipal and other bodies before efficient regulation of railways was introduced. As to the applicability of the agreement to lines built by the C.P.R. after 1897 was concerned, he said he always took the stand that the terms of the agreement necessarily had to be applied to them so as to prevent discrimination, but he was of the opinion that as a matter of legality the agreement would not apply to the new lines. He moved the following amendment to the resolution, seconded by Mr. Meighen: "That all the words after the first word 'that' be struck out and the following substituted therefor: A general reduction in railway rates, so essential to the welfare of Canadian production and trade, cannot, as declared by the Government, be made until Parliament decides whether or not the suspension of the Crows Nest agreement, which expires on July 6, be renewed; that it is the immediate duty of the Government—already too long deferred—to acquire the necessary information gathered and in their disposal at the hands of the Board of Railway Commissioners and to submit its policy to this House."

Following the moving of this amendment, Mr. Meighen spoke again, urging the Government to go to the Board of

Railway Commissionoers and get the advice the Commission would be prepared to give, and then come to Parliament with its policy. Prime Minister King followed, repeating his former arguments. Mr. Crerar also spoke again, saying he would support neither the main motion nor the amendment, for the reason he had given before—viz., that there was no doubt in his mind that the Crows Nest agreement should again become operative.

Sir Henry Drayton's amendment was lost by 167 to 35, the Conservatives voting for it, and the Progressives voting solidly with the Liberals against it. The motion for the appointment of a committee carried by 109 to 92, the Government getting the support of two Progressives, L. W. Humphrey, Kootenay West, B.C., and T. G. McBride, Cariboo, B.C., and of two independents, A. B. Hudson, Winnipeg South, and A. W. Neill, Comox-Alberni, B.C. The Conservatives voted solidly against it.

On May 8 the following were appointed to the committee. Liberals:—A. K. Maclean, Halifax, N.S.; W. D. Euler, North Waterloo, Ont.; J. Malcolm, North Bruce, Ont.; W. M. German, Welland, Ont.; W. Duff, Lunenburg, N.S.; E. M. Macdonald, Pictou, N.S.; E. J. McMurray, Winnipeg North, Man.; A. B. Hudson, Winnipeg South, Man.; A. E. Maclean, Prince, P.E.I.; P. Michaud, Restigouche and Madawaska, N.B.; W. G. Mitchell, St. Antoine, Que.; J. Archambault, Chambly-Vercheres, Que.; A. Stork, Skeena, B.C. Progressives:—T. A. Crerar, Marquette, Man.; R. Forke, Brandon, Man.; J. F. Johnston, Last Mountain, Sask.; B. Fancher, East Lambton, Ont.; R. H. Halbert, North Ontario, Ont.; T. H. McConica, Battleford, Sask.; J. T. Shaw, West Calgary, Alta. Conservatives:—C. H. Dickie, Nanaimo, B.C.; G. B. Jones, Royal, N.B.; Sir Henry Drayton, West York, Ont.; J. A. Stewart, Lanark, Ont.; R. J. Manion, Fort William and Rainy River, Ont.; W. A. Boys, South Simcoe, Ont.

The committee met first on May 9, when great differences of opinion were expressed as to how it should proceed. Mr. Crerar and other western members argued that the reapplication or continued suspension of the Crowsnest agreement was the one and only question to be decided, while Sir Henry Drayton and others were in favor of a much broader enquiry into the rate situation, in which enquiry the Crowsnest agreement would be but one factor. It was made abundantly clear that the great aim of the western people is to have the Crowsnest agreement brought back into operation, while the opinion of other members is that the agreement is to be considered merely as a means to an end, viz., to secure a general rate reduction on basic commodities.

On Chairman Maclean's suggestion, Sir Henry Drayton, W. G. Mitchell and A. B. Hudson, were appointed a sub-committee to co-operate with him in obtaining the following information:—1. The Crowsnest statute. 2. The Manitoba agreement with the Canadian Northern Ry. and the Board of Railway Commissioners' judgment in connection therewith. 3. Statement of the amount of subsidy received by the C.P.R. and the dates of payment, under the Crowsnest statute. 4. The rates affected by the Crowsnest agreement as charged prior to its enactment. 5. The rates put into effect on commodities mentioned in the Crowsnest agreement subsequent to its

enactment. 6. Statement showing grain and flour rates prior to and subsequent to the Crowsnest agreement. 7. Statement showing rates on basic commodities charged in the eastern territory and the western territory prior to the Crowsnest agreement and subsequent thereto down to date. On May 11 the committee held another brief session, at which a report covering the foregoing matters was presented by the sub-committee, and at which it was decided to hear C.P.R. representatives first.

On May 19 E. W. Beatty, K.C., President, C.P.R., appeared before the committee in opposition to the reapplication of the agreement. His objections are summarized as follows:—1. The C.P.R. does not contend that the Crowsnest agreement of 1897 will not be valid and binding on it after July 6, 1922, unless Parliament otherwise directs. 2. The Crowsnest scale of rates was extended to territory not in the contemplation of Parliament or the C.P.R. in 1897, with the result that the benefits of the agreement have been extended to large additional territory. 3. The effect of this extension of the application has been to include not only territory contiguous to the mileage in operation in 1897, but territory contiguous to new lines of railway constructed by other companies, whether competitive to the mileage of the C.P.R. in existence when the agreement was made, or to new lines built by the C.P.R. since then. 4. The C.P.R. does not contend that, if the Crowsnest rates are applied and restricted to the territory to which they were applicable by the agreement, or to the larger territory to which they were later extended, it would not be able to finance its operations for a time, or by borrowing the money, or raising it by the issuance of capital securities, to pay its usual annual return to security holders and shareholders. This would, however, raise an important question of policy to be decided by the directors. 5. The company agrees that a revision downward of rates is desirable, and is quite prepared, with the approval of the Board of Railway Commissioners, to put into immediate effect reductions in rates on basic commodities that will be of greater national benefit than the re-establishment of Crowsnest rates. Such restrictions would largely affect its revenue, and could only be made in anticipation of substantial additional reductions in operating costs. 6. The grave objection to the re-establishment of the Crowsnest basis is that it will of necessity prevent general reductions in rates applicable throughout Canada. If the company's revenues are to be reasonably conserved, the gradual general reductions in basic and other rates will be retarded by the serious depletion in revenue due to the re-establishment of the Crowsnest basis. If, on the other hand, the reductions to the Crowsnest basis are to be followed by additional reductions applicable generally, or to specific commodities, or in reductions to bring the rates to the basis of 1918, or even to the level prior to Aug. 1920, the results would be too serious to be contemplated.

Mr. Beatty stated in reviewing the terms of the agreement, that the total cost of the Crowsnest line was over \$19,000,000, and the subsidy received was \$3,381,000. He compared wages paid in 1898 and 1921 and pointed out that the daily wages of the principal classes of employees showed increases ranging from 111.1% for passenger conductors to 414%

for car repairers. Material costs had increased largely, from 7.27% in the case of black bridge paint to 268% for certain other classes of material. Rails had increased in price by 92.32%, and fuel 158.05%. The operating ratio was 58.16 in 1899 and 82.28 in 1921; in other words, it cost 43.95% more to earn a dollar in 1921 than in 1899. He showed how gross discrimination would result if the agreement were enforced only on the lines to which its enforcement could be legally restricted by the company, viz., those built at the time the agreement was entered into. He said it was very difficult to make an estimate of the loss of revenue which would result if the agreement were enforced, but calculated that the result would be that the C.P.R. would find itself \$15,000,000 short of being able to pay dividends and fixed charges.

On May 22, D. B. Hanna, President, and C. A. Hayes, Vice President, Traffic, Canadian National Rys., testified before the committee. Mr. Hanna said that if the Crowsnest agreement were put in effect again, the country's entire freight rate structure would be thrown into utter confusion. He showed that the decrease in Canadian National Rys. revenues, on the basis of traffic handled in 1921, would have been \$23,318,955, if the agreement had been in effect and the 1920 rates prevailing. He said: "If preferential rates on special commodities should be re-established, through the application of the Crowsnest agreement, it is impossible to estimate what further reductions might occur, or be ordered, through such rates being held to be discriminatory. Such reductions might affect not only the rates on commodities in the Crowsnest Pass territory, but might, in practice, apply to the rates on similar or analogous communities throughout Canada."

Some members of the committee having contended that high rates were retarding business, and consequently holding up the movement of traffic, Mr. Hanna said that the chief reason for certain traffic not moving was to be found in reduced purchasing power by consumers, and consequent lack of market. Replying to W. D. Euler, North Waterloo, Ont., he said the railways are prepared to make reductions on basic commodities at once, and would do so if it were not for the possible re-establishment of the Crowsnest agreement rates. He said the railways are willing to put in these reduced basic commodity rates in the hope that traffic would possibly be stimulated to some degree.

Asked as to the policy they would recommend, Messrs. Hanna and Hayes stated that the Crowsnest agreement had outlived its usefulness. They showed that conditions had changed, and that the agreement, while it was satisfactory under the conditions prevailing in 1898, would not meet the conditions existing today. They advocated that the agreement be further suspended, and the whole question of rates relegated back to the Board of Railway Commissioners. Replying to another question from Mr. Euler, as to whether he favored the complete abrogation of the agreement, Mr. Hanna replied that he was convinced that it had outlived its usefulness and that if something more up to date were set up, it would be better for all concerned. Abrogation of the agreement would mean better business conditions generally; it would mean the doing away with the possibility of rate discriminations arising, and it would mean smaller

deficits for the Canadian National Rys. Further, it would mean that the Canadian National Rys. would not be adversely affected by an agreement to which they were not parties.

A. J. Mitchell, Vice President, Finance and Accounts, Canadian National Rys., gave testimony to show the tremendous increases which had taken place in labor and material costs.

A further meeting of the committee was scheduled for May 23, at which Hon.

John Oliver, Premier of British Columbia, and G. G. McGeer, K.C., representing the same province, were to express their views.

On May 23, W. B. Lanigan, Freight Traffic Manager, C.P.R., was examined on general rate matters, and was questioned closely as to whether the rate on lumber was interfering with its movement. The figures he submitted indicated that the lumber movement had been affected but little by the rates. In 1918,

on the C.P.R. Western Lines, lumber provided 7.9% of the traffic, and 11.1% of the revenue, while in 1921 it provided 6.7% of the traffic and but 6.2% of the revenue.

F. J. Watson, General Freight Agent, G.T.R., who was examined on the same day, favored a reduction in basic commodity rates, but he thought the Crowsnest agreement should be abrogated, and in his opinion it would always be a source of irritation if it were not.

Canadian National Railways Construction, Betterments, Etc.

Fresniere-Rinfret Line.—The Board of Railway Commissioners passed orders 32,265 and 32,266, April 3, approving revision of Canadian Northern Ontario Ry. proposed branch line in St. Eustache and St. Augustin Parishes, Two Mountains County, Que. We are officially advised that these orders approved of some minor revisions in the projected line, but that the location as a whole is not affected. The proposed line, which has not been built, was described fully in Canadian Railway and Marine World for Dec. 1920.

This line, we are officially advised, will be new construction and not a revision of a branch line, the revision referred to in the Board of Railway Commissioner's order being a revision of the original location. The right of way for the line has been practically all bought. No appropriation has been provided for its construction this year.

Main Line Bridge Rebuilding.—The Board of Railway Commissioners has authorized the rebuilding of three bridges on the transcontinental line. We are officially advised that the bridges have already been rebuilt, but that owing to an oversight, the plans had not been submitted to the Board previously. Following are particulars of the bridges.

Little Madawaska River, mile 147.4 from Rideau Jct., Ont. The original structure was a pile trestle. To provide for the log drive in the spring, the trestle was replaced during the winter of 1919-20 by a through plate girder span 70 ft. over all, resting on concrete abutments, and 14 ft. high from bottom of river to base of rail.

McCarthy Creek, mile 100.8 from Brent, Ont. This was originally a timber trestle built in 1913. The new bridge, which was completed in 1921, is a steel viaduct on 2 concrete abutments, 8 concrete pedestals, and 1 concrete pier. The steel work consists of two 33 ft. spans, two 60 ft. spans and two 85 ft. spans. The height from low water level to base of rail is 60 ft.

Kenogamisis River bridge; mile 101.7 from Hornepayne, Ont. This was originally a timber trestle, across the outlet of Little Long Lake. Part of the trestle was filled, and, to take care of the flow from the lake, two 60 ft. through plate girder spans were placed on 2 concrete abutments and 1 concrete pier. All the foundations are solid rock; the distance from bottom of the river to base of rail at the center of the bridge is 31 ft. The reconstruction was completed during the winter of 1921-22.

Regina Terminal Facilities.—We were officially advised recently that the extension of the terminals at Regina, Sask., was under consideration, but that the details had not been settled.

Sturgis-Hudson Bay Jct. Connection. The Yorkton, Sask., Board of Trade, is agitating for the early completion of a

line from Sturgis to Hudson Bay Jct. This piece of line is shown on the C.N. Rys. maps as projected, and the distance between the two points is stated to be approximately 60 miles. Its construction would give a direct connection between western Saskatchewan and Alberta points and the Hudson Bay Ry.

Thunder Hill Branch Extension.—A press report states that a mixed train service has been put in operation on the extension of the Thunder Hill Branch from Lintlaw to Kelvington, Sask. About 13 miles of track was laid on it during 1921.

Lampman, Sask.—Browning Rural Municipality No. 34, has been asked to approve of plans for some new roadway construction to serve Lampman, Sask., which necessitates the crossing of certain highways. The present G.T.R. station is at Minard about a mile away, and the approved plans show that the railway intends to branch off and go into Lampman on the C.N.Ry., and pass to the east of the town, then connect again with the main line south of the town. Lampman for several years has been endeavoring to get the G.T.Ry. into town, so as to give a direct service to Regina.

Grand Trunk Pacific Ry.—Tenders were received to May 31 for the following construction: Cast iron pipe line at Kindersley, Sask., 16,200 ft. long. Line revision of G.T.P. main line 3.9 miles long, between Ansell and Bickerdike. Connection between the C.N.R. and G.T.P.R. 0.83 mile long near Magnolia, Alta. Connection between the Bashaw and Battle River subdivisions, 3.47 miles long, near Camrose, Alta. Connection at Ryley 1.83 miles long, between the Viking and Battle River subdivisions, C.N.R.

Red Deer Station.—A press report states that it is proposed to build a station, freight shed and stockyards at Red Deer, Alta., at an approximate cost of \$15,000.

Kamloops-Kelowna Branch.—The Minister of Railways stated in the House of Commons recently, in answer to T. G. McBride, Cariboo, B.C., that the total expenditure in connection with this branch to Dec. 31, 1921, was \$5,268,156.45, and that its completion, as well as that of other branches, is being deferred until financial conditions will permit construction.

The question of the completion of the branch was brought up in the House of Commons by J. A. MacKelvie, Yale, B.C., during a discussion on estimates, when the Minister of Railways said:—"I have had many representations in connection with this particular line. But may I say that that district is not alone in making representations for railway accommodation? From all parts of the west I have had similar representations

of their transportation needs. The Government's policy in respect to the laying of new lines this year is simply this: We felt that, with new directors coming in, the responsibility for any capital expenditure should properly belong to them, and that for the time being, until they have had an opportunity of ascertaining whether the expenditure would be warranted, we should not go on with any new work. However, we are impressed with the necessity of doing something in the district mentioned, and I can promise that when the new board is appointed every consideration will be given to the matter."

This line, sometimes called the Okanagan Branch, would constitute a line from Kamloops Jct., passing through Kamloops, Armstrong and Vernon to Kelowna, a distance of 117.5 miles, with a branch from Vernon to Lumby, 15 miles. The part of the line from Kamloops Jct. to Kamloops, about 3 miles, is being operated over, and is used by the main transcontinental trains for connection with the town of Kamloops. Kamloops and Ducks, 12 miles, or between Armstrong and Vernon, about 14 miles, as it is possible that an arrangement well be made with the C.P.R. for joint operation between these points. Grading has been completed from Ducks to Armstrong, about 58 miles, from Vernon to Kelowna, about 33 miles, and on the branch to Lumby, 15 miles. Work on two large lumber bridges has been completed, and about 78 track miles of fencing have been erected. No track-laying has been done on the three sections of the line mentioned above.

Prince George Station.—A press report states that a contract has been let to the Pacific Sheet Metal Works, Granville Island, B.C., for the laying of a mastic floor for the new station at Prince George, B.C., which was described in Canadian Railway and Marine World, Oct., 1921, pg. 539.

Vancouver Island Lines.—The Premier of British Columbia has sent a protest to the Dominion Government against the stoppage of track laying on the Victoria-Alberni line, which was reported recently as in progress from about mile 74, to the James Logging Co.'s plant. The Associated Boards of Trade of British Columbia have passed a resolution asking for a continuation of the track lay-

J. R. Caswell, Division Engineer, C.P.R., Sudbury, Ont., in remitting his renewal subscription, writes: "I would not be without Canadian Railway and Marine World."

Stop! Look! Listen!—"Is this a fast train?" the salesman asked the conductor. "Of course, it is," was the reply. "I thought it was. Would you mind my getting out to see what it is fast to?"—Evansville Crescent.

Mainly About Railway People Throughout Canada.

Sir George McLaren Brown, General European Manager, C.P.R., presided at a luncheon given by the Canada Club to the Duke of Devonshire, in London, Eng., on May 24.

Albert Victor Clark, whose appointment as Managing Director, Canadian Pacific Ry. Co. (France), Paris, France, was announced in our last issue, was born at Burwell, Cambridgeshire, Eng., March 8, 1877, and commenced his railway service with the Midland Ry. (England), in 1896. He entered C.P.R. service in April, 1906, in the Passenger Department, London, Eng., and from 1908 to 1910, was London traveller, and handled the arrangements for the Eucharistic Conference, and the British Association's meeting in Canada. For a time he was chief clerk, General Passenger Department, London, Eng., and from 1911 to 1912 was chief assistant, Passenger Department, C.P.R., Antwerp, Belgium; from 1912 to July 1, 1913, he was Assistant to the General Representative, C.P.R. Vienna, Austria, and from July 1, 1913 to Aug., 1914, Accounting Agent, C.P.R., in Austria. At the outbreak of the war, he was, with other members of the C.P.R. staff, in Austria, interned, and was eventually released on parole and returned to London, Eng., where he was secretary to the European General Manager, C.P.R., and in 1920, was appointed Special Continental Representative, C.P.R., London, Eng.

P. W. Clarkin, who has been appointed Division Freight Agent, Canadian National Rys., Charlottetown, P.E.I., was born at North Wiltshire, P.E.I., March 22, 1876, and entered railway service June 16, 1896, since when he has been, to Jan., 1897, assistant agent and operator, Prince Edward Island Ry., at Souris and other points; Jan., 1897, to July, 1899, relieving agent, same road; July, 1899, to Aug., 1903, assistant agent, same road, Charlottetown; Aug., 1903, to April, 1909, agent, same road, Mount Stewart Jct.; Apr., 1909, to Oct., 1913, Oct., 1913, to Apr. 30, 1914, clerk, General Freight Agent's office, Canadian Government Rys., Moncton, N.B.; May 1, 1914, to Nov. 30, 1921, chief clerk and Travelling Freight Agent same road, Charlottetown, P.E.I.; Dec. 1, 1921, to Apr. 30, 1922, acting Division Freight Agent, Canadian National Rys., Charlottetown, P.E.I.

G. W. Curtis, who has been appointed Industrial Commissioner, Eastern Lines, C.P.R., Montreal, entered C.P.R. service in Feb. 1904, since when he has been, to April 1904, stenographer, Freight Traffic Department, Montreal; April 1904 to Feb. 1913, in the Vice President's (Traffic) office; Feb. 1913 to Nov. 1916, Industrial Agent, Montreal; Nov. 1916 to Jan. 1919, on military service overseas; Jan. 1919 to May 1922, Industrial Agent, Montreal.

Miss Madeline D'Arcy, daughter of W. H. D'Arcy, General Claims Agent, Western Lines, C.P.R., Winnipeg, was married there recently, to Wm. Lennie, of Toronto, and formerly of Winnipeg.

W. P. Hinton, formerly Vice President and General Manager, Grand Trunk Pacific Ry., Winnipeg, and from Aug. 23, 1920 to Feb. 28, 1922, Consulting Officer to the Receiver, G.T.P.R., the Minister of Railways, has not been appointed Vice President and General Manager, Caden Collieries, in the Rocky Mountain District, south of Edson, Alta., as re-

ported in a Calgary press dispatch which was mentioned in our May issue.

Major Robert Bernard Jennings, whose appointment as Division Engineer, Canadian National Rys., Montreal, was announced in our last issue, was born at Paris, Ont., June 29, 1888, and entered transportation service in Apr. 1906, since when he has been, to Oct. 1906, chainman, Toronto-Sudbury Line, C.P.R.; Oct. 1906 to Oct. 1907, rodman, Saskatoon-Edmonton Line, Grand Trunk Pacific Ry.; Oct. 1907 to Dec. 1908, instrument man and Resident Engineer, Saskatoon-Edmonton Line, same road; Dec. 1908 to Oct. 1909, leveller, Toronto-Ottawa Line, Canadian Northern Ontario Ry.; Oct. 1909 to Jan. 1916, Resident Engineer, Toronto-Ottawa, Sudbury-Port Arthur and Hawkesbury-Montreal Lines, Canadian Northern Ry.; Apr. 1916 to Jan. 1917, Manager, Jennings & Ross Co., Milwaukee, Wis.; Jan. 1917 to May 1919, Major 10th Battalion, Canadian Railway Troops, C.E.F., in service in France; July 1919 to Mar. 1921, Division Engineer, Canadian National Rys., Toronto; March 1921 to April 1922, Division Engineer, Canadian National Rys., Ottawa, Ont.

Capt. L. W. Klinger, M.C., whose death by drowning in the Tigris River, Mesopotamia, was reported by the British Secretary of State for India, recently, was born in Toronto, June 10, 1886, and graduated from Toronto University in 1907. From 1911 to 1913 he was Resident Engineer, double track construction, C.P.R., Perth, Ont.; 1913 to 1914, Engineer, Dominion Construction Co., Toronto. He enlisted for active service on the outbreak of war, and served from Sept., 1914, to July, 1919, with engineer companies, being in France from Aug., 1916. He received the Military Cross for exceptional courage in bringing in a wounded Canadian officer, under enemy fire, Nov. 16, 1916. On returning to Canada in July, 1919, he was appointed Engineer and Comptroller, International Corporation of Canada, Montreal, and in 1920 was appointed District Irrigation Officer in charge of all irrigation surveys in Mesopotamia. While travelling in a motor launch from Bagdad to Serrai, he collided with a bridge pier, due to the flooded condition of the river, his boat being crushed and sunk.

Mrs. Macdonald, widow of Randolph Macdonald, railway contractor, etc., died in Toronto, May 12, aged 71.

Mrs. Murdo Macdonald, wife of the Assistant Superintendent of Weighing, G.T.R., Toronto, died there May 18, after a long illness.

A. D. MacTier, Vice President, Eastern Lines, C.P.R., has presented a silver challenge cup for the champion Rugby football team of Eastern Canada.

F. Marshall, City Freight and Passenger Agent, Chicago, Milwaukee and St. Paul Ry., Victoria, B.C., was married there recently to Miss V. Meynell, of Chatham, Ont.

George G. McKay, who has been appointed General Agent, Passenger Department, Rail and Ocean Traffic, C.P.R., Detroit, Mich., was born at Hamilton, Ont., June 13, 1878, and entered transportation service in 1893, since when he has been, to June 1905, operator and ticket agent, G.T.R., at various points in Ontario; June 1905 to June 1906, ticket agent, Pere Marquette Rd. and Cincinnati, Hamilton & Dayton Rd., Detroit,

Mich.; June 1906 to Oct. 1911, City Passenger and Ticket Agent, C.P.R., Detroit; Oct. 1911 to June 1916, City Passenger and Ticket Agent, C.P.R., Chicago, Ill.; June 1916 to June 1920, Travelling Passenger Agent, C.P.R., Detroit, Mich.; June to Nov. 1920, Assistant General Agent, Passenger Department, C.P.R., Chicago, Ill.; Nov. 1920 to March 1921, General Agent, Passenger Department, Canadian Pacific Ocean Services, Detroit, Mich.; March 1921 to May 1, 1922, General Agent, Passenger Department, Ocean Traffic, C.P.R., Detroit.

Rev. Roy Melville, son of R. M. Melville, general ticket agent, Toronto, who has been curate of St. Stephen's Anglican Church there for the past three years, has been appointed rector of Allandale, Ont.

A. Price, General Manager, Eastern Lines, C.P.R., and G. H. Ham, of the company's headquarters' staff, Montreal, were guests of the Trenton, Ont., Rotary Club, at luncheon, May 8.

D'Arcy Scott, K.C., ex Assistant Chief Commissioner, Board of Railway Commissioners, has been appointed chairman of the conciliation board in the wage dispute between the British Empire Steel Corporation and its employees.

Lord Shaughnessy, accompanied by Lady and Hon. Marguerite Shaughnessy, arrived in Quebec, May 11, on the s.s. Empress of France, after a trip to Great Britain and France, and proceeded to Montreal. Lord Shaughnessy is reported to have expressed the hope, just before leaving England, that the British Parliament would recognize the soundness of Canada's position with regard to the embargo against Canadian cattle and the justice of her complaint against its continuance.

P. Spence, whose appointment as General Foreman, Mechanical and Car Work, South Shops, Canadian National Rys., Edmonton, Alta., was announced in our last issue, was, from 1903 to 1906, Foreman boiler shops, Canadian Northern Rys., Winnipeg; 1906 to 1911, Boiler Inspector, Western Lines, same road, Winnipeg; 1911 to 1915, Locomotive Foreman, same road, Saskatoon, Sask.; 1915 to Apr. 1922, Locomotive Foreman, same road, latterly Canadian National Rys., Winnipeg.

H. P. Timmerman, Industrial Commissioner, Eastern Lines, C.P.R., Montreal, who has retired, was born at Odessa, Ont., Nov. 6, 1856, and entered railway service in 1872, since when he has been, to 1874, operator, G.T.R.; 1874 to 1882, dispatcher, same road; 1882 to 1887, dispatcher, C.P.R., Winnipeg; 1887 to 1890, Assistant Superintendent, same road, Port Arthur, Ont.; 1890 to April 1901, General Superintendent, Atlantic Division, same road, St. John, N.B.; April 1901 to Dec. 1906, successively, General Superintendent, Ontario and Quebec Division, and General Superintendent, Ontario Division, C.P.R., Toronto; Dec. 1906 to June 1908, General Superintendent, Eastern Division, C.P.R., Montreal; June 1908 to May 1922, Industrial Commissioner, Eastern Lines, C.P.R., Montreal. He will continue to reside in Montreal, and maintain his summer home at St. John, N.B.

Miss H. E. Wicksteed, daughter of the late G. W. Wicksteed, the first law clerk of the House of Commons, who died at Ottawa, recently, was a sister of H. K.

Wicksteed, B.A.Sc., C.E., formerly Chief Locating Engineer, Canadian National Rys., Toronto.

W. H. Winterrowd, Chief Mechanical Engineer, C.P.R., addressed the Engineering Institute of Canada's Moncton branch recently, on railway refrigerator cars, and gave a number of lantern slide illustrations. He read a paper on the same subject before the American Society of Mechanical Engineers, in New York, on May 16.

C. A. York, station agent, Michigan Central Rd., Ruscombe, Ont., rescued two small boys who were playing on the tracks, Apr. 26, and did not hear the approach of a fast train.

C.P.R. Shares Held by Alien Enemies.—In a discussion on the estimates in the House of Commons, May 11, a vote of \$10,000 on account of the adjustment of war claims was brought forward. A minister explained that the alien enemy property taken over by the Government was originally valued at \$30,000,000, but a recent revaluation had put the value of the property now held at \$20,000,000. Among the property are 140,000 shares of C.P.R. stock. It was added that the manner of the disposition of the property was still a matter for consideration.

Toronto Freight Tonnage.—T. L. Church, North Toronto, asked in the House of Commons, recently, what was the total gross freight tonnage entering and leaving Toronto on steam railways since 1914. The Minister of Trade and Commerce replied: Information in full not available, but a record begun in the Dominion Bureau of Statistics, Sept., 1920, shows the following for the year ended Oct. 31, 1921: Freight loaded on cars in Toronto, 1,155,599 tons; freight unloaded from cars in Toronto, 4,600,301 tons.

Selling Goods from Cars.—The Railway Association of Canada has issued the following circular, revising one issued previously: A certain class of dealers or merchants make it a practice to auction or sell their shipments from cars on public delivery tracks. This is a most undesirable practice and adds to delay to equipment and congestion of team tracks and roadways. In accordance with Operating Committee's instructions, member railways are requested to direct their agents not to permit the improper use of railway premises in this manner.

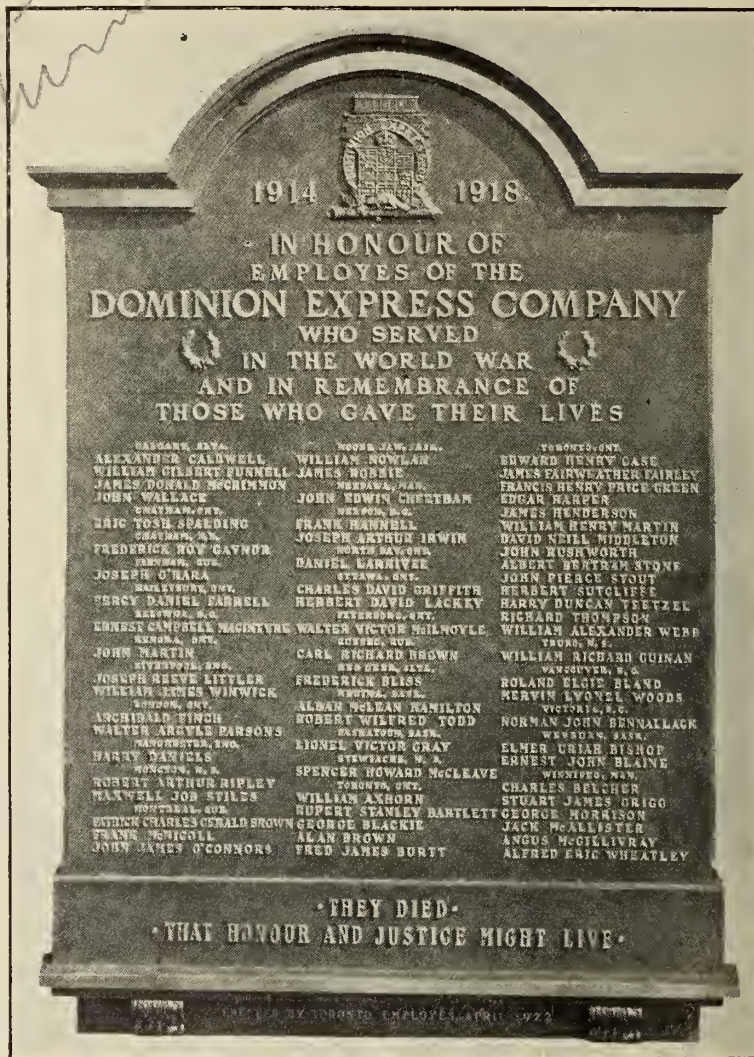
The Railway Centenary.—The 100th anniversary of the beginning of railways will occur in September, 1925, and as this event will be celebrated in England, it is proposed that the International Railway Association hold its regular congress in London in connection therewith. The last session of the congress was held at Berne, Switzerland, in 1910, at which it was arranged to hold the next gathering at Berlin, Germany, in 1915. This, of course, was not held owing to the war, and it was not until this year that the conference met in Rome.

Agricultural Train for Quebec.—The C.P.R. will provide and operate over its lines in Quebec, a 12-car demonstration train in conjunction with the Quebec Department of Agriculture. It will carry live stock and other exhibits, a model dairy, etc., and in the lecture cars professors and instructors in all branches of agriculture, dairying, fruit and vegetable culture, and domestic science will be in attendance.

The Dominion Express Co.'s Employees' War Memorial.

A tablet in honor of Dominion Express Co.'s employees, who served in the Great War, and in remembrance of those who gave their lives, was unveiled in the main entrance of the general office build-

that 707 employees went overseas on active service, and 66 lost their lives. In unveiling the tablet, W. S. Stout, President, stated that the tablet had been given by the Toronto general offices and



ing, Toronto, April 30. T. E. McDonnell, Vice President and General Manager, acted as Chairman, and a memorial address was given by Angus MacMurchy, K.C., the company's solicitor, who stated

agency employees, and though the company had had in mind the placing of a suitable memorial in the building, it gladly assented to the employees doing so, feeling that it gave added interest.

Freight and Passenger Traffic Notes.

The Canadian National Rys. notified the New Brunswick Department of Agriculture recently of special freight rates on oats, hay, corn and mill screenings on the Moncton-St. John line.

A train load of automobiles was shipped recently from Connerville, Ind., via Cincinnati, Indianapolis & Western Ry. and Grand Trunk Ry. to Montreal, and was accompanied throughout the run by F. H. Bremer, Travelling Representative, Canadian National-Grand Trunk Rys., Cincinnati, Ohio.

The G.T.R. put in force on April 27, a special excursion fare from Chicago, Ill., Flint, Grand Haven, Bay City, Muskegon, Mich., and intermediate points to Ottawa, Montreal, Quebec and Boston, Mass., the tickets being valid for return,

leaving destinations prior to midnight of May 4. The basis of fare was 70% of double one-way fare, the round trip fares from Chicago being as follows: To Ottawa, \$36.70; Montreal, \$40.90; Quebec, \$48.80, and Boston, \$50.65.

The Canadian National Rys. handled a special freight train of 55 cars of automobiles for export to England from Oshawa, Ont., to St. John, N.B., recently. The automobiles were loaded on the s.s. Canadian Conqueror, occupying about a third of its entire cargo space.

The C.P.R. is reported to have brought 3,697 bales of silk from Yokohama, Japan, recently, loaded them in 17 cars at Vancouver, B.C., and, in conjunction with the New York Central Rd., delivered them in New York, the total time between loading on the steamship in Japan and delivery in New York, being 13 days, 18 hours, 2 minutes.

D. B. Hanna Speaks on the Canadian National Railways at Springfield Ill.

D. B. Hanna, President Canadian National Rys., was the guest of the Mid-Day Luncheon Club at Springfield, Ill., on April 28, W. H. Finley, President Chicago and Northwestern Ry., being in the chair. Mr. Hanna, at the outset, made it clear that the plan of government ownership of railways which he claimed had after three years practical demonstration in Canada proved to be thoroughly practicable, was very different from the government operation which had been tried in United States during the period of federal control. He, Mr. Hanna, enumerated six main points of difference as follows:—1. In the U.S. the government took possession over night as a war measure. In Canada, the government acquired the railways by construction and purchase, step by step, for economic reasons. 2. In the U.S. the object was unified service, regardless of cost. In Canada the government's object was to ensure adequate and efficient railway service. 3. In the U.S. federal control was recognized as a temporary condition. In Canada the plan of a National Railway System was designed to be permanent. 4. In the U.S. the method of management adopted was political, with a cabinet minister in charge, whereas in Canada, on the creation of the National Railways a corporate form of administration was established and the appointment of a new board for the Canadian National Rys. on their acquisition by the Dominion Government in the autumn of 1918 was made the occasion of taking away from ministerial or political control the lines formerly administered by the Railways and Canals Department. These lines were also placed under the new board, composed of outstanding business men and railway officers. Thus the entire system owned at that time by the Dominion Government was placed under an organization of a corporate character. Subsequently the management of the Grand Trunk Pacific, of which the Minister of Railways and Canals was appointed Receiver, was also placed in the hands of what is for convenience known as the Canadian National Rys. board. 5. Under the U.S. plan competition was eliminated and a great monopoly was established. In Canada competition was preserved. 6. The effect on the employes was important enough to be enumerated as a separate point of difference, although actually the result of the first five. In the U.S. the indifference that generally accompanies monopolistic operation was felt. Mr. Hanna said: "Competition is the spur to endeavor, and the result has been that our staffs have been on their toes, keen to advance the interests of the system for which they work, enjoying the contest for the nation's business."

He then stated that there are many in Canada who were opposed to public ownership of railways, that in fact public ownership had not been adopted as a plank in the platform of any one of the large political parties. The form of public ownership adopted in Canada is one which followed logically the policy of assisting the construction of railways which successive governments had adopted. He sketched rapidly the history of the main sections of the National System. The Intercolonial, was built to connect the Maritime Provinces with Quebec and Ontario. The British Im-

perial Government had assisted the project by guaranteeing a load of £3,000,000 on the ground that the railway would be valuable for military purposes. This line had always been government owned and until placed under the present board in 1918, had been operated by a Minister of the Crown. The National Transcontinental, from Moncton to Winnipeg, was built by the Dominion Government as the eastern section of the Grand Trunk Pacific scheme. In the Canadian Northern Ry. System lies the hope of success for the National System, the western lines are in the very best country, and under anything like normal expansion the development along them will be very rapid. The Canadian Northern is a transcontinental line in itself with lines from Quebec and Montreal to Vancouver. The Grand Trunk Pacific lines have been consolidated with the Canadian Northern Western lines, and with some branch lines to feed the main stem are doing much better.

This great system serves the nine Canadian provinces, and the train that is started from Sydney in the east, and which runs with through connections to Vancouver and Prince Rupert in the west, will no doubt be accepted as ranking as one of the greatest long distance trains in the world; this main line being 4,210 miles long from initial point to final terminal. The system competes with the C.P.R. for the transcontinental and other business of the nation. With this system is to be consolidated the Grand Trunk Ry., which will add 4,776 miles and give the National System a total of 22,375 miles.

Mr. Hanna expressed himself as not discouraged by the record of the nationally owned lines in the last three years. While the losses in operation had been large, 1921's performance was \$20,750,000 better than in 1920, and in four months of 1921 net earnings had been made. Traffic is below normal and it is well known that a disproportion between expenses and earnings had existed since 1918, and even before, and had most adversely affected the operation of U.S. lines in 1919, 1920 and 1921. In 1921 the C.N.R. stood alone as a transcontinental that had an increase in gross earnings. The increase was just over \$1,000,000, the privately owned competitor had experienced a shrinkage of \$23,500,000 in gross. While traffic density is light on the C.N.R., train load is relatively good and has steadily improved. A fine passenger service is maintained. During the period of high prices and low rates the C.N.R. had to make large expenditures to take up deferred maintenance and was under the necessity of spending large sums for improvements, betterments and new equipment. The principal trains are now made up of the most modern type of steel cars. The lines are now in good shape.

Two consolidations of staff have been effected with an entire absence of friction, and four groups of lines, all more or less designed as competitors, have been made into a smooth working, though complex, transportation machine. A preponderance of main line mileage had increased the management difficulties. Much of the mileage is new, the main lines were completed in the second year of the war; in fact over 35% of the National System's mileage has been

taken over for operation since the outbreak of the war. Canada with a population of approximately 8,750,000, had in the ten year period ending with 1921, added to its railway systems in all 14,650 miles of railway, whereas the U.S. with a population of 108,000,000, added in the same period only 10,280 miles. Canada has only 2.3 persons per square mile of area, the U.S. has 40. To support each mile of railway Canada has 223 persons to the United States' 430. He is, however, confident that Canada would soon provide enough business to support its entire railway mileage. Canada has all the basic materials in great quantities that had contributed to the great development of the U.S. forest, fisheries and mines, as well as agricultural lands, and particularly it has the greatest hard wheat producing areas in the world. Canada's imports and exports had shown a very healthy growth until the war had upset trade conditions, as shown by the following figures:—

Year to	Exports for	Consumption.	Exports.	Total Trade.
Mar. 31.	1903	224,814,719	225,229,761	\$ 450,043,480
1913	670,089,066	377,068,355	1,047,157,421	
1918	962,543,746	1,586,169,792	2,548,713,538	
1921	1,240,158,883	1,189,163,701	2,429,322,583	
12 mos. to Feb.	1922	761,026,261	748,793,795	1,509,820,056

Canadian exports of Canadian products only, per head of population were as follows:—1903, \$40; 1913, \$47; 1918, \$179; 1921, \$132; 1922, \$81.

The Department of Trade and Commerce report for the year ended March 31, 1921, states that during 1918 the imports of articles for the Army and Navy amounted to \$130,773,475, while for 1921, similar imports amounted to only \$228,918, and the exports of cartridges and explosives in 1918 were valued at \$386,340,293, while in 1921, they were valued at only \$1,324,376. The total decrease in the value of cartridges and explosives from 1918 to 1921 more than accounted for the decrease in total exports of Canadian commodities.

The Canadian National Rys. have a valuable ally in the Canadian Government Merchant Marine ships operated by the C.N.R. board. The fleet comprises 65 ships which took Canadian products to all parts of the world. The Canadian National Telegraphs and Express Companies operate over all lines, and the railway operates a number of hotels and runs its own sleeping cars.

Mr. Hanna continued: "Much has been said of politics interfering with efficient operation of government owned lines. That is ancient history. Under the present form of corporate administration I stand here and tell you that in the last three years there has been no political interference, and during that period we passed through an election and quite an intense affair it was, and yet at no stage nor at any point on the system can any one state that anything was done by the management to serve political ends. The directors have taken a firm stand that no one employed by the railways, from director to laborer, shall take a greater interest in politics than to exercise his franchise. It is laid down as a rule that anyone who identifies himself with a political party, to the extent of accepting nomination as a candidate, automatically severs his connection with the system. At the election referred to the Government changed, and it is announced

that the new government will continue the present plan. If this is done I can see no reason why the nationally owned lines in Canada should not, under normally adjusted expenses and earnings, eventually prove to be self supporting. From the shippers' and consignees' point of view, the plan of dual competitive service to every important community is ideal. There is no competition in service, and in principle of ownership

the one system is nationally owned, while the other was at its inception nationally endowed, the two systems compete for the nation's business. Both systems are strong and in good physical condition; both have a capacity considerably beyond normal traffic movement, at present business is sub-normal. Canada can therefore face a period of expansion, with confidence that her railways are in a position to assist in the

development work. In the past the railways have played a great part in the national progress, and I am confident that in the period immediately ahead, the Canadian National Rys. will be a big factor in the upbuilding of the country and will ultimately be recognized as one of Canada's greatest assets."

F. P. De Hoyos, General Agent, Mexican National Ry., New York, N.Y., also spoke.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Board of Railway Commissioners.—In reference to the Civil Commission's request for applications from persons qualified to fill the position of the Board's Chief Traffic Officer, particulars of which were given in Canadian Railway and Marine World for May, we were officially advised on May 16, that 17 applications had been received.

Canadian Manufacturers' Association.—G. P. RUICKBIE, Traffic Manager, Canadian Pulp & Paper Association, who has been in the Canadian Manufacturers Association's head office in Toronto for nearly three years, has been transferred to the C.M.A. office, 115 Board of Trade Building, Montreal. He will continue as Traffic Manager, Canadian Pulp & Paper Association, and his services will be available for members of the C.M.A. Quebec Division, who desire assistance in connection with transportation matters.

Canadian National Rys.—J. CANDLINE, heretofore Car Foreman, Calgary, Alta., has been appointed Car Foreman, North Battleford, Sask., vice J. Herring transferred to Calgary, Alta.

P. W. CLARKIN, heretofore acting Division Freight Agent, Charlottetown, P.E.I., has been appointed Division Freight Agent there, vice A. McDonald retired.

S. D. DULMAGE, heretofore Sleeping and Dining Car Agent, Bonaventure Station, Montreal, has been appointed Road Inspector, Sleeping, Dining and Parlor Car, Hotel and News Department, Eastern Lines.

J. HERRING, heretofore Car Foreman, North Battleford, Sask., has been appointed Car Foreman, Calgary, Alta., vice J. Candline transferred to North Battleford, Sask.

CHAS. C. JOHNSON, heretofore a roadmaster on the Campbelltown Division, has been appointed Roadmaster, Springhill Subdivision, between Truro and Sackville, N.B., and Sackville Subdivision, Moncton Division, Maritime District, vice J. C. Fulmore, retired on the Provident Fund.

F. T. KNIGHT, heretofore Locomotive Foreman, Sioux Lookout, Ont., has been appointed Locomotive Foreman, Port Arthur, Ont., vice H. Williams; transferred to Winnipeg.

W. A. McDONALD has been appointed Sleeping and Dining Car Agent, Tunnel Terminal, Montreal, vice B. H. Nevin, appointed a road inspector Eastern Lines.

J. A. McISAAC has been appointed Sleeping and Dining Car Agent, Bonaventure Station, Montreal, vice S. D. Dulmage, appointed a road inspector, Eastern Lines.

J. D. McNUTT, Assistant Superintendent, Maritime District, Halifax Division, has been transferred from Truro, N.S., to Halifax.

J. NESBITT has been appointed Car Foreman, freight repair tracks, Edmonton, Alta., vice G. S. Clarke transferred.

B. H. NEVIN, heretofore Sleeping and Dining Car Agent, Tunnel Terminal, Montreal, has been appointed a road inspector, Sleeping, Dining and Parlor Car, Hotel and News Department, Eastern Lines.

A. TAYLOR, heretofore Shop Foreman, Fort Rouge, Winnipeg, has been appointed Locomotive Foreman, Sioux Lookout, Ont., vice F. T. Knight, transferred to Port Arthur, Ont.

H. WILLIAMS, heretofore Locomotive Foreman, Port Arthur, Ont., has been appointed Locomotive Foreman, Winnipeg, vice P. Spence, whose appointment as General Foreman, Mechanical and Car Work, South, Shops, Edmonton, Alta., was announced in our last issue.

Canadian Pacific Ry.—A. P. ANDERSON, heretofore local agent, C.P.R. Telegraphs, Sydney, N.S., has been appointed local agent, C.P.R. Telegraphs, Halifax, N.S., vice W. S. Emery, appointed chief operator at Montreal.

C. BROSNAME, heretofore in the Operating Department during winter, and during summer assistant telegraph agent, Algonquin Hotel, St. Andrews, N.B., has been appointed agent of telegraphs, Truro, N.S., vice J. M. Sullivan, appointed local agent at New Glasgow, N.S.

G. E. CARTER, heretofore Passenger Agent, port staff, Quebec, Que., during the summer, and St. John, N.B., during the winter, has been appointed Travelling Passenger Agent, New Brunswick District, St. John, N.B.

G. W. CURTIS, heretofore Industrial Agent, has been appointed Industrial Commissioner, Eastern Lines, vice H. P. Timmerman, retired on superannuation.

D. DRUMMOND, heretofore Freight Agent, London, Eng., has been appointed agent, Southampton, Eng. The company's offices are being built on Canute Rd., Southampton Docks, and a temporary office is provided at 7 Canute Rd.

W. S. EMERY, heretofore local agent of telegraphs, Halifax, N.S., has been appointed chief operator, Montreal, vice C. W. Macdonald, appointed Inspector of Telegraphs, Alberta Division.

R. A. GAMBLE, who was acting Superintendent, Winnipeg Terminal Division, Winnipeg, during the absence of R. C. Morgan, in Newfoundland, is again occupying that position, Mr. Morgan having returned to Newfoundland for another seven months in connection with the Newfoundland Ry. management.

C. W. MACDONALD, heretofore chief operator, C.P.R. Telegraphs, Montreal, has been appointed Inspector, Alberta Division, C.P.R. Telegraphs, Calgary.

E. A. KELLY has been appointed Roadmaster, Coutts, Cardston and Stirling Subdivisions, Lethbridge Division, Alberta District, Lethbridge, Alta., vice C. T. Johnston, transferred.

W. McILROY, heretofore General Agent, Passenger Department, Rail Traffic, Detroit, Mich., has been appointed General Agent, Los Angeles, Cal., vice A. A. Polhamus, deceased. Office, 605 South Spring St.

G. G. McKAY, heretofore General Agent, Passenger Department, Ocean Traffic, Detroit, Mich., has been appointed General Agent, Passenger Department, Rail and Ocean Traffic there, W. McIlroy, General Agent, Passenger Department, Aail Traffic, having been transferred to Los Angeles, Cal. Office, 1239 Griswold St.

J. M. SULLIVAN, heretofore at Truro, N.S., has been appointed local agent, C.P.R. Telegraphs, New Glasgow, N.S., vice R. Blake, appointed local agent at Sydney, N.S.

Newfoundland Ry.—R. C. MORGAN, Superintendent, Winnipeg Terminal Division, C.P.R., who was given six months leave of absence to act as Chairman, Management Committee, Reid Newfoundland Co., and severed his connection with the Reid management in February, and who was subsequently acting as adviser to the Newfoundland Government on railway matters, returned to Winnipeg early in May. We are officially advised that he has been given another seven months leave of absence by the C.P.R., and that he left Winnipeg, May 21, for St. John's, Newfoundland.

English Railways and Highway Transportation.—The London and Northwestern and Midland Railway group has asked the British Parliament to authorize railways to engage in highway transportation in competition with regular motor truck companies. It is urged that railways, if kept from the highways, will be forced to meet the competition of motor truck companies on unequal terms, and that they should be given the opportunity of transporting goods by motor trucks on the highways where it is cheaper to do so than by rail.

Hay on Railway Right of Way.—The Minister of Railways is reported to have advised the member for Temiscouata County, Que., that the Canadian National Ry's directors have decided to permit farmers to cut hay opposite their farms abutting in the Intercolonial Ry., free of charge during this year.

Dolly Varden Mines Ry.—A press report states that proceedings have been instituted in the British Columbia Supreme Court for the foreclosure of a mortgage of \$200,000 upon the Dolly Varden silver mining properties and railway in northern B.C.

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TORONTO, CANADA, JUNE, 1922.

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The Grand Trunk Railway's Results in 1921.

Extracts from the G.T.R. Co.'s annual report for the calendar year 1921, on another page of this issue, show that it was a most unfavorable year. The net loss transferred to profit and loss account was \$14,064,442.36, or \$9,465,338 greater than in 1920, when it was \$4,599,104. Despite an operating surplus of \$4,344,253.51 and a non-operating income of \$8,634,101.55, the deductions from gross income were so great as to bring about the results mentioned.

An examination of the deductions from gross income will be of interest. The funded debt at Dec. 31, 1921, was \$371,042,194.75, the interest amounting to \$16,492,614.70. This debt includes guaranteed and debenture stock for \$216,207,141.67, various equipment trusts and mortgage bonds, and recent Dominion Government loans amounting to \$73,702,154. In addition to the interest on funded debt, deductions from gross income for 1921 included the loss on separately owned properties, \$6,857,092.97, against \$2,926,024.97 in 1920. Of this loss, the G.T. New England lines were responsible for \$1,881,093.84; the G.T. Western lines for \$4,797,177.55, the Ottawa Terminal Ry. for \$104,994.20, and the Canada Atlantic Transit Co. for \$73,827.38. Other items in the deductions from gross income included joint facility and miscellaneous rents, amortization of discount on funded debt, etc., all deductions from gross income totaling \$27,042,797.42.

One cannot help but feel that, on the basis of the 1921 results, G.T.R. shareholders made a good bargain when they agreed to sell, even though the common and preference stocks were adjudged valueless by the arbitrator. It is not the G.T.R. shareholders who are shouldering the loss made by the company in 1921, but the Canadian people are doing that. In addition, it is altogether likely that \$12,000,000 of the \$15,000,000 provided for the G.T. Pacific in the estimates presented to Parliament recently, will be used in payment of the loss incurred by the G.T.P.R. in 1921. It does not require much argument to show that under the conditions prevailing, a receivership for the whole system would have been necessary long ago, had not the Dominion Government intervened, and it is incomprehensible that any one should imagine that in such an event the G.T.R. common stock would have had any element of value. Even as regards the preference stock, this latest report shows that the prospects of the road being able to earn enough to pay anything on it in the near future, are very doubtful. Loans from the Dominion Government since May, 1920, have totalled \$73,702,000 and bonds issued with the Government's endorsement, have totalled \$49,743,000, while equipment trust certificates for \$11,586,000 have been issued. The situation now is, that before the preference stock could receive any return, fixed charges of \$16,492,614.70 have to be met. It therefore seems that although G.T.R. common and preference shares have been adjudged valueless, the shareholders have been fortunate in getting rid of their losses on G.T.R. operation, and their obligations in connection with the G.T.P. in the manner in which they have. They could never have secured credit to carry the whole enterprise till it was on a money making basis, and a receivership,

with all its consequences, would have been inevitable.

The country's position in relation to the whole matter of the G.T. and its subsidiaries, is most unfavorable. The only hope, it would appear, is that ultimately railway operating costs will get back to a reasonable basis, and that by co-ordination of the G.T.R. and G.T.P. in the national system, and by securing an increased traffic as the country develops, the properties may be placed on a self-sustaining basis. If the G.T.R. in 1921 had been able to secure an operating ratio of 70 instead of the ratio of 92.61, which it had, operating expenses would have been but \$53,800,622, instead of \$71,179,292, which would have meant a net of \$23,057,410, instead of \$5,678,739, and this would have meant a profit of \$3,314,228 to transfer to profit and loss account instead of a loss of \$14,064,442. It is not so long ago that an operating ratio of 70 was the accepted standard; whether that condition of affairs will ultimately be restored remains to be seen.

At all events, it is evident that the financial results to be secured by the Dominion from the property acquired from the G.T.R. shareholders coincides with the degree of success met with in the effort to get the operating ratio down to a reasonable level. While that will naturally depend on the amount of traffic handled and the efficiency with which it is handled, it will also depend on the rates paid for handling it. It is axiomatic that, if the rates are too low, the railway operating losses will have to be made up from taxation, but the smaller the loss to be made up from taxation the better. While results on the G.T.R. during the past few years have been disappointing, it is a fact that so far in 1922 the road has shown an operating ratio which compares favorably with that of any other road in Canada, and our feeling is that if rates are so regulated that privately owned railways may continue to derive a return adequate for the payment of fixed charges and for provision for the future, the years to come will see a steady improvement in the financial results attending the operation of the G.T.R.

Buffalo and Fort Erie Public Bridge Co.—The House of Commons private bill committee approved on May 18, of a bill for the incorporation of a company with the above title, to build a the Niagara River, with approaches from highway and general traffic bridge across near Walnut St., Fort Erie, Ont., to near Hampshire St., Buffalo, N.Y., and to make provision for laying of electric railway tracks over it. Security is to be given for the carrying on of navigation in the river. A United States company is to be formed for the purpose of undertaking the U.S. end of the work. The provisiona directors are W. F. Willson, W. Douglass, Dr. MacGillivray, Fort Erie, Ont., and L. B. Duff, Welland, Ont.

Ties Bought in Nova Scotia.—The Minister of Railways stated in the House of Commons recently, in answer to H. Putnam, Colchester, N.S., that 150,130 railway ties had been bought by the Canadian National Rys. in Nova Scotia since Nov. 30, 1921, and gave the names of the contractors bought from. The prices ranged as follows: no. 1, 58c. to 70c.; no. 2, 48c. to 60c.; no. 3, 25c. to 35c.

Canadian Pacific Railway Co.'s War Memorials.

The C.P.R. Co.'s memorials of the services of its employees in the Great War of 1914-1918 were unveiled simultaneously on April 28, at various points all over the system. The principal memorial consists of a large bronze group, designed and executed by C. O. L. McCarthy, Montreal. It typifies the uplifting of the soul of a hero from the battlefield, the armed figure of a soldier in uniform, battle stained yet tranquil, being borne heavenward by a winged and laurel wreathed angel of victory. The figures in the group are supported upon a marble pedestal. Three of these groups were cast and have been placed at the stations at Windsor St., Montreal; Winnipeg and Vancouver.

The secondary memorial, designed by Archibald Pearce, of the company's Engineering Department, consists of a bronze tablet, 50 x 40 in. The design represents Britannia, with heralds, calling to her sons in all parts of the Empire to assist her in the struggle for liberty. The C.P.R. s.s. Empress of Russia, engaged as a fast cruiser and later as a transport ship, is represented on the right and H.M.S. Lion, Admiral Beatty's flagship at the Battle of Jutland, on the left. Aeroplanes are shown above the ship and the center of the design depicts a C.P.R. train carrying battalions to embark for overseas service. Tanks are shown to the left and the ribbon at the base bears the names of the principal victories won by Canadian troops and the company's crest. Underneath the tablet is the following inscription, which is also placed on the base of each of the three statuary groups: "This tablet commemorates those in the service of the Canadian Pacific Ry. Co., who, at the call of King and country, left all that was dear to them, endured hardships, faced danger and finally passed out of sight of men by the path of duty and self-sacrifice, giving up their lives that others might live in freedom. Let those who come after see to it that their names be not forgotten."

These tablets have been placed in position at the following stations, etc., in Canada:—St. John, N.B.; Quebec; Windsor St. station, Place Viger station and Angus shops, Montreal; Yonge St. station, Toronto; West Toronto; North Bay, Ont.; Fort William, Ont.; Winnipeg, Man.; Regina, Saskatoon, and Moose Jaw, Sask.; station, and Natural Resources Building, Calgary, and Edmonton, Alta; Nelson, Vancouver and Victoria. Similar tablets have been placed in the company's offices in London, and Liverpool, Eng., New York, and Hong Kong.

Enlistments of C.P.R. employees totalled 11,340 men, of which 1,115 were killed or died of wounds, and 2,105 were wounded. A total of 7,573 were re-employed by the company on their return to Canada, following out the C.P.R. policy of reinstating every man who left, in as good a position as that which he had when he went away, and a total of 13,112 other returned soldiers have also been taken on the company's service. War decorations and medals won by C.P.R. employees totalled 370, and include the following:—Victoria Cross, 2; Order of the British Empire, 6; Distinguished Service Order, 17; Distinguished Service Cross, 3; Military Cross, 54; Distinguished Conduct Medal, 47; Military Medal, 180.

Lord Shaughnessy, Chairman of the Board, who was in London, Eng., unveiled the tablet placed in the company's offices there.

The unveiling took place simultaneously, the signal for the starting of the ceremonies at the different points being given from Montreal at 3 p.m., C.P.R. time. Following is a partial list of those taking part in the ceremonies:—

St. John, N.B.:—The Mayor presided, the unveiling being performed by J. C. Johnson, one of the company's conductors, who lost a son on service overseas.

Quebec:—Mayor Sampson presided; the unveiling being performed by Mrs. John Macdonald, mother of one of the company's Quebec employees who fell in the war.

Montreal:—Lord Byng, Governor General of Canada unveiled the statue, in the Windsor St. station at the request of E. W. Beatty, K.C., President, and placed a wreath at the base. The procession then went to the Osborne St. entrance of the station, where the tablet was unveiled.

The tablet at Place Viger station was unveiled by Mrs. W. H. Caryer, whose son, station agent at Outremont when he enlisted, was killed at the front. J. K. Savage, General Superintendent, Quebec District, was in charge.

At the Angus shops, John Burns, the Works Manager, presided, and the tablet was unveiled by Alfred Cassidy, whose son, an employee at the works, was killed in action in 1916.

Toronto:—H. C. Grout, General Superintendent, Ontario Division, presided at Yonge St. station, Mayor Maguire performing the unveiling, and W. M. Neal, Assistant General Superintendent, Ontario Division, was in charge of the arrangements at West Toronto.

Fort William:—The tablet was unveiled by W. Blennerhassett, a locomotive man, the Mayor presiding.

Winnipeg:—Sir James Aikens, Lieutenant Governor; D. C. Coleman, Vice President, Western Lines, and Sir Augustus Nanton, director, took part. The statue was unveiled by Rev. Dr. Duval, whose son, Lieut. Duval, of the C.P.R. service, was killed.

Regina:—Mayor Grassick unveiled the tablet.

Calgary:—Brig. General A. H. Bell, C.M.G., D.S.O.; J. M. Cameron, General Superintendent, Albert Division; at the station and the Natural Resources Building. F. M. Wilkinson, D.C.M., M.M., the youngest employee of the company who served in the war, unveiled the tablet at Ogden shops, the ceremonies being in charge of C. J. Powles, Superintendent.

Edmonton, Alta.:—Lieutenant Governor Brett unveiled the tablet; the company being represented by J. L. Jamieson, Superintendent.

Vancouver:—Hon. W. S. Nichol, Lieutenant Governor, and F. W. Peters, General Superintendent, took part. The statue was unveiled by C. S. Maharg, Superintendent, Vancouver, who lost a son.

Victoria:—Hon. John Oliver, Premier of British Columbia, spoke, and the tablet was unveiled by Oliver Gibbs, of the company's B.C. Coast Steamship Service, who served at the front, and lost a son at Vimy Ridge.

Freight Car Location on Railways.

The Railway Association of Canada has issued a report showing the location of freight cars as of May 1, based on returns from the following railways: Algoma Central & Hudson Bay; Canadian National, including Grand Trunk Pacific; Canadian Pacific; Central Vermont (in Canada); Dominion Atlantic; Edmonton, Dunvegan & British Columbia; Grand Trunk; Kettle Valley; Michigan Central (in Canada); Napierville Jct.; Pere Marquette (in Canada); Quebec Central; Quebec, Montreal & Southern; Temiskaming & Northern Ontario; Temiscouata; Toronto, Hamilton & Buffalo; Wabash (in Canada). The figures are as follows: Cars owned by reporting railways, 222,486; home cars on Canadian foreign lines, 14,849; home cars on U.S. lines, 33,872; home cars on home road, 173,765; Canadian-owned foreign cars on home lines, 11,557; U.S. owned foreign cars on home lines, 15,426; total cars on line, 200,748; per cent. on line to total owned, 90.2; deficiency on line to total owned, 21,738; home cars in bad order, 21,883; foreign cars in bad order, 410; total cars in bad order, 22,293; per cent. in bad order, 11.1; privately owned U.S. cars on line, 1,957; privately owned Canadian cars on line, 1,159.

Marconi Wireless Telegraph Co.'s Contract with the Government.

The Minister of Militia and Defence gave the following information in the House of Commons recently, in answer to H. Deslauriers, St. Mary, Montreal:—The unexpired contract with the Marconi Wireless Telegraph Co. of Canada has not been cancelled, but a supplementary contract has been entered into, the principal amendment to the old contract being as follows: That for five years, April 1, 1921, to April 1, 1926, the subsidy in respect of each of the stations remaining open be increased from an average of \$2,081 per station per year to \$5,500 per station per year. That all Government messages which under old contract were free of charge be handled at half the rates charged on commercial messages. The amendments to the contract were authorized by order in council Aug. 31, 1921, and the supplementary contract was signed Dec. 15, 1921. The rescinding of the supplementary contract by the present Government has not been given consideration.

British Railways and Road Transportation.—The British House of Commons gave a second reading recently to a bill, promoted by the Northwestern and Midland group of railways, authorizing railways to establish road services for the transportation of freight, when it can be done more advantageously by road than by rail. The Minister of Transport's Parliamentary secretary stated that the second reading of the bill would afford an opportunity for a House into the whole matter, before the bill came on for a third reading, and that he considered the matter a very important one to the railway companies and to the public.

New Brunswick Coal for Canadian National Rys.—The New Brunswick Legislature passed a resolution recently asking that the C.N.R. should use New Brunswick coal on its lines within the province.

Steam Railway Operating Revenues, Expenses and other Statistics for February.

The following comparative table for Feb. 1922 and 1921 has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics, Transportation Branch. The figures in the column headed "All railways" include all steam railways with an annual operating revenue of \$500,000 and over. There is a slight increase in the number of roads included under this heading, so that the data for 1922 and 1921 will not be directly comparable with previous reports.

As the Canadian Government, Canadian Northern and Grand Trunk Pacific Railways are under one management, and operated as one system, the monthly operating reports for 1922 contain a consolidated report for these railways, under the heading "Canadian National

Railways," which includes the old Canadian Government Railways, viz., Intercolonial, Prince Edward Island, National Transcontinental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.; the lines operated as the Canadian Northern Ry. System, prior to its acquisition by the Dominion Government; and the Grand Trunk Pacific Ry.

The column headed "Canadian Pacific" includes also the Montreal and Atlantic and Esquimalt and Nanaimo Rys.

The column headed "Grand Trunk" includes all the company's lines, both in Canada and the United States.

Items 1 to 6 in the table include rail line revenues only. Previous to this year they included water line. Operating in-

come items have been added. Freight and passenger train miles contain a proportion of mixed train miles, divided on the basis of freight and passenger car miles in mixed train service. In former reports the total mixed train miles was added to both freight and passenger train miles when computing averages. Total train miles include freight; passenger, with their proportions of mixed train miles; special train and non revenue train miles. The average freight revenue per freight train mile includes only rail line revenue. Average passenger train revenue per passenger train mile includes revenue from passenger, mail, express, excess baggage, parlor cars, etc., whereas previous reports gave an average per train mile of passenger receipts only. The number of employees is also a new feature of the report.

	All railways.		Canadian National		Canadian Pacific		Grand Trunk	
	1922	1921	1922	1921	1922	1921	1922	1921
Operating revenues								
Freight	\$21,265,512	\$24,325,016	\$5,919,182	\$8,070,309	\$8,103,408	\$8,801,712	\$4,321,027	\$4,173,954
Passenger	4,381,567	5,801,447	978,027	1,362,198	1,933,549	2,672,022	856,460	1,001,143
Mail	605,904	309,572	178,697	87,477	281,283	152,414	105,000	43,074
Express	967,239	1,035,663	251,286	236,800	445,631	654,232	200,000	95,782
Other freight train	4,842	4,219	Dr. 794	5,637	5,637	4,219	.....	.....
Other passenger train	337,027	438,787	105,225	138,329	202,949	250,396	17,200	33,757
Water line	40,445	46,945	.....	.....	40,476	47,093	.....	.....
All other	939,111	950,277	219,118	253,306	446,637	439,583	167,800	147,005
Total railway operating revenues	\$28,541,651	\$32,911,928	\$7,650,742	\$10,148,421	\$11,459,574	\$13,021,675	\$5,667,487	\$5,494,718
Operating expenses								
Maintenance of way and structure	\$4,374,213	\$5,432,090	\$2,126,272	\$2,498,865	\$1,374,503	\$1,557,561	\$347,974	\$729,413
Maintenance of equipment	7,457,492	8,142,288	2,521,350	3,021,911	2,729,120	3,052,639	1,353,561	1,319,570
Traffic	929,884	864,671	159,443	213,279	568,289	450,228	124,431	127,327
Transportation	14,730,771	18,546,431	4,935,242	7,093,313	5,593,048	6,545,295	2,642,261	2,971,507
Miscellaneous operations	372,170	455,149	124,546	165,214	184,649	215,709	29,623	41,739
General	901,879	970,977	243,274	210,653	307,440	329,895	203,267	273,431
Trans. for investment	Cr. 83,943	Cr. 67,847	Cr. 83,558	Cr. 67,818	.....	.....	Cr. 135	.....
Total railway operating expenses	\$28,681,967	\$34,343,760	\$10,026,571	\$13,135,420	\$10,757,051	\$12,151,329	\$4,700,985	\$5,462,984
Operating income								
Net operating revenue	Dr. \$140,315	Dr. \$1,431,832	Dr. \$2,375,829	Dr. \$2,986,998	\$702,522	\$870,345	\$966,501	\$31,734
Railway tax accrued	524,185	468,441	97,698	66,918	243,500	227,597	110,850	106,669
Uncollectible revenues	867	536	1	10	.....	.....	619	478
Hire of equipment	Cr. 318,706	Cr. 131,695	Cr. 115,340	Cr. 131,873	Cr. 211,603	Cr. 176,330	Cr. 236,582	Cr. 69,104
Joint facilities rents	Dr. 65,081	Dr. 23,265	Dr. 19,323	Dr. 52,178	Cr. 20,672	Cr. 17,631	Cr. 50,535	Cr. 157,609
Operating income	Dr. 411,743	Dr. \$1,745,848	Dr. 2,377,712	Dr. 2,974,232	691,298	836,710	1,142,150	151,301
Operating statistics								
Average miles of road operated	38,729.30	38,408.60	17,212.10	17,023.77	13,877.2	13,772.1	3,612	3,612
Tons carried (revenue)	7,206	8,411	1,485	2,144	2,019	2,146	1,840	1,748
Tons carried one mile (revenue)	2,011,226	2,002,311	656,773	743,194	774,825	697,810	351,826	314,053
Tons carried (all freight)	8,443	10,144	1,953	3,041	2,461	2,649	2,079	2,006
Tons carried one mile (all freight)	2,180,863	2,250,938	731,714	870,036	842,498	791,279	370,724	334,893
Revenue passengers carried	2,891	3,280	772	928	994	1,098	769	843
Revenue passengers carried one mile	147,543	183,914	36,574	45,750	62,650	83,315	30,003	33,363
Freight train miles*	4,318	4,528	1,472	1,885	1,570	1,404	783	733
Passenger train miles*	3,215	3,488	908	1,118	1,385	1,402	560	600
Total train miles (revenue and non-revenue)	7,734	8,181	2,515	3,108	3,009	2,842	1,343	1,379
Freight car miles (loaded)	85,244	83,955	26,648	31,213	31,411	28,725	15,640	13,167
Freight car miles (empty)	35,837	40,991	11,033	16,440	10,630	9,599	7,932	8,717
Passenger train car miles	20,465	22,474	5,965	7,032	8,875	9,620	3,141	3,365
Total amount of pay roll	\$16,633,552	\$20,168,460	\$5,962,508	\$7,825,914	\$5,913,847	\$6,472,297	\$3,303,306	\$4,128,662
Number of employees	140,678	154,508	52,816	61,147	50,127	53,803	27,192	28,128
Averages per mile of road operated								
Operating revenue	\$736.95	\$856.89	\$444.50	\$596.13	\$825.58	\$945.51	\$1,569.07	\$1,521.24
Operating expenses	\$740.58	\$894.17	\$582.53	\$771.59	\$775.16	\$882.31	\$1,301.49	\$1,512.45
Tons moved one mile (revenue)	51,930	52,132	38,158	43,656	55,834	50,675	97,405	86,947
Tons moved one mile (all freight)	56,310	58,605	42,511	51,107	60,710	57,455	102,637	92,717
Averages per freight train mile								
Freight revenue	\$4.93	\$5.37	\$4.02	\$4.28	\$5.16	\$6.27	\$5.51	\$7.40
Tons of freight (revenue)	465.8	442.1	446.1	394.2	493.5	496.9	449.0	406.2
Tons of freight (all freight)	505.0	497.0	497.0	461.5	536.6	563.5	473.1	433.2
Loaded freight cars	19.7	18.3	18.1	16.6	20.0	20.5	20.0	17.0
Empty freight cars	8.3	9.0	7.5	8.7	6.8	6.8	10.1	11.3
Averages per passenger train mile								
Passenger train revenue	\$1.96	\$2.17	\$1.66	\$1.63	\$2.07	\$2.66	\$2.10	\$1.96
Passengers carried	45.9	52.7	40.2	40.9	45.2	59.4	53.6	55.6
Passenger cars	6.4	6.4	6.6	6.3	6.4	6.9	5.6	5.6
Average length of haul (revenue freight) miles	279.1	238.1	442.0	346.6	383.7	325.1	191.2	179.6
Average passenger journey, miles	51.0	56.1	47.3	49.2	63.0	75.8	39.0	39.6
Average tons per loaded freight car	25.6	27.1	27.5	27.9	26.8	27.5	23.7	25.4
Average freight receipt per revenue ton mile	1.057c.	1.215c.	.901c.	1.086c.	1.046c.	1.261c.	1.228c.	1.329c.
Average passenger receipts per passenger mile	2.970c.	3.154c.	2.674c.	2.977c.	3.086c.	3.207c.	2.855c.	3.001c.
Ratio of pay roll to operating revenues	58.3%	61.3%	77.9%	77.1%	51.6%	49.7%	58.3%	75.1%
Ratio of pay roll to operating expenses	58.0%	58.7%	59.5%	59.6%	55.0%	53.3%	70.3%	75.6%
Ratio of operating expenses to revenue	100.49%	104.35%	131.05%	129.43%	93.87%	93.32%	82.95%	90.42%

*Contains a proportion of mixed train miles.

The Railway's Operating Results for January and February.

Particulars of railway operating revenues, expenses and other statistics for Jan. 1922 were received by Canadian Railway and Marine World too late for publication in the May issue, and as figures for February have been received since, the latter are given elsewhere in this issue. The January figures show that the railways as a whole had an operating deficit of \$827,619 for the month, which was \$1,244,547 less than in Jan. 1921. The improvement was effected by cutting operating expenses 23%, with a reduction in freight traffic of 13% and in passenger traffic 27%, while the revenues declined 21%. There was a decrease of 19% in freight train miles, but an increase in loading of 30.7 tons of revenue freight and 19.4 tons of all freight per train mile, while the passengers per train mile were 10% less. The average freight receipts per ton mile and the average passenger receipts per passenger mile decreased 9.5% and 13% respectively, reflecting in a degree the effect of the general decrease in freight and passenger rates.

Canadian National Rys. in January had a decrease in revenues of \$2,640,508 or 24.3%. Expenses, however, were reduced \$3,280,403 or 23.9%, giving an operating ratio of 127.08 for Jan. 1922 as against 126.39 for Jan. 1921. The freight and passenger traffic showed decreases of 5.7% and 14% respectively. The greater decrease in expenses was due in part to the heavier loading of trains, viz., 442 tons of revenue freight per train mile, against 338 tons in Jan. 1921. It was also due to wage reductions and to a slight increase in passengers per train mile. The payroll decreased 27.5% and there was a decrease of 10,287 in the number of employees.

The C.P.R. in January had an operating ratio of 95.96, against 95.14 in Jan. 1921. Revenues decreased over 22%, and operating expenses decreased 21.8%, with a decrease of 16% in freight traffic and 24% in passenger traffic. There was a slight decrease in train loading, and a decrease of 2.1 tons a car in car loading, and the average revenues per ton mile and per passenger mile both decreased. The payroll decreased \$1,554,518, and there was a decrease of 1,949 in the number of employees.

G.T.R. revenues decreased \$864,048, or over 13%, but the total expenses were reduced 27%, leaving a net revenue of \$369,363, against a deficit for Jan. 1921 of \$701,165. The payroll decreased \$923,500, and the number of employees decreased 1,882.

For February, as shown by the table published on the preceding page, the railways as a whole had an operating deficit of \$140,315, compared with a deficit for Feb. 1921 of \$1,431,832. The operating revenues decreased \$4,370,277, or 13%, over \$3,000,000 of this being in freight earnings, despite a slight increase in the revenue ton miles handled. Passenger revenues decreased \$1,419,880, or 24%, with a decrease of 20% in passenger miles. Allowing for the slight increase in the number of tons of revenue freight carried one mile, the decrease in freight earnings is representative of the decreases in freight rates which took place between Feb. 1922 and Feb. 1921, as shown by the average receipt per revenue ton mile. The passenger earnings for the roads as a whole reflect not only the lower passenger rate prevailing

in Feb. 1922, but also the reduced passenger traffic carried, as stated above.

Operating expenses for maintenance of way and structures and maintenance of equipment, show decreases which suggest that property and equipment were maintained to the same standard as in Feb. 1921, lowered material costs and decreased wages being taken into consideration. The decrease in transportation costs is particularly gratifying, the cut of \$3,815,660 being a decrease of 20%. When the figures for freight train miles and passenger train miles are examined in this connection, it is evident that the transportation expenses decreased in much greater proportion than did the train miles operated, and in still greater proportion than the traffic handled by the operation of those train miles. While, of course, lower wages played an important part in the accomplishment of decreasing the transportation expenses so materially, it is evident, on examining the figures further, that an increase in transportation efficiency played no small part. The proportion of loaded to total freight car mileage in Feb. 1922 was much better than in Feb. 1921; the number of tons of revenue freight per freight train mile was 465.8 in February 1922, compared with 442.1 in Feb. 1921, while the figures for loaded and empty freight cars under the heading "Averages per freight train mile" show that more cars per train were handled in Feb. 1922, a better proportion of these being loads, as stated above. The advantages incidental to better train loading were such as to overcome the slight falling off in freight car loading. While total expenses were greater than total revenues in Feb. 1922 by \$140,315, it is evident that the deficit was reduced as compared with Feb. 1921.

The large decrease in Canadian National Rys. operating revenues is painfully evident, and an examination of the figures shows conclusively the kind of proposition which the management is up against. The decrease in gross was the result, of course, of decreased traffic, combined with decreased freight and passenger rates, and the performance in cutting operating expenses to the degree shown shows that advantage has been taken of every opportunity to effect economies. The operating efficiency, as shown by the figures for train loading and car loading (the average revenue train load being 446.1 tons in Feb. 1922, compared with 394.2 tons in Feb. 1921, while car loading fell off but four tenths of one ton per car, despite the decreased traffic) was well maintained, which contributed largely to the possibility of being able to reduce expenses to meet the reduced earnings. The reduction in earnings was, however, too great to permit of any improvement in the operating ratio, and in view of the conditions, the operating ratio secured for the month was as good as could be expected. The figures dealing with traffic density, and the fact of the payroll amounting to 77.9% of the total revenue, show conclusively that the Canadian National Rys. crying need is more traffic. Until increased traffic is secured there seems but little prospect of permanent improvement under the present scales of rates and wages.

The decrease in C.P.R. operating revenue is more nearly proportionate to the decrease in rates which has taken place

than was that in the Canadian National Rys. gross revenue, for while the total number of revenue tons handled during the month by the C.P.R. decreased materially, compared with Feb. 1921, the longer haul enjoyed was such as to make the revenue ton mileage handled greater than in Feb. 1921. A decrease in the average passenger journey, however, coupled with a smaller number of passengers carried, brought down the revenue passenger mileage considerably. An examination of the C.P.R. figures shows that transportation efficiency was well maintained, in view of traffic conditions, and that operating expenses were reduced in a gratifying measure.

The G.T.R., like the C.P.R., showed a better freight traffic in Feb. 1922 than in Feb. 1921, but a falling off in passenger traffic. The figures for train loading and car loading, taken together, show an improvement in transportation efficiency. Although the average carload was smaller, the average revenue train load was much greater, and the proportion of loaded cars to total cars in train was much better. The operating expenses were reduced more than proportionately to the traffic handled, taking into consideration the wage decreases as applying as between the two months and the lower material prices prevailing, and the operating in Feb. 1922 was by far the best secured by any of the roads.

It is evident that, despite the reduction secured in the operating deficit, the railways still have a long way to go before they will be on a satisfactory financial basis. The mere fact of there being an operating deficit at all, instead of a net operating revenue, shows that. For an individual railway to be a self supporting and successful commercial proposition, the operating ratio should be about 70. The same applies to Canadian railways as a whole, and it is therefore evident that, until that operating ratio is obtained, the taxpayers will have to continue to make up railway operating deficits. As a general principle, it is desirable that any commercial venture, Government or privately owned, should be financially successful, providing, of course, that it is managed with due economy and efficiency, and for this reason it is desirable that Canadian railways be given rates which will make them self supporting. On the other hand, our population is still limited, and there are producers of basic commodities for whom high transportation costs constitute a barrier to success, and the great problem in connection with transportation costs is to so adjust them as to have them distributed among all producers and consumers fairly and justly. But in this adjustment, it must not be forgotten that the railways also must be treated fairly and justly, for if they are not, it is probable the country will suffer more in the end than if rates were not reduced at all. An operating ratio of over 100 for the railways as a whole is certainly an indication of a highly undesirable situation, and it would be well if, in the struggle for lower transportation costs, it be remembered that the railways can ill afford to make any rate reductions of consequence while expenses are at their present levels, and also that the more nearly self supporting the railways are, the better it is for the country at large, from the points of view of both equity and economics.

United States Railways' Financial Position.

U.S. railways started 1922 with a very lean month in January, but steady improvement has taken place in their operating and financial position since the beginning of the year. In January, class 1 roads operating revenues were \$394,940,789, and operating expenses \$337,269,122, compared with operating revenues of \$470,388,976, and operating expenses of \$442,196,328 in Jan., 1921. The operating ratio for Jan., 1922 was 85.40, and for Jan., 1921, it was 95.01, so that although the ratio was not very favorable for Jan., 1922, it was much better than in Jan., 1921. The net railway operating income—i.e., the income left after the payment of taxes, equipment rents, joint facility rents, etc., was \$29,476,422 for Jan., 1922, representative of an annual rate of return on the valuation of the properties, as determined by the I.C.C., of 2.69%.

In February, results were much better, class 1 roads operating revenues being \$401,426,672, operating expenses \$324,501,134 and operating ratio 80.84. The net railway operating income was \$47,770,897, representing an annual return on property value of 4.56%. The railways handled 14% more freight traffic in Feb., 1922 than in Feb., 1921. Operating revenues were but a little more than 1% smaller than they were in Feb., 1921, while operating expenses were almost 16% smaller. In Feb., 1921, the roads had no net operating income, but an operating deficit of \$5,176,867.

In March, the results were the best which have been obtained since the railways began operating under the Transportation Act. Of course, the impending coal strike gave a large impetus to coal traffic, but statistics for car loading show that gains were made in all traffic over that for preceding months and for the corresponding month of 1921.

Operating revenues for March were \$474,669,628, and operating expenses \$360,928,443, with net railway operating income of \$83,510,888, representative of an annual return of 5.83% on the valuation of the railways. The following figures for March show how the roads in the different parts of the U.S. are doing: Eastern District, net operating income, \$47,863,471, representing annual rate of return of 7.80%; Southern District, net operating income, \$11,093,394, representing annual rate of return of 4.99%; Western District, net operating income, \$24,554,023, representing annual rate of return of 4.12%.

The total net operating income earned by U.S. railways for the first three months of 1922 was \$160,998,907, representative of an annual rate of return of 4.51%, compared with a net operating income for the first three months of 1921 of \$27,574,407, which was representative of an annual return of but 0.77%. Great improvement in 1922 as compared with 1921 is therefore evident.

Rates.—The Interstate Commerce Commission's interpretation of the Transportation Act to the effect that state commissions cannot enforce intrastate rates which caused discrimination against interstate commerce, was upheld by a Supreme Court decision, and following the decision many state commissions withdrew their orders to the railways to refrain from charging rates on intrastate traffic which they were entitled to charge by the Interstate Commerce Commission's order in ex parte 74.

In preceding issues of Canadian Railway and Marine World, particulars were given of the general investigation into railway rates which was conducted by the Interstate Commerce Commission, and which was concluded on March 13 after three months of hearings. The Commission has had the matter of possible rate reductions under consideration ever since that time, and a Washington press dispatch of May 24, states that the Commission has ordered a decrease in freight rates of 14% in eastern territory, 13½% in western territory, and 12½% in the southern and mountain Pacific territory, the reductions to be effective July 1. The press report quotes the Commission as stating in the decision that "transportation charges have mounted to the point where they are impeding the free flow of commerce, and are thus tending to the defeat of the purpose for which they were established, that of producing revenue which would enable the carriers to provide the U.S. people with adequate transportation," and that "a general reduction in rate levels as substantial as the conditions of the carrier will permit will tend to stabilize conditions of all business." The report stated that passenger rate and sleeping car surcharges were not affected by the decision, and that rates on agricultural products were not affected, the reduction of 16½% made in western hay and grain rates last autumn and the voluntary 10% cut made by the railways on all agricultural products effective Jan. 1 being substituted for the reduction made by this latest order so far as agricultural products are concerned.

The press report also stated that the Commission had decided that the railways are entitled to earn 5½% on their valuation, in place of the approximate 6% return fixed as a reasonable return in the Transportation Act of 1920.

If the press report above referred to is correct in stating the amount of the rate reductions as 14%, 13½% and 12½% in the respective territories mentioned, it is evident that a large reduction will be made in the carriers' revenues. It will have been observed that in no month since the railways began operating under the terms of the Transportation Act have they been able to obtain a 6% return, and it is obvious that a large reduction in operating expenses will be necessary if they are to secure the 5½% return which the Commission has declared reasonable and just in future. As stated in the article dealing with wages and working conditions elsewhere in this issue, the Labor Board is at the time of writing in executive session, dealing with the wage disputes before it, and on the Labor Board's decision will depend in a large degree the U.S. railways' ability to improve their financial position. The Labor Board's decision will be awaited with great interest, as affording a strong indication of the direction railway regulation will take in the U.S. in the immediate future.

The G.T.R. and First Aid.—Twenty-five women members of the G.T.R. Montreal general office staff were given St. John Ambulance Society certificates of proficiency in first aid, by W. D. Robb, Vice President, May 12. The recipients were each given a gold pin, presented by Dr. A. J. Hutcheson, Chief Medical Officer.

Dominion Millers Appeal from Board of Railway Commissioners' Order.

The Board of Railway Commissioners' order 32,227, issued March 13, dismissed the Dominion Millers' Association application for an order directing the Canadian National, Canadian Pacific, Grand Trunk and other Canadian railways to reduce export rates on grain and grain products to that on wheat, particularly for lake and rail shipments, and also dismissed the Association's application regarding flour arbitraries over wheat for export. A deputation from the Dominion Millers' Association, with D'Arcy Scott as counsel, waited upon the Ministers of Justice, of Agriculture, of Customs, and of Trade and Commerce at Ottawa on April 19, and presented a petition in support of an appeal against the Board's order. Ontario and Quebec agricultural interests joined the Dominion Millers' Association, being represented by W. B. Roadhouse, Deputy Minister of Agriculture for Ontario, and Hon. J. E. Caron, Minister of Agriculture for Quebec.

The petitioners claimed that existing rates from lake ports on flour for export are about 30% higher than the rates on wheat for export, that this disparity is an unjust discrimination against shippers of flour, and that flour rates should therefore be reduced. It was pointed out that in the European markets Canadian export wheat comes into direct competition with Canadian export flour, and that, therefore, under the Railway Act's equity clauses there should be a parity, or at least a fixed reasonable spread between the rates on the two. The agricultural interests supported the petition on the ground that the wheat of fall is needed for live stock, and that the discrimination encourages grinding overseas. The railways in rebuttal contended that present rates on wheat are low because of water competition; that the rates on flour are reasonable, and that to increase the rates on wheat from bay and lake ports would have the effect of diverting the traffic from Canadian to United States ports for export. The railways contended, in short, that compliance with the millers' demands would be merely the granting of a bonus to the milling industry. Decision was reserved.

Canadian National Rys. Passenger Rates.—H. A. Stewart, Leeds, Ont., asked in the House of Commons recently, how many different passenger rates are in effect on each of the systems of railways under government ownership in Canada, under what titles or headings the classifications are made, and what is the rate per mile for each classification; what percentage of the total number of passengers carried during the last financial year is embraced in each class, and what percentage of the total yearly revenue of the last financial year was derived from each of such passenger rates? The Minister of Railways, in replying in the House of Commons, submitted four detailed statements which took up over six pages in the official report of the debates.

R. W. Scott, ex Superintendent, Montreal Terminals, G.T.R., in remitting his renewal subscription, writes:—"Canadian Railway and Marine World is the best transportation publication in existence, and the only reliable one."

E. W. Beatty at Montreal Board of Trade's Centenary.

The Montreal Board of Trade's Centenary was celebrated by a dinner at the Windsor Hotel on April 29, at which E. W. Beatty, K.C., President C.P.R., who was one of the principal guests, in proposing the toast of the Dominion, referred to the presence of the Governor-General, and the Dominion Premier, the acquaintance of the latter of whom he made as an undergraduate at Toronto University: He stated that he was not a believer in state socialism, believing that the most important factor in the economic foundation of Canada's future would be the value and appreciation given to individual effort. State socialism in its various forms, with all that it involves will not take the place of the sincere and honest efforts given our institutions, backed by initiative, spurred forward by hope of reward, and encouraged by the belief that the industry or enterprise which they have conceived, and whose interests they are forwarding, is one which can succeed. In concluding he said: "Canada needs immigration, and when I say immigration I mean immigration of capital as well as men. The success of the company, with which I am associated, but which I am, of course, not at liberty to mention by name, has contributed to the success of numerous other enterprises which have been dependent upon foreign capital for their initiation and their expansion. It is probably more necessary now than ever that encouragement to this free flow of capital and men should be given as never before."

Brotherhood of Railroad Trainmen's Meetings in Toronto.

The Brotherhood of Railroad Trainmen held their general meetings in Toronto, opening May 11, delegates representing over 200,000 members and 968 lodges in Canada and the U.S. being present. The meetings were presided over by W. G. Lee, President, who was assisted by T. R. Dodge, Assistant to President, E. King, Secretary, and Geo. Thomas, Trustee. The Brotherhood's meetings were held in Massey Hall, and the Ladies' Auxiliary met in the Masonic Temple, on Yonge St. On the opening day, Ben Hooper, the newly appointed Chairman of the U.S. Railroad Labor Board, spoke on the Esch-Cummins railway law, embodied in the U.S. Transportation Act of 1920, particularly in connection with its labor provisions, and the work of the Labor Board.

Among the many resolutions introduced and considered at the meetings were the following: 1. Expressing disapproval of the operation of motor trucks in competition with railways. It was pointed out that the operation of fleets of trucks entailed the use of the highways without the owners of the trucks making adequate contribution to highway maintenance costs; that the railways, with which the trucks compete, have to contribute very largely through taxation to the upkeep of the roads; that the wages paid in the trucking industry are smaller than paid in railway service, and that the effect of the truck operation is to tend to reduce train service employees' wages. 2. To provide for additional safety inspectors on railways, to be used principally for educating

employees to take proper care of themselves while at work. 3. Against trainmen having to ride on freight train cars on grades where it is not necessary. 4. Calling for more safety appliance inspectors. 5. Urging co-operation in banking and the establishment of co-operative banks in all principal Canadian and U.S. railway centers. 6. Declaring for a standard brake staff and dog on cars. 7. Calling for a proper checking up of subordinate lodge officers. 8. Calling for a rearrangement of seniority regulations. 9. Demanding the elimination of the handling of excessive parcel post mail by baggage masters. 10. Declaring that members of the organization should have preference over non-union employees in matters of employment, promotion, etc.

During the meetings addresses were delivered by W. Grant Edens, a former Vice President of the Brotherhood; H. A. Adams, head of the Safety First Organization on the Union Pacific Rd., and H. A. Rowe, of the National Safety First Council, Chicago. The reports submitted by the legislative representatives at Ottawa and Washington were approved. The remainder of the time was spent in routine business, and the proceeding at the meetings made it clear that the brotherhood will adhere to the conservative policy which has characterized its activities in the past, and, while it will continue to co-operate with other labor organizations in efforts to secure improved conditions for labor generally, no entangling alliances will be entered into. The meetings are continuing as this issue goes to press.

A. McGovern, Toronto, for the past 15 years General Chairman for C.P.R. Eastern Lines, Brotherhood of Railroad Trainmen, was nominated by a caucus of Canadian delegates for the position of Canadian Vice President of the Brotherhood to succeed Jas. Murdock, who has become Dominion Minister of Labor. The salary is \$7,500 a year, with a per diem allowance when travelling. The caucus of Canadian delegates named J. Bryan for the insurance committee; H. Walters, Brockville, for the executive; and Jas. Conley, Ottawa, for the Board of Trustees.

Liability for Freight Lost in Transit.—G. Galbert and Sons, tanners, Montreal, sued the C.P.R. in the Quebec Superior Court recently to recover \$162 for five bundles of salted calf skins shipped on a C.P.R. steamship from France, and not delivered. The C.P.R. admitted default and paid \$48.60 in to court, claiming that to be the extent of its liability under the bill of lading. Justice Archer, in giving judgment May 11, stated that the bill of lading limited the company's liability to \$2 per cubic foot, and not exceeding £20 in respect to any one package, unless the value had been declared in writing at the time of shipment and inserted in the bill of lading. The parties were bound by the bill of lading. The space occupied by the missing skins would cover 10 cub. ft., which at £2 a cubic foot would be £20 or \$97.33 in Canadian currency. Judgment was given for the plaintiffs for that amount, with interest and costs; the company's confession of judgment being insufficient.

The Newfoundland Government is reported to have made a contract with the Aerial Survey Co., for the carrying of mail from St. John's round the Fogo district.

Traffic Orders by Board of Railway Commissioners.

General order 363, May 10.—The application of Canadian Freight Association, on behalf of railway companies, under the Railway Act, 1919, sec 322, for approval of a proposed supplement, 19 to Canadian Freight Classification 16, containing certain increased, reduced, and additional ratings. Whereas notice has been given by the railway companies in The Canada Gazette, as required by the Railway Act, 1919, sec. 322, and to the mercantile organizations enumerated in general order 153, November 4, 1915, the proposed changes having been considered at a conference of the representatives of the Grand Trunk Pacific and Canadian National Railways, the Canadian Manufacturers' Association, and the Montreal and Toronto Boards of Trade, held at Montreal March 28, 1922, when various objections filed with the Board were considered, and the proposed changes agreed to, modified, or eliminated; and upon the consideration of what has been filed, and the report and recommendation of the Board's Assistant Chief Traffic Officer. The Board orders that the proposed supplement as finally revised and submitted for approval by the Canadian Freight Association's Chairman by letter dated April 13, 1922, and as amended by letter dated May 1, 1922, be approved.

Railwaymen's Meeting at Island Pond. A meeting of officials and employees of the G.T.R. and its associated lines in the Eastern United States was held at Island Pond, Vt., April 24, at which W. D. Robb, Vice President, G.T.R., after apologizing for the absence of Sir Joseph Flavelle, Chairman of the Board, and Howard G. Kelley, President, referred to the importance of such meetings, at which the officers and the operating staffs could get together and discuss matters of common interest. The idea is to encourage and develop the spirit of co-operation which is so valuable, as better co-operation between all ranks of the staff means better service to the public. He referred to the pension and superannuation plans, the apprenticeship system, and the recreation facilities, upon which the company is spending thousands of dollars yearly, as tending to promote the loyalty of the employees to the company, which is being amply repaid therefor in the good feeling existing. The employees can in many ways advance the railway's interests in the communities in which they live and work, and in doing so they would be promoting their own success in life.

Sydney and Louisburg Ry. Rolling Stock.—A Sydney, N.S. press report of May 18, stated that work was about to be started upon repairs to the company's rolling stock, and added that there were tracks on the company's lines absolutely full of cars of all kinds, awaiting repairs to fit them for work on the railway and in connection with the Dominion Iron and Steel Co.'s plant.

Australian Wage Reduction.—A Sydney, N.S.W., press dispatch says that reduction of the basic wage for workmen in Australia to £3 18s. weekly has resulted in a saving to New South Wales Harbor and Water Departments of more than \$1,000,000. The N.S.W. Government has decided to abolish the 44-hour a week which was legalized by the late labor government.

Canadian Pacific and Canadian National Rys.' March Earnings and Expenses.

Canadian Pacific Ry. gross earnings for March were \$13,847,626, compared with \$14,705,726 for March, 1921, and operating expenses were \$11,427,120, compared with \$12,254,818 for March, 1921, leaving net earnings \$2,420,506, against \$2,450,908 in March, 1921, a decrease of \$30,402. The operating ratio for March, 1922 was 82.5. While the net earnings for March, 1922, were slightly smaller than for March, 1921, a comparison with March, 1920, shows that a great improvement has been affected. In March, 1920, gross earnings of \$15,715,936, combined with operating expenses of \$13,758,172, yielded a net of but \$1,957,764, while in March, 1922, a much smaller gross yielded a net larger by \$462,742.

A comparison of the results of the first three months of 1922 with those of the first three months of 1921, shows that a gross of \$36,489,294 in the first three months of 1922 is considerably smaller than in the first three months of 1921, when the gross earnings were \$41,940,143. The reductions in operating expenses which were accomplished during the first three months of this year, while large, were not sufficient to keep the net at the 1921 figure. Operating expenses for the first three months of 1922 were \$32,930,823, compared with \$38,034,418 in 1921, which left a net of \$3,558,471 in the first three months of 1922, against a net of \$3,905,725 in the corresponding period of 1921, a decrease of \$347,253.

While the Canadian Pacific Ry. in March was unable to derive as large net earnings as in March, 1921, the Canadian National Rys. (which includes the Canadian Northern Ry., Canadian Government Rys., and Grand Trunk Pacific Ry.), were able to reduce the operating deficit considerably. The National system's gross earnings for March, 1922, were \$9,418,100, compared with \$10,454,250 in March, 1921; and operating expenses were \$10,397,546, compared with \$12,987,209 in March, 1921, which made the operating deficit for March, 1922, \$979,446, compared with \$2,532,959 in March, 1921, an improvement of \$1,553,513.

The C.P.R. and Canadian National Rys. operating results for January and February, 1922 are commented on elsewhere in this issue, and the February figures are given in tabular form. By reference to the table referred to, and comparing the February earnings and expenses of both the C.P.R. and the Canadian National Rys. with those of March, the fundamental principle of the railway business will be made plain. For example, in February the C.P.R. secured only enough traffic to yield gross earnings of \$11,459,574, while operating expenses were \$10,757,051. In March the company secured traffic which yielded gross earnings of \$13,847,626, while operating expenses were \$11,427,120. That is, that while gross earnings increased as between the two months by \$2,388,052, operating expenses increased by only \$670,069. In other words, additional traffic which brought in a revenue of \$2,388,052, was carried at an increased expense of but \$670,069. The same principle is exemplified in the Canadian National figures. In February, the Canadian National Rys. secured only enough traffic to yield gross earnings of \$7,650,742, while operating expenses were \$10,026,571. In

March sufficient traffic was secured to yield gross earnings of \$9,418,100, while operating expenses were \$10,397,546. That is, that while gross earnings increased as between the two months by \$1,767,358, operating expenses increased by only \$370,975. In other words, additional traffic which brought in a revenue of \$1,767,358, was carried at an increased expense of but \$370,975.

While it is probable that more favorable climatic conditions, and possibly some favorable variation in items of expense, aided the railways to carry this additional traffic at an expense so disproportionate to its value, it is nevertheless true that a railway is able to carry additional traffic, up to the limit of the capacity of its road and equipment, at low additional expense. As Canadian Railway and Marine World has consistently pointed out, this principle in the railway business is one that should not be lost sight of in Canada, for it is the operation of that principle to which Canadian people must look if they are to obtain what they desire—continually decreasing transportation costs. It cannot be too strongly emphasized that the great and fundamental need of Canadian railways is more traffic, and it will be chiefly on a basis of increasing traffic that rate reductions will be secured. The railways are here, and a certain amount of business is here for them to carry; what is wanted and needed is more business for them. If the country will provide the additional business, the railways will carry it at lower rates, because the additional business will permit them to derive adequate earnings even with lower rates. The whole thing resolves itself into the fact that the great fundamental need of Canada today is immigration of labor and capital, for the chief factors in the creation of additional traffic are increased population and industry.

The principle of increasing and decreasing returns as applied to the railway business, is as simple as it is true, and for that reason a good many of the country's people, among whom may be numbered many of their Parliamentary representatives, would be better employed in framing a good policy for the attraction of people and capital to the country than in trying to force the railways to reduce rates before they are in a position to do so. When we see that the C.P.R. had an operating ratio of 95.96 for January, 93.87 for February and 82.5 for March, we are compelled to wonder how sane and rational people can demand large and sweeping reductions in railway rates without expressing some concern as to whether railway operating expenses will be reduced proportionately.

While it is important to recognize the principle that decreased rates will come with increased traffic, and because of increased traffic, it is equally important to recognize the principle that it will be to the country's benefit to allow its privately owned railways to secure thoroughly adequate earnings, and to allow the Canadian National Rys. to earn as large a proportion of their operating expenses, and, ultimately, of their fixed charges, as is possible. Canada has had in the past a safe and sane policy of railway regulation; any suggestion to so regulate the railways as

to compel the C.P.R. to pay its dividends out of surplus, such as Mr. Crerar made in the House of Commons recently, is a suggestion for confiscatory regulation, and should be frowned upon. The C.P.R. in 1921 earned a return on the value of the property devoted to the public service of but 3.822%. The only way in which such a return could be characterized as unreasonable would be because it is too small, and as not constituting a fair return to invested capital. Our contention is that narrow and restrictive regulation of public utilities, particularly railways, results in great ultimate harm to the community wherein such regulation is carried on. We have seen the effects of such regulation in other quarters, and hope that Canada may experience none of it.

It is most desirable that the Canadian National Rys. be placed in a position to be able to earn their operating expenses over a full year, as soon as possible. While increasing traffic would ultimately enable them to do this, provided rates were not continually decreased to offset the benefits due to the increased traffic, it would be better for the country at large if these railways could be placed on a self-supporting basis, so far as operating is concerned, in the near future. A railway should be a strictly commercial proposition, and those who receive transportation from it should pay for it, and not be helped to pay for it by others, through taxation. We hope to see the Canadian National Rys. a fine system in every sense of the word; it cannot be considered so while operating expenses are not being earned, and not until it is able to earn operating expenses will the situation contain elements of encouragement, or will our hopes concerning the property show some prospect of realization.

On the basis of the railway earnings for the first three months of this year, the railways can ill afford any rate reductions while operating expenses remain at their present level. Operating expenses should be reduced, without any reductions in rates whatever, to place the Canadian railway industry on a proper basis, or a basis comparable to that existing in 1916. To attempt to reduce rates, without reductions in operating expenses would be the height of folly, and if such reductions are made the country will be adopting a policy of narrow and restrictive railway regulation which will result, ultimately, in great loss to it.

C.P.R. Angus Shops Assessment.—The agreement between the C.P.R. and the Montreal City Council, under which the land and buildings of the Angus shops was fixed at \$400,000 for 20 years, expired May 1. Under the contract the company undertook to spend \$250,000 on buildings and to employ continuously not less than 1,500 men. In 1905, the number of men employed reached 4,506, with a wage expenditure of \$2,074,458, while for 1920, the number was 8,388, with a wage expenditure of \$11,981,258. In the course of the negotiations for fixing the value for the future the company proposed a fixed valuation of \$750,000, but the city executive committee on May 11 decided on \$1,000,000, and recommended the city council to approve of that amount for the next five years.

Grand Trunk Railway Co.'s Report for Calendar Year 1921.

Following are extracts from the report addressed to stockholders and issued recently over the signature of Howard G. Kelley, President, the other directors being Sir Joseph W. Flavelle, chairman of the board; J. N. Dupuis, merchant, Montreal; A. J. Mitchell, Vice President, Canadian National Rys., Toronto, and E. L. Newcombe, K.C., Deputy Minister of Justice, Ottawa: The board of directors submit the following report of the operations for the year ended December 31st, 1921:—

Income Account Condensed Statement.			
	Year 1921	Year 1920	
Operating revenues.....	\$76,858,032.27	\$81,442,647.32	
Operating expenses.....	71,179,292.80	76,213,815.16	
Net operating revenue,	5,678,739.47	5,228,832.16	
Railway taxes and un-			
collectible railway			
revenue	1,334,485.96	1,303,067.25	
Railway operating in-			
come	4,344,253.51	3,925,764.91	
Non-operating income,	8,634,101.55	7,706,272.77	
Gross income	12,978,355.06	11,632,037.68	
Deductions from gross			
income	27,042,797.42	16,231,142.21	
Deficit transferred			
to profit and loss.....	14,064,442.36	\$4,599,104.53	

The operating revenues were \$76,858,032, a decrease from 1920 of \$4,584,615 or 5.63%. Revenue from freight traffic was \$54,239,903, a decrease of \$3,862,150 or 6.65%. Number of revenue tons carried 21,687,749, a decrease of 4,634,674 or 17.61%. Revenue tons carried one mile 4,052,564,411, a decrease of 976,087,113 or 19.41%. Average haul per revenue ton was 186.86 miles, a decrease of 2.19%. Freight revenue per train mile was \$5.62, an increase of 35c. or 6.64%. Average revenue per ton was \$2.50095, an increase of \$0.29363 or 13.30%. Average revenue per ton mile was \$0.01338, an increase of \$0.00183 or 15.84%. Revenue from passenger traffic was \$15,510,164, a decrease of \$1,438,016 or 8.48%. Number of passengers carried was 11,609,762, a decrease of 597,215 or 4.89%. Average revenue per passenger was \$1.33596, a decrease of \$0.05244 or 3.78%. Average revenue per passenger mile was \$0.03045, a decrease of \$0.00154 or 4.81%. Average distance per passenger was 43.87 miles, an increase of 0.47 mile or 1.08%. Revenue from mails was \$1,133,737, an increase of \$553,498 or 95.39%. Revenue from express was \$3,285,110, an increase of \$625,539 or 23.52%. Revenue from milk was \$242,755, an increase of \$8,805 or 3.76%. Revenue from switching was \$561,858, a decrease of \$223,489 or 28.46%. Revenue from dining and buffet was \$328,045, a decrease of \$21,385 or 6.12%. Revenue from demurrage was \$315,802, a decrease of \$262,255 or 45.37%.

Operating expenses were \$71,179,292, a decrease of \$5,034,523 from 1920, or 6.61%, as compared with a decrease of 5.63% in operating revenues. Maintenance of way and structures increased \$857,413 or 7.14%. Maintenance of equipment decreased \$3,293,924 or 15.61%. Traffic expenses increased \$279,724 or 21.45%. Transportation expenses decreased \$2,943,436 or 7.64%. Average loaded cars per freight train mile were 19.64, a decrease of 0.83 or 4.05%. Average empty cars per freight train mile were 11.31, an increase 3.38 or 42.62%. Average total cars per freight

train mile were 30.95, an increase of 2.55 or 8.98%. Average load per loaded freight car mile was 22.26 tons, a decrease of 1.35 tons, or 5.72%. Average load per freight train mile was 419.55 tons, a decrease of 36.34 tons or 7.97%. Miscellaneous operations decreased \$39,040 or 7.78%. General expenses increased \$116,324 or 4.17%.

Wages and Rates.—The U.S. Labor Board, by decision 147, ordered a decrease in wages to employees of approximately 13%, effective July 16, 1921, which order was also made effective by Canadian railways. The 40% increase in freight rates established by the Board of Railway Commissioners in Sept., 1920, was reduced by order of that Board to 35%, effective Jan. 1, 1921, and to 25%, Dec. 1, 1921. The 20% increase in passenger fares established by the Board in Sept., 1920, was reduced to 10%, effective Jan. 1, 1921, and the remaining 10% was cancelled as of July 1, 1921.

Pay Rolls.			
	No. Employees.	Total pay roll.	Increase.
1918	25,342	\$30,152,476.36	over 1918
1919	30,617	\$2,617,415.93	41.34%
1920	31,686	\$3,375,736.60	77.02%
1921	29,128	\$5,865,171.10	52.11%

Taxes for 1921 were \$1,325,577, an increase over 1920 of \$45,515 or 3.56%. Taxes per mile of road operated were \$367.00, compared with \$354.42 in 1920.

The capital stock outstanding at Dec. 31, 1921, was \$241,237,588.83, as under, there having been no change during the year:—4% guaranteed stock, \$60,833,333.33; 1st preference stock, \$16,644,000.00; 2nd preference stock, \$12,312,666.67; 3rd preference stock, \$34,884,535.43; ordinary stock, \$116,563,053.40.

The debenture stock outstanding at Dec. 31, 1921, was \$155,373,808.34 as follows, there having been no change during the year:—Grand Trunk 5%, \$20,782,491.67; Great Western 5%, \$13,252,322.67; Grand Trunk 4%, \$119,839,014.33; Northern Ry. 4%, \$1,499,979.67.

The total of interest bearing obligations outstanding at Dec. 31, 1921, was \$371,042,194.75. Principal retirements during the year were \$4,866,666.67, 6%, 3 year secured notes, due Jan. 14, 1921, \$14,600,000.00, 6%, 3 year secured notes, due Oct. 1, 1921, and \$719,780.00, 6% 2nd equipment mortgage bonds, due July 1, 1921. Principal issues during the year were \$25,000,000, 6%, 15 year sinking fund gold debenture bonds, dated Sept. 1, 1921, \$12,000,000, 6½% 15 year equipment trust certificate F., dated Feb. 1, 1921. \$4,807,725 loan from Dominion Government under Appropriation Act, 1920-21, and \$47,553,621 loan from Dominion Government under Appropriation Act, 1921-22.

The Capital Expenditure Account at Dec. 31, 1921, amounted to \$465,462,954, an increase of \$24,765,040.21.

The Board desires to express its appreciation to the officers and employees for their faithful and efficient services.

Grain Shipped Through Canadian National Rys.—Elevator at St. John, N.B.—Following are particulars of grain shipped through the C.N.R. elevator at St. John, N.B., during the winter of 1921-22: Wheat, 1,179,869 bush.; oats, 522,826 bush.; corn, 1,161,570 bush.; barley, 177,382 bush.; total, 3,041,647 bush. No grain was shipped through the Halifax, N.S., elevator.

The Bad Order Car Situation.

The Railway Association of Canada reported the total number of freight cars on Canadian lines for the 15 days ended April 15, as 203,604. The allowance for bad order cars on the A.R.A. basis, which assumes a total of 7% of the cars in bad order, worked out to 14,252, while the actual number was 21,949, an excess of 7,697 on the 7% basis. The figures 21,949 represent a percentage of bad order cars of 10.7. There were 34,870 surplus cars in good order, making the total not in use, 56,819, or a total of 42,567 idle cars on the basis of 7% being normally in bad order. For the 15 days ended May 1, the total number of cars on Canadian lines was 200,748. The allowance for bad order cars on the A.R.A. basis worked out to 14,052, while the actual number of cars in bad order was 22,293, an excess of 8,241 on the 7% basis. The figures 22,293 represent a percentage of cars in bad order of 11.1. There were 34,875 surplus cars in good order, making the total not in use 57,168, or a total of 43,116 on the basis of 7% being normally in bad order.

The American Railway Association's Car Service Division reports that the total number of cars on line on class 1 roads was 2,280,897 on April 15. Of these, 317,783 were in bad order, representing 13.9% of the total. On April 1, the bad order car percentage was 14. Freight cars idle, but in good order, and fit for use should traffic offer, numbered 333,393 on April 15, this representing an increase of 73,788 over the previous week. The principal increase, 65,559, was in coal cars, due to the miners' strike. There were 371,764 surplus cars in good order on April 22, and 371,538 on April 29. Out of 1,030,876 box cars on line on April 15, 154,457 were in bad order, or 15%, compared with 14.9% on April 1. Out of 61,879 refrigerator cars, 8,003 were in bad order, or 12.9%, compared with 12.5% on April 1. Out of 964,911 gondola cars on line on April 15, there were 130,699 in bad order, or 13.5%, compared with 13.9% on April 1. Out of 81,954 stock cars on line on April 15, there were 9,485 in bad order, or 11.5%, compared with 11.7% on April 1. Out of 98,887 flat cars on line on April 15, there were 12,113 in bad order on April 15, or 12.2%, compared with 12.5% on April 1.

No improvement is evident in the Canadian bad order car situation during the year to date. On Jan. 1, there were 9.12% of freight cars in bad order; on Jan. 15, 8.82%; on Feb. 1, 9.3%; on Feb. 15, 9.8%; on March 1, 10%; on March 15, 9.91%; on April 1, 9.96%; on April 15, 10.7%; and on May 1, 11.1%. A slight improvement is evident in the U.S. situation. On July 1, 1921, the bad order car percentage on U.S. class 1 lines was 15.4, and this had increased slightly at the middle of August. By Dec. 1 the percentage had been reduced to 14, and since the beginning of this year it has run at about the same figure. The situation in Canada has not become so unfavorable as it has been, and still is, in the U.S. The scattering of cars and the deferring of maintenance, which characterized the period of U.S. Federal control, coupled with the financial troubles affecting the majority of the roads, have served to aggravate the bad order car situation on U.S. lines to a large extent.

Special Passenger Tariffs for Exhibitions, Holidays, Etc.

The Railway Act, 1919, provides in sec. 333 that the tariffs of tolls which railways shall be authorized to issue under the act, for the carriage of passengers between points on the railway, shall be divided into two classes, (a) The standard passenger tariff, and (b) special passenger tariffs. Sub-sections (2) and (3) provide what standard and special passenger tariffs respectively shall specify. T. L. Church, North Toronto, moved in the House of Commons, May 5, for leave to introduce bill 71 to amend the Railway Act, 1919. Several members having asked him to explain, he said:—"The object of the amendment is to restore the special rate that applied prior to the war in regard to tickets purchased on such special occasions as Thanksgiving Day and certain other holidays, and for the purpose of attendance at the fall fairs, conventions and sporting events throughout Canada. Before the war, single fares and a fare and a third was charged, instead of the full return fare, to persons attending various functions of this character on certain days, and special occasions, and conventions of different kinds held in the spring by farmers' and other organizations. In connection with sporting events, such as soccer, lacrosse, football and hockey and other games, there was also a cut rate for week ends. I admit that during the war it was necessary, in the interest of economy, to curtail these concessions. But now that the war is over the people expect that after the country has spent some \$900,000,000 directly and indirectly in aid of the railways they shall be given some privileges in return besides the privilege of being always called upon to pay taxes. The United States have restored the old special rates that obtained for these events prior to the war, with the result that there has been a large increase in the earnings of the railways from this class of traffic. I will read from letters I have received in reference to this matter. J. Lockie Wilson, Superintendent, Ontario Agriculture Department, who has the supervision of some 360 fairs in the province, urges the restoration of the old rate in the interests of these fairs, which have a distinct educational value and make for the general good of the country. J. G. Kent, Managing Director, Canadian National Exhibition Association, writes:—"The public are clamoring for a return to pre-war conditions, and we have been urged by letter and personal interview from all parts of the country to bring before the Government the necessity of reducing regular fares for these various occasions." P. J. Mulqueen, President, Royal Canadian Henley, and chairman Ontario Athletic Commission, also writes urging a restoration of the old special rates to prevent unrest and encourage sport and recreation. And A. P. Westervelt, Secretary, Royal Agricultural Winter Fair, urges that steps be taken to restore the old rates. There is, he says, a general and insistent demand in this matter, and I move that the bill be given its first reading."

The motion being agreed to, the bill was introduced as follows: to add to sec. 3, the following subsection:—" (4) Special passenger tariffs specifying a lower toll or tolls to be charged by the company for passengers going to and returning from places where exhibitions, fairs, games or meetings of any kind are

being held, and special passenger tariffs specifying a lower toll or tolls to be charged during holiday seasons shall be established under the provisions of this act, and if any company fails to establish such special passenger tariffs for such purposes or if the toll or tolls in any such proposed tariff are deemed by the Board" (of Railway Commissioners) "to be too large, the Board shall have power to prescribe the toll or tolls that shall be charged. The Board shall also have power to prescribe the conditions under which, and the period or periods during which, such special tariff shall apply or be in force."

The bill having been read a first time, Mr. Church moved that it be given its second reading on the same day, but the Speaker having pointed out that this could only be done by unanimous consent, and some members having objected, the second reading was deferred. On May 11, the Prime Minister said that Mr. Church was anxious to have the bill go to the committee on railways, canals and telegraph lines, and with the House's consent, he moved that the item of public bills and orders be returned to, so that the second reading of the bill might be moved. This was carried and the bill was read a second time.

Railway Rolling Stock Orders and Deliveries.

Canadian National Rys. have ordered two 30-passenger gasoline railway motor cars from Ledoux, Jennings, Ltd., Montreal.

Montreal Locomotive Works, during April, delivered one 4-wheel switching locomotive, 9 x 14-in. cylinders, to St. Lawrence Brick Co., and 4 class 4-8-2 locomotives, 22 x 26-in. cylinders, to South African Rys.

The C.P.R., between April 11 and May 11, received 3 steel sleeping cars, from its Angus shops, Montreal, the frames for which were made by National Steel Car Corporation. A self-propelling pile driver and a 160-ton wrecking crane, bought outside, were also received.

Canada Creosoting Co.'s 120-tie tram cars, which have been built by Canadian Car and Foundry Co., as mentioned in our last issue, are to be used in the creosoting of railway ties, and are built in circular shape to enable them to enter the retorts carrying a load. The framing consists of two 3 x 2½ in. angle wheel pieces, which support two angle end sills bent to a semi-circular shape. To the top of the end sills is fastened a semi-circular bale rod of round iron, to hold the load in position. The running gear consists of cast iron wheels 10 in. diameter, mounted on cold rolled steel axles, with roller bearings, the axles being completely encased in a cast iron housing, which also carries the roller bearings. The general dimensions are: Width extreme, 6 ft. 7½ in.; height rail to top of bale rod, 6 ft. 4.11-32 in.; length over buffer, 5 ft. 4¾ in.; wheel base 3 ft. 2 in.; back to back of wheel flanges, 2 ft. 3¾ in.

The 50 express refrigerator cars which the C.P.R. is having built by Canadian Car and Foundry Co., are of composite construction, with steel underframes, and wooden superstructures. They are equipped with steam heat line and air

and signal line, together with buffing gear of the passenger car type, to enable them to be used in passenger train service. The under frames consist of 2 fish belly center sills, having 5-16 in. web plate, with top and bottom cover plates, the holes braced and rivetted together. The cross bearings have 5-16 in. diaphragms, with top and bottom cover plates. The wooden superstructures are braced and fastened to the underframe construction with tie rods. The icing arrangement consists of 4 brine tanks in each end of the car, fitted with brine tank hand holds and retaining valves. The floors are insulated with 4 courses of ½ in. hair felt, and sides with 3 courses of ½ in. hair felt and 1 course of ¾ in. sheeting. The roof has 6 courses of ½ in. hair felt, with ¾ in. sheeting between every two courses. The ends are insulated with 3 courses of ½ in. hair felt and 2 courses of ¾ in. sheeting. The trucks are of the 4 wheeled passenger type with Commonwealth cast steel truck frames, cast steel truck bolsters and spring planks. The cars have the following specialties: Westinghouse L.M., 1412 air brake equipment and type K air signal equipment, Miner A5PX friction draft gear and B10 buffers; A.R.A. type D couplers, and XL forged coupler yokes; Murphy outside metal roof, type XLA flexible no. 2; Miner refrigerator door fasteners, Stuki side bearings; McCord journal boxes for 5½ by 10 in. journals, Simplex brake beams; Creco sliding chairs of 4 point suspension springs; steel tired wheels 36¼ in. diameter, with cast steel centers; quadruple elliptic and helical coil equalizer springs, and C.P.R. passenger type, cast iron brake shoes with steel insert.

Salaries of Railways and Canals Department Officials.—When the House of Commons was in committee of supply recently, on the Railways and Canals Department estimates for salaries, Hon. J. A. Stewart, Lanark, Ont., ex-Minister of Railways, said: "I desire to make an observation with reference to the salaries of the higher-paid officials. In the consideration of civil government estimates for some of the other departments, the opinion was expressed, from both groups on this side of the House, that, having regard to the general tendency towards deflation, the salaries of the higher-paid officials might very well be left on the basis of 1921. In connection with this department, in regard to which I have some little knowledge, I think that if the higher-paid officials had directed their unquestioned talents to private and corporate interests with the same devotion as they have applied themselves to the public service, they would be in receipt of very much larger salaries than are provided in these estimates. I entirely support the vote under consideration."

The Canadian Ticket Agents Association's members, and their dependents, have been invited by the Northern Navigation Co. of Ontario, to a complimentary trip on the s.s. Noronic, from Sarnia, Ont., to Duluth, Minn., and return, starting on July 7. The annual business meeting will be held on board.

C.P.R. Agents' Monthly Meeting.—The next monthly meeting of the C.P.R. eastern officials and agents will be held at Pembroke, Ont., June 6. The Pembroke Transportation Co. will take the visitors on a trip on the Ottawa River as far as Fort William.

Telegraph, Cable and Telephone Matters.

Canadian National Telegraphs have closed offices at Hillier, Kabina, Penhurst, Walsingham and Washburn, Ont.; Uno, Man.; and Lyalta, Alta.

R. E. Tait, who died at Outremont, Que., recently, was for many years until his retirement in 1920, cashier, C.P.R. Telegraphs, Montreal, which position he had held since Sept., 1886.

The Western Union Telegraph Co., which invited tenders recently for building a cable steamship, is reported to have given the order to Blohm and Voss, Hamburg, Germany, for \$650,000.

The Egyptian radiotelegraphic station was placed in operation April 24, and communication opened with the station at Leafield, Eng. The rate on messages between Leafield and Egypt is 9d. a word compared with 1s. a word by cable. Press messages are taken at 2½d. a word for northern Egypt, and 3½d. a word for Palestine.

The Pacific Cable Board will meet in London, Eng., in June, to decide as to the duplication of the Pacific cable, at an approximate cost of £2,000,000. One of the Board's representatives was in Fiji recently enquiring as to landing rights, and he was expected to report to the directors in time for the meeting. It is about two years.

The Commercial Cable Co. announces that arrangements have been made with the Irish Free State provisional government for direct cable communication with the U.S. Hitherto U.S. messages were received at Waterville, Ireland, where the cable lands, transmitted to London, Eng., and return to Ireland. By the new arrangement, this latter transmission will be eliminated.

J. Mitchell, whose appointment as Superintendent of Telegraphs, Eastern Division, C.P.R., Montreal, was announced in our last issue, was born there, and entered C.P.R. Telegraphs service in 1886 as an operator, and held different positions to chief operator, and subsequently Inspector of Telegraphs, Montreal. From 1918 to Apr. 28, 1922, he was Superintendent of Telegraph Traffic, Eastern Lines, Montreal.

The following C.P.R. Telegraphs appointments were made effective May 1: C. W. Macdonald, heretofore chief operator, Montreal, appointed inspector, Alberta Division, Calgary, Alta., succeeded by W. S. Emery, heretofore agent, Halifax, N.S.; A. P. Anderson, agent, Sydney, N.S., appointed agent, Halifax, N.S., vice W. S. Emery; R. Blake, heretofore agent, New Glasgow, N.S., appointed agent, Sydney, N.S., vice A. P. Anderson; J. M. Sullivan, Truro, N.S., appointed agent, New Glasgow, N.S., vice R. Blake.

W. D. Neil, whose appointment as Assistant Manager of Telegraphs, Eastern Lines, C.P.R., Montreal, was announced in our last issue, was born in Ontario, and entered C.P.R. Telegraphs Service in 1905 as an operator. His experience covers work on the C.P.R. Western Lines, as operator, chief clerk to Superintendent of Telegraphs, and agent, and also as Superintendent of Telegraph Traffic, Eastern Lines, Montreal. From June 1916 to Dec. 1918, he was Superintendent of Telegraphs, Eastern Division, Montreal, and from Dec. 1918 to Apr. 28, 1922, Superintendent of Telegraphs, Ontario Division, Toronto.

W. J. Camp, Assistant Manager of Telegraphs, Eastern Lines, C.P.R., Montreal, who, as announced in our last issue, has been transferred to the retired list, was born at Oakville, Ont., Apr. 22, 1855, and commenced his telegraph career in the G.T.R. freight office at Prescott, Ont. He entered Dominion Telegraph Co.'s service in 1874, and was, to 1875, operator, Prescott, Ont.; 1875 to 1876, bookkeeper, Montreal; 1876 to 1877, local manager, Watertown, N.Y.; 1877 to 1878, on railway work in the U.S., and night chief operator, Dominion Telegraph Co., Montreal; from 1878, train dispatcher, Quebec, Montreal, Ottawa & Occidental Ry., now part of the C.P.R., and subsequently, to 1881, with Dominion Telegraph Co., Montreal; 1881 to 1883, with Great North Western Telegraph Co., Montreal; 1883 to 1886, in private employment. On the inauguration of the C.P.R. Telegraphs in 1886, he was appointed Electrician, and in 1889 was appointed Superintendent of Telegraphs, Eastern Division, C.P.R., Montreal; 1903 to 1911, Electrician for the entire C.P.R. telegraph system, and in 1911, Assistant Manager of Telegraphs, Eastern Lines.

William Marshall Thompson, who has been appointed Superintendent of Telegraphs, Ontario Division, C.P.R., Toronto, was born at Long Wharton, England, May 2, 1879, and commenced telegraph service Oct. 1, 1895, since when he has been, to Dec. 8, 1895, operator, C.P.R., Ingolf, Ont.; Jan. 1896 to Aug. 1, 1898, in other business in the United States; Aug. 1, 1898, to May 26, 1899, agent and operator, Manitoba and Northwestern Ry., Neepawa and Keyes, Man.; May 27, 1899, to July 31, 1900, operator, C.P.R., Medicine Hat and Calgary, Alta.; Aug. 15, 1900, to Dec. 15, 1902, operator, Great Northwestern Telegraph Co., Montreal; Dec. 16, 1902, to Mar. 5, 1904, operator and dispatcher, C.P.R., North Bay, Ont.; Mar. 7 to May 15, 1904, commercial operator, C.P.R., Montreal; Oct. 17, 1904, to Oct. 31, 1905, operator in broker's office, Montreal; Oct. 17, 1904, to Oct. 31, 1905, commercial operator, C.P.R., Winnipeg; Nov. 1, 1905, to July 1, 1910, agent, C.P.R. Telegraphs, Brandon, Man.; July 1, 1910, to July 11, 1911, manager, Grain Exchange Branch, same company, Winnipeg; July 12 to Dec. 31, 1911, agent, same company, Saskatoon, Sask.; Jan. 1, 1912, to Aug. 19, 1913, chief operator, same company, Winnipeg; Aug. 20, 1913, to Mar. 12, 1915, agent, same company, Winnipeg; Mar. 14, 1915 to May 31, 1916, chief operator, same company, Montreal; May 31, 1916 to 1918, Superintendent of Telegraph Traffic, Eastern Lines, C.P.R., Montreal; 1918 to Apr. 30, 1922, Superintendent of Telegraphs, Eastern Lines, C.P.R., Montreal.

The Canadian National Telegraphs Traffic Department held its sixth general conference at Toronto recently, extending over two days. The meeting was opened by G. D. Perry, Vice President and General Manager, who turned its proceedings over to C. E. Davies, General Traffic Superintendent, who presided. S. B. Haig, General Supervisor of Traffic Service, Western Union Telegraph Co., New York, spoke on how to obtain accuracy and speed of service. I. D. Hough, Division Traffic Superintendent, Western Union Telegraph Co., New York, spoke on performance attained by team work and competition. H. Krum, General Manager, Morkrum Printing Telegraph Co., Chicago, demonstrated a new automatic printer. Other addresses of an educational nature were given by

members of the head, district, and local office staffs, which were followed by discussions. A dinner and entertainment was held at the King Edward Hotel on the first evening, the tables, arranged in three columns, extending from a head table, and representing the triple organization of commercial, traffic and plant departments, were decorated with a miniature telegraph line, electrical displays and Easter lilies. The gathering enjoyed a recital by radiophone, broadcasted from the Canadian Independent Telephone Co.'s plant, Dr. Culver, that company's Physicist, addressing the traffic officials from coast to coast, by radiophone, extending his compliments towards the fellow craft. Songs and sketches were given by members of the Traffic Department's staff and there was also dancing. C. E. Davies, General Traffic Superintendent, was given a travelling bag.

Among the Express Companies.

The Canadian National Ex. Co. opened an office at Sherrington, Ont., Apr. 25.

The Canadian National Ex. Co. will open offices, June 1, at Grand View, N.B., and Alix, Alta.

The Canadian National Ex. Co. has closed its office at Forestville, Ont.

The Canadian National Ex. Co. has opened offices at Kingsburg, Fortierville, Parisville, Duchene and Des Chailons, Que.

G. S. Armstrong, heretofore in General Superintendent's office, Dominion Ex. Co., Toronto, has been appointed agent at Fredericton, N.B., vice W. E. Little, who has left the company's service to engage in other business.

The Canadian National Ex. Co. has closed its offices at Hawes, Interlaken and Pocohontas, Alta., on account of the Canadian National Rys. having discontinued its train service between Snaring Jct. and Pocohontas, Alta., 14.2 miles.

Canadian National Express Co. Ltd., with an authorized capital of \$1,000,000, and head office at Toronto, has been registered under the British Columbia Companies Act, to carry on business in that province, R. W. Hannington, Vancouver, B.C., being its attorney.

Railway Accidents Throughout Canada.—The total number of accidents reported to the Board of Railway Commissioners during April, was 161, resulting in 14 persons being killed, and 163 being injured. Of those killed, 1 was a passenger, 6 were employes, and 7 were others, while of the injured, 19 were passengers, 122 were employes, and 22 were others. Under "others" are included 7 persons killed, and 22 injured, in 6 highway crossing accidents, 3 of those injured being employes. In 5 of these accidents the crossings were unprotected, and in the other the crossing was protected by a flagman, who was injured. Automobiles and motor trucks were concerned in 5 of the accidents, and a wagon in the sixth.

Coal for Intercolonial Railway.—At a meeting of the House of Commons public accounts committee in Ottawa, May 17, E. Macdonald, Pictou, N.S., called attention to a payment of \$2,429,984 by the Intercolonial Ry. to the Canadian National Ry. for coal, and it was decided to call R. C. Vaughan, Vice President, Purchasing, Supplies and Stores Department, C.N.R., and A. L. Graburn, General Fuel Agent, C.N.R., to be examined in regard to the same.

Electric Railway Department

The Canadian Electric Railway Association's Annual Meeting at Quebec.

As this issue of Canadian Railway and Marine World goes to press, the Canadian Electric Railway Association's annual meeting is in progress at Quebec. The program was given in Canadian Railway and Marine World for May, but as some slight changes were made subsequently, it is repeated below as finally revised. The meetings are being held in the Drill Hall on Grand Allee, on the first floor up, the exhibits being displayed on the ground floor.

May 31, Wednesday.—Starting at 3 p. m. Meeting of executive committee; preliminary meeting of associate members; registration at Chateau Frontenac.

June 1, Thursday.—9 a. m. Registration at Drill Hall in booth at east end, for both active and non active members.

9.30 a. m. Addresses of welcome by the Lieutenant Governor of Quebec Province, Sir Charles Fitzpatrick, and Mayor Samson, of Quebec City, followed by an inspection of the exhibits.

Business session. Minutes of last annual meeting; President's address; reports by Secretary, Treasurer, and special committees; appointment of nominating committee; general business; and inspection of exhibits.

1 p. m. Get-together luncheon for members, associate members and ladies, at Chateau Frontenac, with short address by prominent guest.

Immediately following the luncheon the members will assemble around the Champlain monument, on Dufferin Terrace, to be photographed.

2.30 p. m. Paper on Valuation of Street Railway Assets, their Maintenance and Depreciation, by L. A. Herdt, D.Sc., E.E., consulting engineer, Montreal. Discussion to be led by H. E. Weyman, Manager, Levis County Ry.

2.45 p. m. For ladies, sight-seeing trip round Quebec by electric railway car.

4 p. m. Paper on the Modern Street Railway Motor, by J. K. Stotz, Canadian Westinghouse Co. Discussion to be led by W. G. Gordon, Railway and Traction Engineer, Canadian General Electric Co.

5 p. m. Inspection of exhibits.

7.30 p. m. Association dinner at Chateau Frontenac, for members, associate members and ladies, presided over by Lieut.-Col. J. E. Hutchison, General Manager, Montreal Tramways Co., and director Quebec Ry., Light, Heat & Power Co.

10 p. m. Dancing. Band concert on Dufferin Terrace, 9 to 11 p. m.

June 2, Friday.—9 a. m. Inspection of exhibits.

10 a. m. Paper on Motor Buses and Trackless Trolleys, by D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co. Discussion to be led by W. M. Manz, Ohio Brass Co.

11.30 a. m. Moving pictures, "The Romance of the Rail and Power," by Canadian Westinghouse Co.

12.30 p. m. Inspection of exhibits.

2.30 p. m. Paper on Welded Track Joints, by E. B. Entwistle, Lorain Steel Co. Discussion led by W. F. Graves, Chief Engineer, Montreal Tramways Co.

3.30 p. m. Moving picture exhibit, by National Safety League and Dominion Wheel and Foundries, Ltd.

4.30 p. m. Trip to Quebec Bridge, by

steamboat, for members, associate members and ladies. Light refreshments will be served.

6 p. m. Inspection of exhibits.

9 p. m. Reception and ball at Chateau Frontenac. Tickets, \$2.

June 3, Saturday.—9 a. m. Inspection of exhibits.

10 a. m. Unfinished business, and election of officers.

To be followed by a trip to Montmorency Falls and Ste. Anne de Beaupre. A steamboat trip to the Saguenay has also been arranged to leave Quebec June 3, at 8 a. m., returning to Quebec June 5.

The Royal Canadian Artillery Band, under the direction of Capt. Chas. O'Neill, Mus. Bac., will provide a musical programme on June 1, at the opening by the Lieutenant Governor and will give a concert on June 1, from 9 to 11 p. m. on Dufferin Terrace. An orchestra will play in the Drill Hall on June 1 and 2.

Exhibits by Manufacturers.

As stated in previous issues, exhibits of electric railway supplies, etc., are being shown, for the first time, in connection with the meeting, and the whole ground floor of the Drill Hall on Grand Allee is devoted to them. R. Mayne-Reade, chairman of the exhibits committee, has displayed great energy, and spent a large amount of time, in arranging for the location of spaces, dividing of them off, decoration of the hall, the supply of d. c. current, and the innumerable details involved.

The following are the numbers of the spaces allotted up to date, the names of the exhibitors, the principal things they will exhibit, and their representatives' names. Where full data is not given, it is owing to the fact that the exhibitors have not supplied them in time for this issue.

North Side of Hall.

1. Canadian Railway and Marine World, Toronto, the Canadian Electric Railway Association's official organ. Acton Burrows, Proprietor; A. A. Burrows, Business Manager.

2. Electric Traction, Chicago, Ill. C. L. Van Auken, Editor and Business Manager.

3. Canadian Westinghouse Co., Hamilton, Ont. Accessories for safety cars, showing door opening engine, engineer's valve, circuit breakers and parts for operating same, accessories and repair parts of street railway motors, showing coils and photographs of installations and equipment. G. F. Foot, Assistant to Manager of Sales; T. F. Dryden, Manager, Toronto office; H. T. Gibbs, Sales Engineer, and H. A. Cooch. The Canadian Westinghouse Co. will also provide a film entitled "The Romance of the Rail and Power," which will be shown as a moving picture on June 2, at 3.30 p. m.

4. Ohio Brass Co., Mansfield, Ohio. Electric railway, line material, rail bonds, third rail insulators, porcelain transmission insulators and car equipment specialties, including headlights. M. W. Manz, Commercial Engineer. D. MacLaughlin, Car Equipment Specialist. P. A. Hinds, District Sales Manager.

5. Taylor Electric Truck Co., Troy, N.Y. John Taylor, President.

6. Ottawa Car Manufacturing Co., Ottawa, Ont. Trolley wheels, trolley harps, journal brasses, motor bearings, controller fingers, seats, trolley ears, cross over switches, toggle springs, step treads, sash and anti-rattlers, no-staff brake, car fittings and trimmings. W. H. McIntyre, Manager; F. S. Beattie, Superintendent, Car Department.

7. Canadian General Electric Co., Toronto. W. G. Gordon, Railway and Traction Engineer; J. W. Pilcher, Manager, Montreal office; C. McMillan, Manager, Quebec office.

8. Lyman Tube & Supply Co., Montreal; — Anti-climbers, ball and roller bearings, brakes, car destination route and route number signs, car lighting fixtures, car signal system, carbon brushes, cord connectors, commutators, slotting files and truing stones, foot gongs, gears and pinions, gear cases, grip-lock chain, hand strap covers, headlights, life guards, lightning arrestors, mechanical ties, oilers, rattan for snow sweepers, roll and block chain, sand traps and valves, steel tubing, trolley bases, trolley catchers, trolley cord, trolley wheels. Hugh Millar, Managing Director; H. M. Fierro, Sales Engineer.

9. Dominion Wheel & Foundries Ltd., Toronto. F. J. Neale, Vice President; G. W. Lyndon, President, Association of Manufacturers of Chilled Car Wheels.

10. Railway and Power Engineering Corporation, Toronto. Armature coils, car seats, electric car heaters, gear cases, pneumatic door and step mechanism, tail light signs, trolley catchers and retrievers. F. J. Neale and D. M. Galloway, Vice Presidents; W. E. Foreman, Sales Manager; A. F. McLachlin, Montreal representative. National Pneumatic Co., Philadelphia, Pa. J. Casey and F. Paul. Nichols-Lintern Co., Cleveland, Ohio. Consolidated Car Fender Co., Providence, R.I., and Wendell & McDuffie Co., New York.

North center of hall.

11. Canadian Car & Foundry Co., Montreal, Car products. E. R. Viberg, Mechanical Engineer.

12. Witherow Steel Co., Pittsburg, Pa. Rolled tie rods. W. C. Emory, Metallurgist.

13. Consolidated Steel Corporation, Montreal. W. H. Stewart, Canadian Agent. H. H. Hines and T. C. Birmingham, also N. E. Salsich and J. Budd, Bethlehem Steel Co.

14. Canadian Street Car Advertising Co., Montreal. A. S. Laing, Secretary-Treasurer.

15. Don M. Campbell, equipment broker, Preston, Ont. Transit Equipment Co., New York, W. Marshall, President; McGuire-Cummings Mfg. Co., Chicago and Paris, Ill.; Cleveland Armature Works, Cleveland, Ohio, Lindsley Bros. (Canadian) Co., Preston Ont., C. Lindsley, President.

16. Tool Steel Gear & Pinion Co., Cincinnati, Ohio. C. E. Sawtelle, Vice President and General Manager, Allan Supply Co., Toronto, Canadian agents.

17. Southam Press Ltd., Montreal. Tickets and transfers, posters, hangers, booklets. W. W. Southam, Manager. R. B. Cairns, representative.

South Center of Hall.

18. Canadian Cleveland Farebox Co., Preston, Ont. Models of fareboxes. M. C. McElligott, President and General Manager; L. L. McElligott, Vice President and Secretary; E. M. Ross, Superintendent. Universal Lubricating Co., Cleveland, Ohio. C. B. Arthur, President; H. H. Lytle, Sales Manager; M. C. McElligott, Canadian representative.

19. Canadian National Carbon Co., Toronto. Industrial brushes, including plain and special welding carbons, railway motor brushes and automotive brushes. The display will include one of the company's brushes, showing each step of the manufacturing process. R. M. Oxley, Division Sales Manager, Province of Quebec; Mr. Webster, Brush Engineer, National Carbon Co., Cleveland, Ohio, and J. L. Bilo-deau.

20. Standard Underground Cable Co. of Canada, Hamilton, Ont. R. M. Dewhurst, Assistant Manager of Sales; H. C. Barber, Manager, Ontario district; G. Kirlin, Manager, Eastern district.

21. Canadian Brill Co., Preston, Ont., and J. G. Brill Co., Philadelphia, Pa.

22. Ferranti Meter & Transformer Manufacturing Co., Toronto. High tension indoor and outdoor disconnecting switch, choke coils, bus supports and pipe frame fittings, manufactured by Electric Power Equipment Corporation, Philadelphia, Pa., also Ferranti pole type service transformers, and indoor and outdoor current and potential transformers, and new type F D meter. Lt.-Col. G. C. Royce, Vice President, J. J. Dougherty, Manager, Montreal District.

24. Canadian Steel Foundries Ltd., Montreal. Track manufactures, switches, mates and crosses. W. H. Horwood, Sales Manager; O. C. Rehfuess, Mechanical Engineer; J. I. Reid, General Superintendent.

South Side of Hall.

25. Hunter Joint Block Co., Ottawa, Ont. F. Hunter, representative.

26. Cheatham Electric Switching Device Co., Louisville, Ky. Automatic switch throwing device, or point shifter, and device for preventing trailing car from splitting the switch under the forward car. E. S. Olmsted, Vice President and Electrical Engineer, J. Carter Stewart, Vice President. Nachod Signal Co., Louisville, Ky. Car-counting overhead contact signal; headway recorder, of trolley contact type, to check passing of cars at any given point. The block signal will be operated by d.c. current, and a miniature train of cars will demonstrate the various conditions that the block signal is designed to take care of. R. M. Robinson, Sales Engineer.

27. United States Steel Products Co., Montreal. Sections of street railway rails and special trackwork. A. W. Allyn, Manager, Steel Department; E. B. Entwistle, General Manager Lorain Steel Co., Johnstown, Pa. W. B. Gresham, Manager Lorain Dept., New York; W. H. Lipscomb, Manager Electrical Wire Rope Dept.; C. H. Brunke, Manager and Engineer, Toronto; H. W. Maxson, Asst. Manager, Steel Dept., Montreal; G. A. Childs, Manager Wire Rope Dept., Montreal.

28. C. E. A. Carr Co., Toronto. Canadian representatives: B. J. Varney & Co., Grinnell, Ohio; Miller Trolley Shoe Co., West Newton, Mass.; National Car Wheel Co., Pittsburg, Pa.; St. Louis Car Co., St. Louis, Mo.; Peter Smith Heater Co., Detroit, Mich.; Van Dorn & Dutton Co., Cleveland, Ohio; White Mfg. Co., Goschen, Ind. C. E. A. Carr.

29. Dawson & Co., Montreal. J. A. Dawson.

30. J. A. Everell, Quebec. Silent conductor, for electric railway cars, to announce streets and stations. R. MacMahon.

31. Northern Electric Co., Montreal. Wires and cables, and railway overhead material; full operating line of telephone car dispatching equipment, including portable telephone sets, line poles and accessories by means of which a car on any part of an electric railway system may communicate with headquarters; full size industrial automatic exchange, with telephones; also radio equipment. E. C. McGovern, Sales Manager, Appliance Division; G. B. Campbell, Radio Sales Division; and M. P. Murphy, Automatic Telephone Sales Division.

32. Sarnia Bridge Co., Sarnia, Ont. International steel twin ties. R. M. Norton, President; H. B. Fenton, Vice President.

33. Ontario Safety League, Toronto. J. F. H. Wyse, General Manager.

34. Vickers Limited, London, England, and Montreal. R. S. Griffith, Agent and Importer; L. D. Palmer, representative.

35. Electric Railway Journal, New York, N.Y. L. W. Selligsberg, Vice President; H. H. Norris, Managing Editor.

36. Electrical News, Toronto. W. R. Carr, Ph.D., Managing Editor.

D.c. current has been installed in the Drill Hall, for the use of those who wish to have moving exhibits, and who have been located on the north side of the hall.

The President's Address.

Following is the address of the President, G. Gordon Gale, as delivered at the opening session, on June 1: "It is my privilege, and I can assure you that it is also my pleasure, to address you on this our 18th anniversary. At our last annual meeting sweeping changes were made in our constitution and by-laws to include municipally owned railways and manufacturers within the Association's membership. It will be interesting to note the effect this change of policy has had upon the Association and its work. I shall, therefore, briefly review our activities during the past year.

"Early in 1921 every electric railway in Canada, and the more important manufacturers, were fully advised of the Association's aims and objects. In addition, all prospective members were forwarded complete reports of the Association's activities, with the result that the active membership has increased to 30%, including practically all the important electric railways in Canada. The gain in associate membership is also gratifying. We now have enrolled most of the large manufacturers of electric railway apparatus and equipment in Canada and in the United States. Including both classes, our membership shows an increase of 150%. To provide for new conditions it was found by your executive committee desirable to make further changes in the bylaws, and you will be asked to confirm these at this meeting.

"An unusual number of enquiries for information were sent in by members, and it was particularly interesting to note the prompt replies received to questionnaires, which often contained valuable and confidential data. The number and promptness of these replies enabled the Secretary to render effective service to those seeking the information. For the first time charts were prepared of wages and operating

data, and many favorable comments were received upon this method of compiling the information. In addition to the ordinary routine work of the year, the proceedings for the past five years were compiled and printed. These are now ready for distribution to member companies.

"Meetings of your executive committee were held in Ottawa, Toronto, Montreal and Quebec, at regular intervals. Following these meetings a letter was sent out to all members informing them in a general way of the more important proceedings. These communications assisted the members in keeping in touch with the Association's activities in matters affecting the industry, and perhaps developed a greater interest among the members at large in the work carried on by the Association.

"On a number of occasions the Association has been requested to report upon or give evidence on important matters. A number of the members have acted on special committees engaged in the preparation of these reports, and the Association, on behalf of its members, has appeared on several occasions before the Board of Railway Commissioners, before the Post Office Department officials and before the Board of Customs at Ottawa, with satisfactory results. One of the most important and desirable advances made by the Association during the past year is the development of a closer relationship between it and the A.E.R.A. You will, I am sure, be pleased to know that a complete exchange of circulars issued by each Association has been arranged by and between the respective secretaries.

"The associate members have shown a sincere desire to co-operate in every way possible throughout the year. The very complete exhibits, which you will have an opportunity of inspecting, have been arranged after much preparation and expense. The presence of this exhibit indicates two things—first, the growth and importance of the industry in Canada, and second the confidence of the manufacturers in the future of our country.

"This resume only serves to accentuate the possibilities of our Association. After having spent some years on the executive committee, and during the past year in very close touch with every phase of the Association's work, I am convinced that it has a real value to its members and a sphere of action which can be broadened, strengthened, and made more and more valuable as it develops from year to year.

"You are all, I am sure, aware of the fact that our honorary member, Acton Burrows, as Honorary Secretary-Treasurer, has been responsible almost wholly for the success of the Association, from its inception until a few years ago. During the past three years we have been in a state of transition. It has been found that the activities are so varied and so numerous that we can hardly expect an honorary secretary to carry the burden; it has also been found that changes in the office of secretary every year or two destroy that continuity of thought and action which is so desirable and necessary. The need of a permanent secretary has become more and more apparent, and I commend for your serious consideration this feature of the Association's organization.

"I take this opportunity of thanking you for the honor you conferred upon me at the last annual meeting in elect-

ing me President of the Association. While the obligations have been heavier than I anticipated, it has been a real pleasure to work for the Association and with its members. I can say, with sincere appreciation, that the things which have been accomplished are due in a very large measure to the assistance and co-operation which I have received from the Vice President and members of the executive committee, from the Treasurer, the Secretary, and every member and associate member with whom I have communicated during my term of office. I wish particularly to thank the chairmen and members of the committees who have had charge of the arrangements for the annual meeting. Major Burpee, on the papers, Mr. Lynch on the entertainment, and Mr. Reade on the exhibits, have all worked with untiring enthusiasm and energy to provide an annual meeting of unusual interest."

The Secretary's Report.

The Secretary, L. C. Moreland, presented a comprehensive report covering 17 months, from which the following is extracted:—

Membership.—On Jan. 1, 1921, the Association had 27 member companies. Since then the following electric railways have joined: Brandon Municipal Ry.; Fort William Municipal Ry.; International Transit Co.; Kitchener and Waterloo St. Ry.; Lethbridge Municipal Ry.; London & Port Stanley Ry.; Port Arthur Civic Ry.; Regina Municipal Ry.; Toronto Transportation Commission. The Sudbury-Copper Cliff Electric Ry. has withdrawn, so that the total number of member companies at date is 35.

There are 31 associate members. The following joined since the beginning of 1921 and are still in: Ottawa Car Mfg. Co.; Southam Press Ltd.; C. E. A. Carr Co.; United States Steel Products Co.; Canadian Westinghouse Co.; Equipment Specialties, Canadian Cleveland Fare Box Co.; Dawson & Co.; Lyman Tube & Supply Co.; Ontario Safety League; Railway Power & Engineering Corporation; Ohio Brass Co.; Canadian National Carbon Co.; Don. M. Campbell; Canadian Steel Foundries; Standard Underground Cable Co. of Canada; Eugene F. Phillips Electrical Works; Canadian Street Car Advertising Co.; Elliott Thompson Electric Co.; Dominion Wheel & Foundries, Ltd.; Canadian General Electric Co.; Ferranti Meter & Transformer Mfg. Co.; Canadian Brill Co.; Sarnia Bridge Co.; Northern Electric Co.; Canadian Car & Foundry Co.; Witherow Steel Co.; Consolidated Steel Corporation; Cheatham Electric Switching Device Co.; Taylor Electric Truck Co.; Allan General Supply Co.; Vickers, Ltd.; English Electric Co.

Constitution and By-laws.—The executive committee has drafted the following amendments and recommends their adoption at this meeting as follows:

That the membership shall consist of active members, honorary members, associate members and associates. That the active members may, by a majority vote admit as an associate, any person engaged as consulting engineer or as commissioner, or in such other capacity as the active members may consider as qualifying such persons for such membership, providing he is not eligible under the foregoing clauses of the section. That the associates shall be entitled to attend the Association meetings, but shall not be entitled to vote.

That the fee of \$100 a year for active

members be changed so that the yearly fees will be based on the gross earnings railway operation as follows: Under \$100,000, \$26; over \$100,000 and under \$200,000, \$50; over \$200,000 and under \$400,000, \$75; over \$400,000 and under \$700,000, \$100; over \$700,000 and under \$1,000,000, \$125; over \$1,000,000, \$150. Associate members to pay \$10 a year.

Questionnaires.—Thirty enquires were received from member companies, and where the information asked for was not on the Association's files, questionnaires were sent out. Upon receipt of replies tabulations were made and forwarded to the company requesting the information, also to all other interested companies. The subjects covered the following wide range of interest: Joint councils in industry; brake shoes; apparatus for locating trouble in field and armature coils of railway motors, also bond testing apparatus; transportation of postmen; passenger density and headway on city lines; apportioning costs for joint use of poles; remuneration for transportation of mails; fenders for attachment to pilots; conditions under which commutation tickets are issued; publications describing parks, etc.; prices paid by companies for transfers and tickets and where same were purchased; cost of power; rates of fare charged for last five years; why every car in service should not be equipped with suitable and sufficient jacks or other mechanical devices for raising a car in case of accident; transportation of Customs Department officials; legislation sponsored by Ontario Safety League and presented to the Ontario Legislature; depreciation, methods adopted in making annual charge; municipal taxes on poles, wires and tracks, maintenance of pavement, snow removal; Workman's Compensation Act, part 1, schedule 2. Three charts were prepared giving information on motormen, conductors and miscellaneous wages, rates of fare and operating data. Detailed information in connection with these items is on file and available upon request.

The Proceedings for the years 1916 to 1920 have been abridged and edited to make a book about the ordinary size of a single year's proceedings, and have been printed. One copy has been forwarded to each member and to each associate member in good standing.

Legislation.—The following were requested by the executive committee to keep in touch with legislation of interest to electric railways, to advise the Association in regard to it, and to act as conveners of committees composed of member companies, when joint or concerted action might be deemed advisable, in the Dominion and each province, respectively: Major F. D. Burpee, Dominion; G. A. Kidd, British Columbia; A. W. McLimont, Manitoba; C. L. Wilson, Ontario; W. J. Lynch, Quebec; J. A. Olive, New Brunswick; W. L. Weston, Nova Scotia.

W. J. Lynch reported as follows: Legislation was passed during the session which closed on March 21, amending the Revised Statutes, 1909, article 740, respecting the Quebec Public Service Commission, by adding after second paragraph K, the following: "(1) In any dispute that a tramway company and one or more municipalities agree by resolution to submit to the Quebec Public Service Commission relating to tramway rates and operation whether or not a contract exists between them; and the order of the Commission shall be binding

on all parties; this provision does not apply to the Montreal Tramways Co."

C. L. Wilson reported certain changes in the Ontario Workmen's Compensation Act, providing that a workman seriously injured must be retained by the employer. The effort to change the Railway Act in regard to rate of fare during the 1921 session of the Ontario Legislature was unsuccessful.

Standardization Committee.—Proposed rules for the installation and maintenance of electrical supply and signal lines as drafted by the Hydro-Electric Power Commission of Ontario were referred to a committee composed of Lt.-Col. J. E. Hutcheson, W. S. Hart and E. P. Coleman, who examined them carefully and commented upon them. A report was subsequently compiled from these replies, and a copy was sent to the Board of Railway Commissioners.

Location of Power Transmission Lines.—A letter received from the Board of Railway Commissioners regarding the Railway Association of Canada's application for an order regulating the location of power transmission lines was accompanied by a copy of the technical report on the subject. A circular letter was sent from the Association's office to all electric railway companies enclosing a copy of the Railway Association of Canada's sub-committee's report regarding inductive interference. The President was requested by the executive to keep in touch with other associations and to attend a conference which has been proposed to consider the matter.

Traffic Regulation & Accident Prevention.—The following members were appointed as a committee by the executive: A. Gaboury, chairman, to be assisted by Col. Gaudet, Montreal; R. M. Reade, to be assisted by Chief of Police Trudel, Quebec; Major F. D. Burpee, to be assisted by Chief of Police Ross, Ottawa, R. B. Morley, to be assisted by Chief of Police Dickson, Toronto.

Relations with Other Associations.—The President and D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co., were appointed a committee by the executive to co-operate with the Canadian Electrical Association and others in matters of common interest. At a meeting held in Feb., 1922, in Montreal, the formation of an all-Canadian electrical association was considered by representatives of various associations. Mr. Blair represented this Association, and reported that the general feeling of the meeting would not allow of any immediate action being taken.

General.—The Association has been represented before the following bodies on matters mentioned: Board of Railway Commissioners—Fenders or wheel guards on electric cars; why every electric car in service should not be equipped with suitable and sufficient jacks, or other mechanical devices for raising the car in case of accident. Post Office Department—Remuneration for transportation of mails in connection with order-in-council 379. Canadian Engineering Standards Association—Canadian co-operation on crossing specifications for overhead wires as proposed by the A.E.R.A. and the A.E.S.A. Dominion Customs Board—Tariff status of track layouts for street railway intersections.

Finances.—From surplus funds some years ago Victory bonds par value \$500 were bought. This year a further investment in Victory bonds, par value

\$2,000, was made. The Association's yearly revenue, under the new rates and with the present membership amounts to slightly over \$4,000. The ordinary expenditure, under present methods, of an average year, allowing \$600 for an annual meeting, \$600 for printing proceedings and \$1,200 for Secretary's allowance and clerical assistance, amounts to \$3,500, leaving \$500 for contingencies.

Treasurer's Report.

The Treasurer, A. Gaboury, presented the following statement for the calendar year 1921:—

RECEIPTS.	
Cash in bank, Jan. 1, 1921	\$1,350.34
Dominion of Canada war bond (par \$500)	487.98
Interest on investments	82.50
Interest on bank account	81.57
Exchange on U.S. cheques	12.43
Membership fees, 1920, paid in 1921	1,100.00
Membership fees, 1921, paid in 1921	2,600.00
Membership fees, 1922, paid in 1921	50.00
Associate members' fees, 1921, paid in 1921	1,150.00
Associate members' fees, 1922, paid in 1921	50.00
	\$6,964.82
DISBURSEMENTS.	
Clerical assistance, etc.	\$1,227.50
Collection of cheques	4.53
Expenses, sundry	3.15
Annual meeting at Ottawa	411.36
Executive committee meetings	38.10
Office equipment	18.54
Printing, office supplies, etc.	284.53
Postage	116.14
Proceedings, reporting & typing	67.40
Telegrams & telephone	55.87
Travelling expenses, Secretary	18.75
Dominion of Canada war bonds (par \$2,000)	1,951.04
	\$4,196.91
Cash on hand, Jan. 1, 1922, as follows:—	
Cash in Bank of Montreal	\$2,279.33
Dominion of Canada war bonds (par \$2,500.00)	2,439.02
	\$4,718.95

Levis County Railway Operation.

The Levis County Ry., we are officially advised, restarted operations April 11, on the Uptown line; on the St. Joseph line April 14, and on the St. Romuald line April 20. The service given is a restricted one, as the company has only six cars. The uptown line, 3¾ miles long, is served by two cars on a 20-minute schedule; the St. Joseph line, 2¾ miles, is served with 2 cars, with a 20 minute schedule; and the St. Romuald line, 7½ miles, is served with one car on a 90 minute schedule, with an extra car giving a three quarter service when available.

The service given by the company was on the list of applications for hearing before the Quebec Public Service Commission, April 25. Objection was taken to the Commission's jurisdiction by St. Joseph and St. Romuald municipalities, but the commissioners overruled them, stating that the amendment to the Act respecting the Public Service Commission, passed last session had been prepared to meet just such cases. Application was subsequently made to Chief Justice Lemieux for a writ of prohibition against the Commission, and was refused. A press report stated that an appeal would be made against this decision.

The Commission began hearing the cases, May 3, when it was intimated that the St. Romuald Town Council had resolved that the municipality could not meet any of the company's financial demands under present circumstances, and was ready to do away with the street car service. Decision was subsequently reserved.

Toronto Transportation Commission Matters.

Canadian Railway and Marine World for May gave on pg. 263 details of the work to be undertaken by the Toronto Transportation Commission during the current construction season. The work of track rehabilitation and new construction is well under way at the time of writing (May 15), there being 2,891 extra men employed.

Expressed in terms of single track feet, various track rehabilitation jobs now being done, or about to be undertaken in the immediate future, are as follows:— (While the lengths are expressed in single track feet, the track is double on the streets named). King St., Spadina Ave. to Sherbourne St., 12,160 ft.; York St., Front St. to Queen St., 2,750 ft.; Gerrard St., Pape Ave. to Greenwood Ave., 6,842 ft.; Parliament St., Gerrard St. to Winchester St., 2,230 ft.; Church St., Queen St. to Bloor St., 11,270 ft.; Dovercourt Road, College St. to Hallam St., 9,760 ft.; Bloor St., Lansdowne Ave. to Spadina Ave., 21,076 ft.; Queen St., Ossington Ave. to Yonge St., 20,236 ft.; Howard Park Ave., Dundas St. to western loop, 4,830 ft.; Kingston Road, Queen St. to city limits (new construction), 19,200 ft.; Lake Shore Road, Sunnyside to Humber River (new construction), 12,132 ft. Total rehabilitation, 82,154 ft., new construction, 31,332 ft.; grand total, 113,486 ft.

Canadian Railway and Marine World for Dec. 1921 gave on pg. 656, details of the different types of track construction used by the Commission, the three chief of which are referred to as 122-S-G; and 122-C-G., and 122-C-A. Type 122-S-G is so called because 122 lb. rail is used, with stone foundation and granite block wearing surface. Type 122-C-G is so called because 122 lb. rail is used with concrete track foundation and granite block wearing surface. Type 122-C-A is so called because 122 lb. rail is used with concrete track foundation and asphalt wearing surface. The article referred to in our Dec. 1921 number was illustrated with longitudinal and cross sections of the different types of track construction.

On the rehabilitation work on King St., type 122-C-G construction is being used; on York St., type 122-S-G; on Gerrard St., type 122-C-G; for 830 ft. on Parliament St. type 122-C-A, and 122-S-G on the remaining 1,400 ft.; on Church St., type 122-S-G is being used for 970 ft., and 122-C-G for the remaining 10,300 ft.; on Dovercourt Road, type 122-C-A; on Bloor St., type 122-S-G; on Queen St., type 122-C-G, and on Howard Park Ave., 122-C-A. On the new construction work on Kingston Road, type 122-C-A will be used, and this type will also be used for the new track between Sunnyside and the Humber River. To May 15, 3,890 ft. of the rehabilitation work on King St. had been completed, also all the work on Parliament St. By "completed" is meant that traffic had been resumed.

The following intersections and pieces of special work have been installed from the beginning of the year to May 15:— Russel car house, 32 layouts; Stacey and Coxwell Aves., R. H. crossover; Dupont and Christie Sts., R.H. crossover; Lansdowne and Royce Aves., loop; Bloor St. and Avenue Rd., N.E. curve; College and Teraulay Sts., additional curves; Danforth car house, route loop; intersections at Dundas St. and Ossington Ave., Bloor St. and Ossington Ave., King and

Church Sts., Wellington and Scott Sts., Louisa and Teraulay Sts., Queen St. and Ossington Ave., St. Clair and Lansdowne Aves., Queen and McCaul Sts., Bloor St. and Spadina Ave., Harbord St. and Spadina Ave. Intersections are being installed, or are shortly to be, at Queen and Teraulay Sts., Queen St. and Kingston Rd., Queen St. and Spadina Ave., Carlton and Church Sts., Queen and Shaw Sts., Adelaide and York Sts., Church and Bloor Sts. In addition, the installation of a loop at the Woodbine race course, on Queen St. east, is about completed.

No action has been taken in connection with the car houses to be built on the land recently bought by the Commission as stated in Canadian Railway and Marine World for May. The land is bounded on the north by Eglinton Ave., on the east by Yonge St., on the west by Duplex Ave. and on the south by Berwick Ave. It is probable that actual construction will be postponed pending the completion of the "clean-up deal," in which the city is interested. Tentative plans for the construction of equipment repair shops, to cost in the neighborhood of \$1,000,000, and to be located at Davenport Road and Bathurst St., have been completed.

The Commission has secured a piece of land 90 x 126½ ft. near Neville Park Boulevard, at the east end of Queen St., on which to build a loop to replace a badly congested Y.

The four trackless trolley buses, described fully in Canadian Railway and Marine World for January, pg. 39, have arrived and have been put in service on the Mt. Pleasant-Merton St. run in the northern part of the city. In the illustration in the January number, the bus was shown as equipped with a single trolley pole. One of the buses has been equipped with double pole, as an experiment, to determine whether the single or double pole current collection system is the more efficient. The chasses of these buses were assembled in Toronto by Packard Ontario Motor Co., the bodies were built by Canadian Brill Co., and the electrical control apparatus was supplied by Canadian Westinghouse Co.

The Commission is publishing in Toronto daily newspapers "service bulletins," which describe the work being undertaken and the problems which the Commission faces in its work of rehabilitation. These bulletins are informing the public as to the problems met with by the officials in charge of the work, and with the difficulties and obstacles to be overcome in rehabilitating a street railway system under traffic.

While specifications have not been issued or tenders invited, we are officially advised that, in all probability, the Commission will in the near future call for tenders for about 150 modern double truck cars, similar to those acquired during 1921.

Option on Niagara, St. Catharines & Toronto Ry.—As requested by a correspondent, we have made enquiry and find that the option on this company's property (owned by the Dominion Government), which was given by the former Minister of Railways, Dr. J. D. Reid, to the Hydro Electric Power Commission of Ontario, is during pleasure, and subject to cancellation at any time.

Electric Railway Employees' Wages, Working Conditions, Etc.

Dominion Power & Transmission Co.—New agreements as to wages, working conditions, etc., between the D.P. & T. Co., through its subsidiary railway companies, and its employees, under the agreements reached before a board of conciliation, in one case, and by agreement between the parties, following the findings of another board of conciliation, in the second case, have been signed. There are four agreements, viz.:—

(1) The Hamilton Cataract, Power, Light & Traction Co., and its employees being members of the International Union of Steam and Operating Engineers Local 700; (2) The Hamilton St. Ry. Co. and the Amalgamated Association of Street and Electric Railway Employees of America, Division 107; (3) Dominion Power & Transmission Co., and the Amalgamated Association of Street Railway Employees of America Local Union 107; and (4) The Hamilton & Dundas St. Ry. Co., the Hamilton Radial Electric Ry. Co., the Hamilton, Grimsby & Beamsville Electric Ry. Co., and the Brantford & Hamilton Ry. Co., and the Amalgamated Association of Street and Electric Railway Employees of America, Division 876. The first agreement includes power station and other general employees; the second includes conductors and motormen employed on the Hamilton St. Ry.; the third includes the Dominion Power & Transmission Co.'s shop employees, and the fourth includes the conductors and motormen on the four radial railways operated. The following are the rates of pay per hour for conductors and motormen as fixed in the agreements:—

	City line	Radial lines
First 6 months	33c.	33c.
2nd 6 months	38c.	38c.
First year	42c.	42c.
2nd year	48c.	48c.
3rd year and after	48c.	48c.

Overtime to be paid at the rate of time and a half.

The first agreement is operative from March 1 and the other three from Feb. 16, and all will continue in force to Dec. 31, and will remain in force thereafter unless terminated by either party giving 30 days notice.

London St. Ry.—We were officially advised May 8 that the Minister of Labor had appointed a board of conciliation to investigate the wage dispute between the company and its employees. The company nominated F. H. McGuigan, Toronto, as its representative, and the employees nominated F. McKay, London, on their behalf. In the absence of a joint recommendation from these two as to a chairman, the Minister of Labor appointed J. M. McEvoy, London. Some negotiations for a settlement appear to have taken place after the appointment of the board, but these were futile, and the board began its sittings, May 16. The company gave notice of a reduction in wages as from March 1, of 3c. an hour, the reduced rate for motormen and conductors being: First year, 40c.; second year, 43c.; third year and thereafter, 45c. The men contended for a maximum rate of 50c., which they claimed the company will be able to pay, if the bill now before the Ontario Legislature giving power to the city council to amend the franchise by authorizing an increase of fares, should be passed.

There was a conference between the company's officers and employees May 19, but a settlement was not effected, and

the board of conciliation's report will be waited for.

Niagara, St. Catharines and Toronto Ry.—A St. Catharines press dispatch of May 18 stated that the company's employees had been notified of a 25% decrease in wages, that their representatives had been authorized to accept a reduction of 10%, and that the men would strike if a 25% reduction was enforced. We are officially advised that the management did not propose a 25% reduction. Negotiations have been going on for some time and an all-round reduction of about 10% for car crews, and ine, power house and shop men have been agreed on. Following is a comparison of the old and new rates for passenger conductors and motormen: 1st year, new, 40c., old, 46c.; 2nd year, new, 43c., old, 48c.; 3rd year, new, 45c., old, 50c.; 4th year and after, new, 48c., old, 52c. There will also be some changes in working conditions.

Ottawa Electric Ry. Co.—The board of conciliation appointed in April to investigate the wages in dispute between the company and its employees belonging to the Amalgamated Association of Street and Electric Railway employees of America, Division 279, was composed of A. Smith, barrister, Ottawa, chairman, appointed by the Minister of Labor, in the absence of a recommendation from the other two members of the board, G. D. Kelley, Ottonominated by the company, and E. J. Tully, Ottawa, nominated by the men. The board began its investigation April 24, and the seventh and final sitting was held May 3. The company advised its employees February 27, that on May 1, the scale of wages put into effect under a board of conciliation award of April 21, 1920, and continued in effect for a second year in 1921, would be reduced to a rate corresponding to the reduction in the cost of living. The rate of the reduction was to have been announced in April, but was not made known, the men showing a disposition to seek for an increase, mainly by changes in working conditions. In the evidence submitted to the board the men asked for an 8-hour day, which Major F. D. Burpee, Manager, stated would cost \$140,000 a year. The company employs 626 men, of whom 452 are conductors and motormen. One employee had been working for the company over 35 years; 40 had worked over 20 years; 143 for over 10 years; 93 over 5 years; and 185 under 5 years. The nine-hour day, he claimed, was the ideal, one for street railway work. The men claim that the putting in force of the eight-hour day, with a maximum rate of wages of 65c. an hour would not give them any more money, and would not cost the company anything.

Winnipeg Electric Ry.—We are officially advised that the conductor's and motormen's wages have been reduced 4c. an hour, under an agreement which went into effect May 1. A similar reduction was started on May 10, to have been agreed to by the shopmen. The new rate of wages per hour for motormen and conductors is: 1st six months, 46c.; 2nd six months, 49c.; 2nd year, 53c.; 3rd year and thereafter, 56c. Sundays 5c. an hour extra. The only change made in the old working conditions is that the minimum wage has been reduced from \$20 to \$19 a week.

Proposed Cancellation of London Street Railway's Franchise.

The London, Ont., city council passed the following resolution, May 15: "That immediate action be taken to terminate the franchise of the London St. Ry., and the city solicitor be instructed to serve such preliminary notification on the company as may be required to make such action effective." This is the result of the long drawn out discussion between the company and the council. The differences have been developing during the last few years. The city has been asking for extension of lines, for paving improvements, for better cars, none of which the company has been able to promise, owing to shortage of funds. The company asked that an increase of fare to a straight 5c. be authorized, and its case for such increase was strengthened by a report of the Hydro Electric Power Commission of Ontario in Dec., 1919, as to the value of the company's property. The Commission estimated the value as \$1,356,000, and it was reported that the company was willing to sell for \$1,208,000. The franchise expires in 1925, but the city claims that the company is violating its terms, and that the city can therefore take steps to end it.

A London press dispatch says: "City Hall officials do not consider that the council's decision to launch proceedings for the cancellation of the London St. Ry. Co.'s franchise, and the possible eviction of the company from the city streets, will lead to any sudden culmination. Mayor Wilson believes that the matter cannot be carried out at law in much less than two years, as in the meanwhile, a great deal of legal red tape must be followed, the sanction of the Legislature must be secured and a vote of the people must be taken on alternative final dispositions. If it is concluded to have the city take over the property, a valuation must be secured, and it is probable that the price would be determined by a board of arbitration."

Sir Adam Beck's Salary, etc.—Lt.-Col. Carmichael, minister without portfolio in the Ontario Government, and one of the Hydro Electric Power Commissioners of Ontario, gave the following information in the Legislature recently, in answer to questions: Sir Adam Beck is paid \$12,000 a year as Chairman of the Hydro Electric Power Commission of Ontario, and \$6,000 a year as President of the Ontario Power Co.; \$6,000 is paid from the consolidated revenue fund, and the balance by the municipalities under contract with the Commission, pursuant to the Power Commission Act. The Government is aware that Sir Adam Beck is employed as an arbitrator in the settlement of the amount to be paid by the City of Toronto to the Toronto Railway Co., but did not obtain leave of absence from the Government for that purpose, such leave not being required. The Government is not aware that he is being paid \$250 a day for services as arbitrator. While employed on the Toronto Ry. arbitration he is also acting as Chairman of the Hydro Electric Power Commission.

Winnipeg Electric Ry. Co.—The Montreal Stock Exchange has listed \$3,000,000 of the company's 7% cumulative preference stock which was issued in 1921.

Electric Railway Passenger Fares.

British Columbia Electric Ry. — The present arrangement for charging a 6c. fare on the company's Vancouver lines comes to an end June 30, and unless renewed the old 5c. cash fare, with tickets at rates provided in the franchise will automatically come into force again. Following the withdrawal from the House of Commons of the Vancouver, Fraser Valley & Southern Ry. Co.'s bill, which would have placed all the company's lines under the Board of Railway Commissioners' jurisdiction, a conference was held between the company's management and Vancouver City Council, and a special meeting of the council was called for May 15 to discuss the situation.

Hull Electric Co. — G. Gordon Gale, Vice President and General Manager, Hull Electric Co., wrote the Hull, Que., City Council, recently, asking permission to stop the sale of workmen's tickets etc. No action was taken.

London St. Ry. — The Ontario Legislature gave a second reading, May 10, to a bill introduced by R. L. Bracklin, to authorize the company, notwithstanding its franchise provisions, to charge 5c. for adults, 3c. for children between 5 and 12 years of age, children under 5, in charge of adults, to be carried free. The private bills committee added two sections—one providing that the Ontario Railway and Municipal Board on the application of the London City Council, or of the company, may decrease or increase the fares fixed in the first section of the bill; and the other provides that except as amended in the present measure, no other part of the agreement between the city and the company as confirmed by 59 Victoria, Chap 105, is affected. The employees' union sent a delegation to Toronto to oppose the bill in its later stages, on the ground that their wages are to be decreased. Some opposition has also been given by Toronto and other municipalities.

The Moncton Tramways, Electricity & Gas Co.'s franchise provides for the sale of workmen's tickets, 8 for 25c. As a large portion of the passengers on the line are entitled to buy these tickets, the conditions do not warrant the investment necessary to provide an all the year service, consequently there has not been a winter service since the car barns were burned, together with three cars and the sweeper, about two years ago. Car service was resumed April 18.

Nova Scotia Tramways & Power Co. — The N.S. Public Utilities Commission resumed its sittings at Halifax, N.S., April 27, respecting the inventory and appraisal of the company's physical assets. Considerable evidence was given, and three inventory reports on the company's used or useful properties for electric light and power; for gas, and for electric railway service were filed. Further hearing was adjourned to May 25, to give the parties interested time to study the inventories. The object of the investigation is to enable the Commission to readjust fares, and other charges, if found necessary.

Peterborough Radial Ry. — Peterborough City Council asked the Hydro Electric Power Commission of Ontario recently to reduce fares on the Peterborough Radial Ry., from the present flat rate of 7c., and to sell 4 tickets for 25c. The Commission, in declining to grant the request, pointed out that a much

larger volume of traffic must be secured before a reduction in fares could be considered.

Winnipeg Electric Railway. — See under "Winnipeg Electric Ry. Franchise Negotiations" on another page of this issue.

Motor Omnibus Notes.

Three motor buses are being operated by two proprietors under license, in Barrie and Allandale, Ont.

A motor bus service is being operated from Edmonton to Winterburn, Spruce Grove and Stony Plain, Alta.

North Bay, Ont., town council, has under consideration a bylaw providing for a 10-year franchise for a motor bus system in the town.

A second motor bus line is reported to have started operating between St. Catharines and Queenston, Ont., serving Homer and St. Davids, en route.

The St. Thomas city council has been authorized by the Ontario Legislature to operate motor buses in connection with the municipal railway; and to provide funds by the issue of 10-year debentures.

Winnipeg Electric Ry. has started a motor bus service from Stonewall, Man., on the Winnipeg, Selkirk & Lake Winnipeg Ry., to Balmoral, Gunton and Teulon. The bus connects with the electric cars.

Jacob Leis, proprietor of a motor bus operating in the area served by the Waterloo-Wellington Ry., between Kitchener and Bridgeport, Ont., was fined, May 9, by the Kitchener police magistrate, for operating a bus over the provincial highway without having procured a license.

The Red Bird motor bus line started making three trips a day, between Brampton and Toronto, May 15, the bus being operated from Brampton along the Centre Road to Cooksville, thence by Dundas Road, but owing to the condition of the Center Road the bus ceased on May 19 for the present.

Montreal motor truck owners have organized the Montreal Motor Truck Owners' Association. There are reported to be 1,761 corporations, firms and individuals in Montreal employing trucks for transportation of goods, a large number of them operating for hire. The association is reported to have started with 58 members, representing 333 motor trucks.

The Ontario Legislature has passed an act providing that the St. Thomas City Council may operate motor bus lines in conjunction with the municipal electric railway, or may abandon the railway in favor of a bus system. The city council's railway committee decided recently to await the Lieutenant-Governor's assent before taking steps to buy a 30-passenger bus for operation on streets not served by the railway.

Detroit United Rys. — The lines of the Detroit United Ry. and other property mentioned in the agreement, which the city acquires for \$19,850,000, were handed over by the company to the city authorities at midnight, May 14. The operating headquarters under the city management will be in the administration building, St. Jean and Warren Avenues. In connection with the transfer the company has called for redemption an issue of \$2,000,000 face value of gold 7% notes, issued April 1, 1918, at 100½ and accrued interest.

Ontario Hydro Electric Railway Legislation.

The bill respecting the construction and operation of municipal electric railways, which was read a first time in the Ontario Legislative Assembly, March 16, came up again on May 17. A summary of its provisions was given in Canadian Railway and Marine World for May, pg. 256. The Premier, in moving the second reading, reviewed the entire situation, and compared the original act of 1914 and its numerous amendments, with the bill, which he claimed would allow municipalities where the needs would warrant it to go on with a feasible electric railway project. It provides autonomy on the part of the municipalities and a feasible way of financing the proposition. He stated that it was proposed to exempt the Toronto-Port Credit-Hamilton-Niagara line from the bill, when it reached the committee stage, a condition being that the ratepayers of the different municipalities vote again, and approve of the project. His reason for this was that the Government had committed itself in regard to the guaranteeing of bonds for \$1,000,000 in connection with the project, and that was a bargain that could not be lightly broken. Referring to the Toronto Suburban Ry., he said:—"The question is not covered in this bill as to allowing municipalities to own and operate a radial railway running through other municipalities—the question, particularly, of the City of Toronto owning and operating the Toronto Suburban Ry. That is not covered, and cannot be covered by amendment, but, so long as we may remain in power, the needs of such a case can very well be met by a private bill dealing with each individual case as it arises. And in this case we will meet the needs of a special case." The Premier then discussed the details of the measure at length, and the debate was adjourned.

New Brunswick Hydro Electric Development. — The N.B. Hydro Commission was reported recently as expecting to be in a position to begin the delivery of power for commercial purposes from the Musquash power development by the end of May, 1923. A contract is reported to have been given the Canadian Bridge Co. for the construction of the power transmission line from the generating station to St. John. The line will be carried across the river at the asylum grounds by a span of 1,000 ft., to the terminal station on Douglas Ave. A location survey is reported completed for the construction of a transmission line from Musquash to Moncton, 88 miles. The St. John City Council, on May 4, passed resolutions applying to the Commission for a contract for from 10,000,000 to 15,000,000 k.w. a year at actual cost, but not more than 1½c. per k.w., and decided to appoint a city commission to plan a distribution system for the city at a cost of approximately \$900,000.

Electric Energy for Vancouver. — Vancouver, B.C., city council has authorized the Mayor to look for an engineer of experience in the hydro-electric field, to advise the city authorities on the development of electric energy for Vancouver.

The Manitoba Power Co. is reported to have let contracts to Canadian manufacturers for electrical and hydraulic equipment for the new power development at the Great Falls of the Winnipeg River, Man., aggregating \$825,000.

Jurisdiction Over British Columbia Electric Railway, its Fares, Etc.

The Vancouver, Fraser Valley & Southern Ry. Co., which is a subsidiary of the British Columbia Electric Ry. Co., in its bill, which was recently given a second reading in the House of Commons and then referred to the railway committee for consideration, sought amendments to its act of incorporation, which would permit an amalgamation of all the B.C.E. Ry. Co.'s lines under one title, and declare them and the company's other undertakings, to be works for the general advantage of Canada, bringing its railway lines all under the Board of Railway Commissioners' jurisdiction. The bill was set down for discussion before the railway committee, April 25, when it was decided to adjourn the matter for a week. The purpose of the adjournment was stated to be to permit negotiations between the B.C.E. Ry. Co., the municipalities concerned and the B.C. Government, with regard to the establishment of a public utilities commission for the province. The B.C. Premier is reported to have stated in Vancouver, April 26, that the B.C.E. Ry. Co.'s officials had advised him they were willing to withdraw the bill on the assurance that the B.C. Government would establish a tribunal which would have power to settle matters in dispute between the municipalities and the company. The Government had advised the company and the municipalities that it was prepared to bring in such legislation as was required, but could not state just what form it would take. He did not think the municipalities would object to allow matters to remain as they are, provided the company withdrew its bill from the Dominion Parliament. A number of the municipalities signified their agreement with the Premier's suggestion; but Vancouver City stood out. On May 1, the city council considered a letter from W. G. Murrin, Assistant General Manager, B.C.E. Ry. Co., offering to withdraw the application on condition that the city consent to the extension of the present 6c. fare agreement, which expires in June, until the proposed new B.C. legislation is passed. The council refused to agree to this, and passed a resolution expressing its willingness to enter into negotiations with the company as regards fares. When the bill again came before the Railway Committee, May 2, the situation was that of the municipalities immediately concerned Vancouver was the only active opponent; Victoria having declined to take any action, and the majority of the others having fallen in with the Premier's suggestion. The bill was discussed at some length, and the committee agreed "to report the preamble thereof not proven, on the ground that legislation has already been passed by Parliament contrary to the principle set out in the bill, more particularly in sec. 7 thereof." The report was subsequently accepted by the House of Commons, and the fees paid, less the cost of printing and translation, were ordered to be refunded.

Section 7 of the bill referred to above proposes to add a clause to the statutes of 1912, chap. 162, sec. 3, providing that when the railway undertaking and the light, power, or heating undertakings of the B.C.E. Ry. Co., and the Vancouver Power Co. or either of them, has been acquired or leased, such undertakings

shall be works for the advantage of Canada, and the provisions of the Railway Act shall apply thereto. The section of the 1912 act referred to authorized the V., F. V., & S. Ry. Co., to enter into certain agreements with the B.C.E. Ry. Co., and the V. P. Co. The proposed legislation was apparently held by the Railway Committee to be opposed to the statutes of 1920, chap. 65, which amended the Railway Act 1919, sec. 6, par. c. Under the 1919 act it was claimed that the B.C.E. Ry. Co.'s lines were declared to be works for the general advantage of Canada, while the act of 1920, amended the provision, but withheld its operation, so far as the B.C.E. Ry. Co.'s lines were concerned, for a year. (See Canadian Railway and Marine World, Dec. 1920, pg. 671.)

The Vancouver City Council was asked by the B.C.E. Ry. Co. on May 2, to pass a bylaw extending the present agreement as to the 6c. fare, until such time as the proposed tribunal is appointed by the B.C. Government to arbitrate between the company and the city. The council decided not to take any action until after the return of G. E. McCrossen, its Counsel, from Ottawa.

Electric Railway Notes.

The Quebec Ry., Light & Power Co.'s rolling stock is being overhauled. The cars are to be repainted yellow, with a broad maroon band lined with black and gold.

The Niagara, St. Catharines and Toronto Ry. put daylight saving into effect on its lines in St. Catharines and throughout the Niagara peninsula on May 15, at 4 p.m.

The Hudson's Bay Co., in connection with the opening of its new store in Saskatoon, Sask., May 1, chartered the Saskatoon Municipal Ry.'s cars from 9 a.m. until 6 p.m., and carried everybody free.

The British Columbia Electric Ry.'s Vancouver City cars are to be equipped shortly with number signs on the roof, and the old type of dashboard sign will be abolished. Destination signs at front and side will also be used.

The new bascule bridge across the canal at Burlington Beach, Ont., was approved and taken over by the Dominion Department of Public Works, May 12. The Hamilton Radial Electric Ry. tracks are laid across the bridge.

The Regina, Sask., Northeast Ratepayers' Association has had a report prepared on the service given in that part of the city by the Regina Municipal Ry., which it was decided to forward to the Regina City Council, and to ask the Council to receive a delegation from the association to discuss complaints as to the service.

The London & Port Stanley Ry., in order to get passengers to buy their tickets at stations before boarding the cars, put in operation on May 22, an extra charge of 10c. on each ticket bought on the cars. Stations with agents are maintained at London, St. Thomas, Glanworth and Port Stanley.

The Detroit, Mich., Municipal Rys. management is reported to be placing the name of the motorman and conduc-

tor in charge of each car on a small plate to be hung on the motorman's stool, and the fare box respectively, so that the men in charge of the cars will be known by names and not as heretofore by numbers.

Montreal Tramways Co.'s employees' representatives waited on the city aldermen, April 28, and asked for the repeal of the resolution adopting daylight saving time as from May 1. Alderman Riel, informed the delegation that it was too late to go back on the Council's decision, but that next year the matter will be examined carefully. No action was taken by the Council.

The Sarnia St. Ry. is converting its 6 double truck, and 4 single truck cars for one man operation. Some of them have 2 and 4 motor equipment. Three were completed as one-man cars and placed in operation during May. The work is being done under the supervision of T. H. McGauley, formerly Manager, New Brunswick Power Co., St. John, N.B., and at one time Superintendent, Calgary Municipal Ry., Calgary, Alta.

The Nova Scotia Tramways & Power Co. has been authorized by the Public Utilities Commission, to abandon the 8-car schedule on its main line, and revert to a 6-car schedule, running the cars from the northern terminus to Inglis St., west on Inglis St. to South Park St., north on South Park St. to Spring Garden Road, then turning and going back over the same road. Transfer privileges will be extended somewhat to meet the necessities of the shortened route.

The Kitchener Light Commissioners have bought three Peter Witt cars, built by Cincinnati Car Co., from Cleveland Ry. Co., for the Kitchener & Waterloo St. Ry. They are of steel construction, the roofs being all steel, with cork insulation and canvas, painted. They are 50 ft. long overall, with seating capacity for 60, and are equipped with Taylor trucks and G.E. 258 quadruple motors. It is expected that they will arrive in Kitchener, ready for operation early in June.

The Toronto Transportation Commission put daylight saving time in force on all lines at 2 a.m. on Sunday, May 14. The Toronto and York Radial Ry. has adopted daylight saving time on its Mimico, Metropolitan and Scarboro divisions. The Toronto Suburban Ry. is operating its Lambton-Guelph division on standard time, with the one exception of the car from Keele St. to Guelph on Saturday afternoons, which leaves at 1.45 daylight saving time, instead of 1.45 standard time.

R. J. Fleming's Opposition to Sunday Cars.—The Toronto Globe, in referring on May 15 to the fact that it was the 25th anniversary of Toronto voters having decided, by a majority of 480, to have electric railway cars run in the city on Sundays, said that the result followed weeks of heated campaigning on the part of the opposing forces, that R. J. Fleming, then Mayor, and subsequently Manager, Toronto Ry., was prominent among the antis, and that at the last great rally he declared that it would be a shame to inflict Sunday work on the street railway employees.

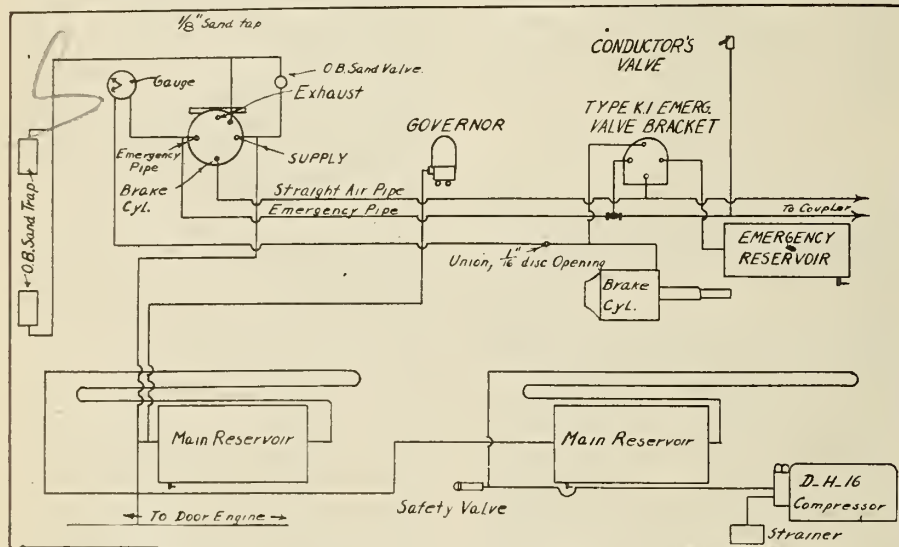
Courtesy or Curiosity.—When a man stands aside to let a young lady board a street car, one doesn't know whether it's out of curiosity or politeness. — Border Cities Star.

Rolling Stock Rehabilitation, Toronto Transportation Commission.

A large amount of equipment was taken over by the City of Toronto when the Toronto Ry. Co.'s lines came under control on Sept. 1, and were transferred to the Toronto Transportation Commission, which is rehabilitating a large number of the double truck cars. The Commission's programme provides for the improvement of 351 of these cars, the chief alterations being in connection with the air brake and heating systems. The McGann air brake system, with which these cars were equipped, is being replaced by the Westinghouse semi-automatic system, with type D-H-16 compressor. Formerly, these cars were not equipped with air compressors, and compressed air for the operation of the brakes was obtained at car houses and other points throughout the city by connecting a hose to the air reservoir on the car, from a storage reservoir supplied by a stationary compressor at the car house. By the middle of February,

system includes two main reservoirs, with cooling pipe coils between the compressor and the first reservoir, and between the first and second reservoirs. The motorman's brake valve provides for both straight air and automatic brake applications. In ordinary service applications, the placing of the handle of the motorman's brake valve in service position allows the air to flow through the straight air pipe, under the exhaust cavity of the slide valve in the emergency valve, and into the brake cylinder. Release from this position allows the air from the brake cylinder to flow to the atmosphere through the exhaust port. Straight air applications produce no effect on emergency reservoir pressure.

By placing the handle of the motorman's brake valve in emergency position, air is drawn from the emergency pipe, and exhausts to the atmosphere, causing a movement of the emergency valve, which allows air from the emer-



Arrangement of Brake Equipment, Toronto Transportation Commission's Cars.

225 of these cars had been equipped with Westinghouse brakes, by March 1, 255 cars had been equipped, and the remainder were completed early in May.

The change in the heating system involved the replacement of the ordinary stoves in the front of the cars with forced draft heaters. All of the cars have now been so equipped. No change has been made in the seating arrangement, nor have the cars as yet been repainted to conform to the Commission's standard, viz., red with cream trim and stripe.

Of the cars used formerly by the Toronto Civic Ry., 18 double truck cars, with seats arranged transversely, have been painted in the Commission's standard colors, and 20 of them have been equipped with forced draft heaters.

All of the work mentioned has been, or is being done at the Commission's central shops, under the supervision of W. R. McRae, Superintendent of Rolling Stock and Shops.

The chief details of the semi-automatic braking system applied to the Toronto Ry. Co.'s cars are shown in the accompanying piping diagram. This is the same system applied to the new cars ordered in 1921 by the Commission. The

gency reservoir to enter the brake cylinder. Release from this position allows air to exhaust from the brake cylinder, and at the same time allows pressure in the emergency pipe and emergency reservoir to again build up. The conductor's valve is connected, by piping, to the emergency pipe, so that the opening of the valve results in exhausting air from the emergency pipe, resulting in an emergency application in the same way as when air was exhausted from this pipe by a movement of the handle of the motorman's brake valve. A cord attached to the valve handle makes it possible to apply the emergency brakes from any part of the car.

When a trailer is being hauled, the brakes apply on it in the same manner as upon the motor car, the trailer being equipped with an emergency valve, emergency reservoir, and brake cylinder and associated equipment. An inspection of the drawing will make obvious the relationship between the trailer brakes and the control as exercised by the brake valve at the front of the leading car. A feature of this equipment is that in an emergency application by the motorman's brake valve, auxiliary sanding apparatus is automatically brought into operation.

Mainly About Electric Railway People.

R. A. Allaster has been appointed trainmaster, London and Port Stanley Ry., London, Ont., and W. H. Jones has been appointed master mechanic, these appointments filling the vacancy caused by the death of C. E. Lenhart, who was superintendent in charge of transportation and shops.

W. B. Boyd, M.I.E.E., Electrical Engineer, Toronto & York Radial Ry., Toronto, is President of the Dominion Alloy Steel Corporation, which has been incorporated under the Dominion Companies Act, to build and operate an alloy steel plant at Sarnia, Ont. Sir William Mackenzie, President, Toronto Ry., is a director of the new company.

Geo. Kidd, General Manager, British Columbia Electric Ry., and Mrs. Kidd, have returned to Vancouver after spending several weeks in England.

Sir William Mackenzie, President, Toronto Ry. Co., returned to Canada, May 8, from Europe, accompanied by his son in law, Count Jacques de Lesseps, the French aviator.

N. Montgomery, aged 16, son of the Superintendent, Nipissing Central Ry., and three young companions, was drowned in Lake Timiskaming, near Liskeard, Ont., May 7, when their canoe was swamped during a storm.

W. H. Moore, General Manager, Toronto & York Radial Ry., Toronto, visited Mexico recently.

H. R. Silcox has been appointed acting Engineer of Way, Ontario Hydro Electric Railways, Essex Division, succeeding R. M. Dominey, who is in charge of the Toronto Transportation Commission's track construction.

One-man Cars in British Columbia.—The B.C. Electric Ry. started operating one-man cars on May 14. An additional car was put in operation on one line to make closer connections with the Central Park interurban line. In Vancouver City eight lines will soon be equipped with one-man cars, the majority of them being so operated already. North Vancouver, with a normal equipment of six cars, augmented on rush hours and holidays, will be equipped next. The company is rebuilding its present cars for the purpose in its Vancouver shops. In order to save time on grades, mechanical derails are being installed in New Westminster in place of the old type derails.

Rule of the Road in Nova Scotia and New Brunswick.—In connection with the passing of an act changing the rule of the road in Nova Scotia, Hon. H. H. Wickwire stated that he had been assured that a proclamation would be issued in New Brunswick, to bring into force in that province the act, passed some time ago, changing the rule of the road, and that the change would go into effect in New Brunswick on the same day as in Nova Scotia. It was announced May 12, that the Nova Scotia Act would go into effect Jan. 1, 1923.

A fortnightly aeroplane service is in operation from Cairo, Egypt, to Baghdad, Iraq, for all classes of mail, except parcels, and accelerates letter transportation 14 days or more to Baghdad and northern Persia, down to about 3 days in the case of places as far south as Bushire.

Electric Railway Projects, Construction, Betterments, Etc.

Calgary Municipal Ry.—We are officially advised that the Calgary City Council's Street Railway Department has bought 160 tons of steel rails from the City of Moose Jaw, Sask., to be used chiefly for the extension of the East Calgary line. (May, pg. 258.)

Fort William Municipal Ry.—The Fort William, Ont., Public Utilities Committee received tenders May 1, for the construction of the Mission Park extension. (April, pg. 206.)

Hull Electric Co.—The Board of Railway Commissioners passed order 32,367, May 11, providing that the cost of installing and maintaining signals and derails at the crossing of Montcalm St., Hull, Que., by the C.P.R. and the Hull Electric Co., be paid by the Hull Co. (a C.P.R. subsidiary), the maintenance of the gates to be paid 80% by the C.P.R., and 20% by the city, the cost of operating signals, derails and gates to be paid 40% by the C.P.R., 40% by Hull Electric Co., and 20% by the city.

Kitchener & Waterloo St. Ry.—We are officially advised that the Kitchener Light Commissioners are building a little more than a mile of double track line, on King St. East, Kitchener, from the corner of King and Albert Sts. to 406 ft. beyond the city limits. The contract for installing the track and paving the track allowance has been let to the Standard Paving Co., which will do all the work with the exception of welding joint plates and ties, which will be done by the Commissioners' own staff. The rail for straight track is 80 lb. A.S.C.E., section in 60 ft. lengths, laid on International steel twin ties supplied by Sarnia Bridge Co. The track is laid on a concrete bed, with concrete surface between rails; the street surface being asphalt. (May, pg. 258.)

London and Port Stanley Ry.—The proposed erection of a coal handling plant at Port Stanley, Ont., at an estimated cost of \$25,000, was laid before the village council, May 8.

The proposal to build an amusement hall at Port Stanley this summer, has been postponed. P. Pockock, Vice Chairman, London Railway Commission, is reported to have stated May 10, that the proposed building would be two stories high, to provide shelter for the patrons of the park in rainy weather, and a place for amusement. The first floor would be open to all for rest, and the upper floor would be used for dancing. The estimated cost of the building is \$60,000. A press report states that the foundation work will be done after the summer season at the park. (May, pg. 258.)

We are officially advised that the Commission is replacing a mile of 60 lb. rail with 80 lb. rail between Port Stanley village station and the beach terminal at Port Stanley. The station is to be rebuilt, a little farther back from the former site, to make room for laying a second track. The concrete foundations for the altered situation are being put in, and the present building will be moved thereon, and extended 20 ft. The outside of the building will be covered with metal lath and stucco, and the inside will be finished with rough plaster walls and tile floors. A concrete freight shed is to be built north of the passenger station.

The London Public Utilities Commis-

sion has bought a 1,000 k.w. rotary to supply power to the railway. This has been added to a 500 k.w. installed in 1915, and is expected to be delivering power to the railway on June 1. (May, pg. 258.)

Montreal Tramways Co.—The Montreal Tramways Commission has authorized the laying of a double track line on Wellington St., from McGill St. to the Lachine Canal. In order to permit this to be done the city will widen the roadway by reducing by 1 ft. the width of the pavement on either side of the street. The M.T. Co. will undertake the construction of 18 ft. of the roadway, so that the fronting properties will have to pay for the remaining 19 ft.

The City Council has accepted its executive committee's recommendation for the building of a line into Mount Royal Park, by the Shakespeare Road, and has decided to call upon the Montreal Tramways Co. to build it. (May, pg. 258.)

Ontario Hydro Electric Rys. Essex Division.—A Windsor, Ont., press report says that T. U. Fairlie, of the Hydro Electric Power Commission of Ontario, has informed the city council's transportation committee that new switches, which will eliminate delay and congestion at Devonshire Road, Walkerville, will be built on Walker Road, that the north track on East Sandwich St., will be rebuilt as soon as the south track is removed, and that double end cars will be used on the Walker Road run.

Winnipeg Electric Railway Franchise Negotiations.

The Winnipeg City Council's special committee, which is dealing with an extension of the Winnipeg Electric Ry. Co.'s franchise, has been considering the fixed return on the physical value of the company's railway system, which is to be the basis for fixing fares. The report of the Public Utilities Commission, now abolished, adopted a rate of 8%, but the committee does not appear to be inclined to accept this, and the suggestion was made at a committee meeting April 25, that the fixed return should be 5½ or 6%. The agreement of July 1921, required the company to be allowed a "fair return."

Winnipeg City Council, at a special meeting, May 11, considered a report of its sub-committee on street railway negotiations, which dealt at considerable length with the reasons which had led the members to recommend a reduction of fares, as an advantageous, economic move for the company. The recommendation is that from August 1, the fares shall be as follows: Cash 7c as at present; 5 white tickets to be sold for 30c good at all times; 18 blue tickets to be sold for \$1, good at all times; 5 red tickets to be sold for 25c, good from 6 to 8 a.m., and from 5 to 6.30 p.m. weekdays, and all day on Sundays; 8 green tickets to be sold for 25c, as at present. The report alleged that the most reasonable reduction possible had been asked to avoid arbitration with the company, and that the general policy had been shaped on the psychological effect of reduced fares, rather than on Price Waterhouse Co.'s report of the company's financial standing. In the discussion on the report, Ald. Douglas gave an analysis of passenger traffic and revenue under the 1920-

21 schedule of fares, and claimed that the company would suffer an added burden from the proposed cut. Ald. Shore claimed that the committee had arrived at its recommendation after giving the company's financial statement and claims every consideration. Ald. Sparling outlined the committee's general policy in dealing with the matter. Ald. Simpson claimed that cheaper fares would cause more riding. Ald. Davidson questioned whether the arguments advanced by the Committee gave the city ground for its application, and Aldermen Heaps and Blunberg regretted that the reduction asked was so slight.

A. W. McLimont, Vice President, in an interview on May 12, said: "I don't think at this time I should make an extended statement in regard to the Committee's report, which was dealt with at the council meeting, as it will be necessary to make a formal reply at a later date to the resolution passed by the council, at which time I will deal with the matter fully. There can be no reduction of fares at present. The Committee's report practically conceded that upon the financial showing made as a result of Price Waterhouse Co.'s report, no reduction of fares would be justified. The Committee, however, suggested a reduction purely as an experiment, and without any reason or basis for anticipating that such reduction is justified, or would result otherwise than in a large deficit. The basis for the Committee's suggestion appears to be psychological and not financially practicable. If the reduction in fares, advocated by Ald. Douglas, should go into effect, would the city council indemnify the company against any loss which it might sustain by reason of trying out such psychological experiment? In dealing with the company's affairs, it does not appear that the Committee took into consideration the fact that traffic is declining very rapidly, and as a result of this, and the lower fare effective last August, there is a heavy reduction in revenue which amounts to approximately \$160,000 for 1922. The suggested reduction in fare, if adopted, would automatically increase the annual reduction in revenue by a further \$165,000."

Quebec Public Service Commission Act Amended.

The Quebec Legislature has amended the act relating to the Quebec Public Service Commission's powers, by adding to the matters coming within its jurisdiction, amending its powers relative to expropriations of land in the cities of Quebec and Montreal and by adding a new section to Revised Statutes of 1909, Article 740. This article says:—"The Commission shall have jurisdiction," and then follow a number of paragraphs stating the matters in which the Commission has jurisdiction, to which is now added paragraph L as follows:—"In any dispute that a tramway company and one or more municipalities agree by resolution to submit to the Public Service Commission, relating to tramway rates and operation, whether or not a contract exists between them; and the order of the Commission shall be binding on all parties. This provision does not apply to the Montreal Tramways Co."

A motor bus service was started on May 15, from St. Clair Ave. and Dufferin St., Toronto, to King City, Ont.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies.—

	Mar. 1922	Mar. 1921	9 mos. to Mar. 31, 1922	9 mos. to Mar. 31, 1921
Gross	\$849,680	\$867,083	\$7,771,665	\$7,631,521
Expenses	597,801	617,586	5,611,925	5,468,767
Net	251,879	249,497	2,159,740	2,162,754

Calgary Municipal Ry.—R. A. Brown, Superintendent, is reported to have given the following information as to operation for the three months ended March 31:—

	1922	1921
Earnings	\$226,188.81	\$244,469.11
Expenditures	222,433.01	246,339.13
Surplus	\$3,755.80	* \$1,870.02
Passengers carried	3,908,852	4,099,032
Car miles	703,473	717,183
Car hours	71,783	73,182
Revenue per car mile	32.153c.	34.037c.

*Deficit.

The report as given in a local paper states that there were no alterations in expenditures for debenture interest, sinking fund, depreciation or administration charges, of the two comparative periods and only slight changes in the figures for insurance, taxes and contributions to uncapitalized assets. Track and roadway expenditures decreased from \$2,988.94 in the first three months of 1921 to \$2,372.92 in the same period of 1922. On the other hand, an expenditure of \$1,890.52 was necessary for car bodies and trucks in the first period of this year which was not required in the first three months of last year. Cost of electric equipment for cars was reduced from \$10,962.27 for the first three months of 1921 to \$7,386.33 for the first three months of this year but this was balanced by an expenditure of \$3,574.91 for car wheels in the latter period, whereas nothing was required for that purpose in the first three months of 1921.

Calgary Municipal Ry.—A press report states that April earnings were \$72,786.19 and expenditures of \$74,328.53, a deficit of \$1,542.34, against \$352.23 for April 1921. The receipts for four months ended April 31, were \$298,975, and expenditures \$294,871.02, giving a surplus of \$4,103.98, against receipts of \$321,620.35, expenditures of \$325,871.02, and a deficit of \$3,764.59 for the corresponding four months of 1921.

Cape Breton Electric Ry.—

	Mar. 1922	Mar. 1921	3 mos. to Mar. 31, 1922	3 mos. to Mar. 31, 1921
Gross	\$46,940	\$51,034	\$143,364	\$159,522
Expenses and taxes	49,884	50,322	164,776	155,379
Net	3,944*	712	21,412*	4,143
Interest	5,527	5,739	16,884	17,161
Deficits	8,471	5,027	38,296	13,018

*Deficits.

Edmonton Radial Ry.—A report states that the public utilities owned by the City of Edmonton, Alta., showed a net profit of \$135,840 for the three months ended March 31, against \$84,239 for the corresponding period of 1921. The Edmonton Radial Ry. showed a profit of \$9,708 for the three months as against a loss of \$12,386 for same period of 1921. Since the beginning of the year Commissioner Yorath has been setting aside a proportion of the profit over operating expenses, as a reserve and to carry out betterments during the summer. About \$1,000 a month has been transferred to the reserve fund, and in March \$2,400 was set aside for maintenance of track, and overhead work.

Montreal Tramways Co.—About \$2,700,000 of 20-year 4½% bonds and debentures of the Montreal St. Ry. Co. is-

sued in 1902, and payable in London, Eng., and Montreal, fell due May 1. These represent the unredeemed balance of an issue of \$1,500,000 gold bonds, and \$2,238,666 of debentures. E. A. Robert, President, is reported to have stated that the securities were being redeemed as they were presented, and that provision had been made for taking up the whole amount.

Nova Scotia Tramways & Power Co.—

	Apr 1922	April 1921	4 mos. to April 30, 1922	4 mos. to April 30, 1921
Gross	\$123,065	\$127,464	\$527,519	\$543,880
Expenses and taxes	85,630	106,436	405,420	471,236
Net	37,435	21,028	122,099	72,644
Interest	18,542	17,065	74,168	68,260
Surplus	18,893	3,963	47,931	4,384

Nova Scotia Tramways & Power Co.—

The N.S. Board of Commissioners of Public Utilities has authorized the company to issue \$1,500,000 of 30-year mortgage bonds. The proceeds are to be utilized to retire \$1,000,000 of 3-year 7% notes due June 1, which will amount to approximately \$1,035,000, as the notes are payable in New York in U.S. funds; \$200,000 for street paving, and the balance for electric light and gas purposes.

The company subsequently put on the market \$1,250,000 of the amount authorized, at 97½ and accrued interest from April 1. The bonds are redeemable April 1, 1952, but are callable as a whole at any interest date, up to April 1, 1932, at 110 and interest, to April 1, 1942, at 105 and interest, and to April 1, 1947, at 102½ and interest.

Port Arthur Civic Ry.—A press report says that the total passenger revenue for 1921 was \$192,779.89; fare passengers carried, 3,178,840; total passengers carried, including transfers, 3,417,495; car mileage, 624,007. The report also states that the earnings for the four months of 1922 were as follows:—Jan., \$14,645.05; Feb. \$13,405.34; March, \$15,554.22; April (estimate), \$16,000.

Quebec Ry. Light and Power Co.—

The House of Commons Railway Committee has approved of a bill authorizing the company to issue bonds at a rate not exceeding 7%. The company asked for authority to issue \$4,000,000, but this provision was withdrawn and the amount to be issued was not stated. It was intimated that no bonds could be issued without the consent of holders of existing bonds.

Winnipeg Electric Railway.—

	Apr 1922	April 1921	4 mos. to April 30, 1922	4 mos. to April 30, 1921
Gross	\$435,059	\$462,378	\$1,871,394	\$1,923,941
Expenses	307,217	439,955	944,708	1,455,114
Net	127,842	112,423	926,686	468,827
Surplus after fixed charges	46,834	52,310	263,454	233,510

Manitoba Public Utilities Commission.—We were officially advised on May 12 that the act respecting public utilities, to create a public utilities commission, and in 1912, and subsequently amended, was not changed at the Manitoba Legislature last session. It was stated following the passing of a resolution on March 1, censuring the Government for not having put into effect a resolution passed by the Legislature of April 28, 1921, directing the winding up of the Public Utilities Commissioner's business that the Commissioner would cease his duties under the act on May 31, and that the duties of the office would then be transferred to the Provincial Secretary's Department.

Legislation Affecting New Brunswick Power Co.

The New Brunswick Legislature has passed an act, providing for the expenditure by the N.B. Power Commission of \$800,000 additional upon the development of water power plants. The Musquash power development near St. John is reported to be well on towards completion. The power transmission line connected with this development will extend to St. John in one direction and to Moncton in the other.

The question of the distribution of the power to be delivered in St. John from this development was debated at length in the Legislature. It arose as the result of the introduction of a bill designed to give the St. John City Council authority to enter into competition with the N.B. Power Co. in the city and Rothesay parish in the distribution of power. The bill provided among other things that the city be given power to sell out the company's property under certain circumstances. The company pointed out that if by reason of the city's competition in the distribution of power the company's earnings are so reduced that it cannot continue unprofitable portions of its service which it is now conducting at a loss in the public interest, the city may take over all or any portion of the company's plant and operate it under the control of the Commissioner of Public Safety without any compensation to the company for the use of its property or any obligation to maintain it, and that the expense of such operation shall be a lien upon all of the company's property and to satisfy such lien the city may sell all the company's property and franchises and upon such sale being made it may execute a good and sufficient conveyance to the purchaser free and clear of all liens, or incumbrances. The result would be that the city would acquire at such sale all of the company's property without paying anything for it.

After several days' discussion in committee, the bill was amended in many details, and as it finally passed provision was made that the company may within 12 months offer to sell its undertaking to the city as a going concern, which offer the city is authorized to accept, and to proceed for arbitration to fix the actual cash value of the company's property, which includes the electric railway in St. John and its vicinity.

Toronto Electric Railway and Power Clean-Up Deal.

Progress is being made in the direction of winding up the various matters that have interfered with the completion of the "clean-up of the Mackenzie interests," which was the subject of an agreement between the Hydro Electric Power Commission of Ontario, several companies headed by Sir Wm. Mackenzie, and the Toronto City Council. The matters arising out of the agreement have resulted in a good deal of negotiation and discussion between the several interests, and have been somewhat complicated by reason of the Yonge St. situation as it affects the Toronto & York Radial Ry.'s Metropolitan Division. There were several conferences of the parties interested at the Premier's office at the Legislative Buildings in Toronto, in May, but no settlement was arrived at.

Marine Department

The Canada Steamship Lines Financing, Reorganization, Annual Report, Etc.

A year or so ago, when it became necessary to reorganize the Canada Steamship Lines' finances, and to obtain funds, the Canadian Appraisal Co. was employed to value the company's fixed assets, and is stated to have reported, in June, 1921, that their value was substantially in excess of that shown in the last previous balance sheet. In August, 1921, a bylaw was passed authorizing the issue of \$6,000,000 ten-year serial 1st mortgage 7% collateral bonds. These were not underwritten, but it was reported that some of the directors and their friends had subscribed for over \$2,000,000 of them, and the balance was offered by local brokers, principally in the Province of Quebec, but only about \$300,000 worth were taken by the public. As it therefore became necessary to make other arrangements, the directors decided to seek funds in New York, and as a preliminary step employed Coverdale & Colpitts, consulting engineers of that city (who were engineers to a commission appointed by the Canadian Northern Ry. Co.'s directors to make a report on its properties in 1917), to make a general survey and investigation of the company's properties, affairs and transactions from its inception, and their report was submitted to the directors in due course.

In March, 1922, President J. W. Norcross went to England, to endeavor to effect a change in the voting trust, under which between 60% and 70% of the common stock was vested in trustees in England, elected by the London Advisory Committee, and to effect a change in that committee so as to equalize the voting power between the Canadian and the British interests. He returned to Montreal on April 23, and, following a directors' meeting on April 26, it was announced that arrangements had been made for refinancing the company, that a bond issue of \$6,000,000 had been underwritten, and that changes would be made in the directorate.

On May 2 it was announced that at a directors' meeting held on that day, W. H. Coverdale, of Coverdale and Colpitts, New York, had been elected president in place of J. W. Norcross, who had been elected Vice President and Managing Director, and that A. J. Brown, K.C., of Montreal, and Robt. Hobson, President of the Steel Company of Canada, Hamilton, Ont., had been elected directors, and proxies were invited in their favor for a special general meeting and for the annual meeting to be held in Montreal on May 16 to consider, and if deemed advisable, to rescind the bylaw passed in Aug., 1921, authorizing an issue of \$6,000,000 ten-year serial 1st mortgage 7% collateral bonds, and to consider, and if deemed advisable, to ratify a new bylaw authorizing an issue of \$6,000,000 twenty-year 7% 1st mortgage collateral sinking fund gold bonds. It was also announced that the issue of \$6,000,000 20-year 1st mortgage collateral sinking fund 7% gold bonds had been underwritten in New York, by Kissel, Kinnicut and Co., and Blair and Co., New York, and Union Trust Co. of Pittsburgh, Pa. Of the total amount, \$4,500,-

000 was offered in New York, and was reported as oversubscribed, and the balance of \$1,500,000 was offered in Canada early in May, by Nesbitt, Thomson and Co., Montreal, at 97.50 and interest, to yield approximately 7¼%. Interest is payable half-yearly on May 1 and November 1, and principal and interest are payable at the holder's option in New York, Montreal or Toronto, in gold. Coupon bonds are in denominations of \$1,000, \$500 and \$100, registerable as to principal, and callable for the first three years at 107½ and interest, and thereafter at 105 and interest. Commencing May 1, 1923, the company is to provide an annual sinking fund of 2% of the maximum amount of the bonds, payable 1% half yearly, to be applied to the purchase of the bonds in the open market up to the call price, and if not purchasable at that price, bonds will be called by lot at the call price. As the bonds are retired, an equivalent percentage of the collateral may be withdrawn for two purposes only, for cancellation, and for the sinking fund requirements of the indenture securing each collateral. The issue is secured by a deposit of \$8,400,000 first mortgage 5% bonds due 1943, being 61.42% of a total closed issue of \$13,675,466, the balance being outstanding in the form of debentures, or first mortgage bonds, which are interchangeable. The face value of the first mortgage bonds held

as collateral for this issue exceeds its face value of this issue by \$2,400,000, or 40%.

Annual Report and Statement.

During the second week in May the directors' annual report for the calendar year 1921, was issued over the signature of W. H. Coverdale, President, and sent to shareholders, with statements signed by J. W. Norcross and G. H. Smithers, directors, as follows:

Your directors submit the eighth annual report and statement of accounts. The profits for the year were \$772,850.40, against \$1,932,772.32 for 1921. The abnormal expansion of the company's business during the war, and for a period after the war, and which was followed by great depression in the world's shipping trade, seriously affected the result of the company's operations during 1921, and the preferred dividend has since been deferred. Under the advice of expert engineers and accountants, the balance sheet has been revised to reflect existing values of tonnage and property. In order to pay off bank loans, and to provide additional working capital, your directors have arranged for an issue of \$6,000,000 of collateral bonds. You will be asked to approve certain amendments to the bylaws, the desirability of which is obvious. The company's properties are in a good condition, and the general efficiency has been well maintained.

Consolidated Balance Sheet as at December 31, 1921.

ASSETS	
Fixed Assets:	
Ships as at Dec. 31, 1920	\$27,308,960.27
Net additions for year being excess of additions to fleet over ships lost and sold	2,137.77
	\$27,311,098.04
Written off ocean ships	3,873,595.54
	\$23,437,502.50
Real estate, buildings, docks and wharves as at Dec. 31, 1920	\$ 6,685,064.30
Net additions for year	237,891.30
	6,922,955.60
Other fixed assets as at Dec. 31, 1920	\$ 1,474,691.92
Net deductions for year	13,290.23
	1,461,401.69
Depreciation reserve	\$31,821,859.79
	6,566,496.26
	\$25,255,363.53
Deferred payments on ships and properties sold	41,000.00
Current and working assets:	
Cash in banks and on hand	\$ 1,003,049.84
Cash in hands of debenture stock trustees	36,273.91
	\$ 1,039,323.75
Accounts receivable, less reserve for doubtful accounts	1,362,466.04
Adjusted losses due by underwriters	1,030,165.76
Insurance and other claims—estimated amount recoverable	1,573,689.64
Interest receivable accrued	8,996.13
Inventories of stores and supplies	458,287.72
	5,472,929.04
Charges deferred to future operations:	
Insurance unexpired	\$ 246,167.19
Repairs, etc., applicable to 1922	51,962.39
Miscellaneous	49,838.73
	347,968.31
Investments	\$ 3,673,404.13
Less reserve	1,250,000.00
	2,423,404.13
Funds deposited with trustees for mortgage bonds and debenture stock	406,466.20
	\$33,947,131.21
Bond discount and expense—new issue	153,415.04
Leases, contracts and goodwill	8,424,646.79
	\$42,525,193.04
LIABILITIES	
Capital stock:	
125,000 shares cumulative preference 7% stock	\$12,500,000.00
120,000 shares common stock	12,000,000.00
	\$24,500,000.00

Funded debt:		
First mortgage bonds	\$ 523,046.71	
Less cash deposited for redemption	523,046.71	
5% debenture stock	\$14,922,106.66	
Less amount retired by operation of sinking fund	\$1,202,716.41	
Deposited with trustees as security for issue of \$6,000,000 serial first mortgage collateral bonds	8,100,000.00	
	9,602,716.41	
	\$ 5,319,390.25	
Ten year serial 7% first mortgage collateral bonds	\$6,000,000.00	
Less \$167,700 held in treasury and \$3,289,800.00 deposited as security for bank loans	3,457,500.00	
	2,542,500.00	
	7,861,890.25	
Current and accrued liabilities:		
Bank and other loans	\$ 1,944,318.92	
Bank advances on behalf of associated company	1,122,839.68	
Accounts payable	2,479,942.81	
Bond interest accrued	163,010.59	
Government war tax reserve	377,562.37	
Preference dividend declared (payable Jan. 2, 1922)	218,750.00	
	6,306,424.37	
Reserves:		
For freight and other claims	\$ 10,000.00	
For premium on redemption of Richelieu and Ontario Navigation Co.'s bonds	900.78	
Surplus arising from sinking fund purchases of debenture stock	235,258.12	
	246,158.90	
Surplus	3,610,719.52	
Contingent liability on notes endorsed for allied company	1,000,000.00	
	\$42,525,193.04	
Operating Account for Calendar Year 1921		
Operating revenue:		
Ships	\$12,337,418.04	
Docks and wharves	193,809.13	
Miscellaneous	105,788.78	
	\$12,637,015.95	
Other revenue	149,663.77	
Total revenue	\$12,786,679.72	
Expenses	10,434,100.68	
Net earnings	\$ 2,352,579.04	
Interest on mortgage bonds	\$ 80,838.37	
Interest on debenture stock	272,776.19	
Other interest	290,337.28	
Reserve for depreciation	787,126.80	
Reserve for doubtful debts and claims	30,000.00	
Directors' Fees	28,650.00	
Reserve for income tax	90,000.00	
	1,579,728.64	
Profit for year	\$ 772,850.40	
Surplus Account, Dec. 31, 1921		
Balance as at Dec. 31, 1920	\$ 8,611,147.43	
Profit for year 1921 as per operating account	\$ 772,850.40	
Net profit on sales, etc., of fixed assets	225,317.23	
	998,167.63	
	\$ 9,609,315.06	
Written off values of ocean ships	\$ 3,873,595.54	
Transferred to reserve for depreciation of investments, etc.	1,250,000.00	
	5,123,595.54	
	\$ 4,485,719.52	
Dividend for year 1921 on preference stock at 7%	875,000.00	
Surplus	\$ 3,610,719.52	

Special and Annual Meetings.

At the special general meeting on May 15 the bylaw passed in Aug. 1921 authorizing an issue of \$6,000,000 ten-year serial 1st mortgage 7% collateral bonds was rescinded and the new bylaw authorizing an issue of \$6,000,000 twenty-year 7% 1st mortgage collateral sinking fund gold bonds was ratified.

At the annual general meeting of shareholders, which followed, President Coverdale, in moving the adoption of the annual report, said that at the time of consolidation, the directors and officials started under the handicap of an item included in the balance sheet as goodwill, etc., at over \$8,000,000, in order to offset capital liabilities issued at that date. Therefore the credit position at the very start was bad, rather than good, and, as there have been practically no changes in the fixed capital liabilities since that date, no criticism can be levelled at the directors and officers on that score. This bad credit condition was realized within a year of consolidated operation when the war broke out, cutting down revenue, forcing up operating ratio, and resulting in a heavy loss for 1914. This loss was due to war conditions, poor credit position and furthermore to the fact that borrowing had to

be resorted to to fulfil the terms of the consolidation. This applied to the purchase of securities and other properties. This borrowing was done under conditions disadvantageous to the company as to interest, mortgages and various other restrictions imposed at that time. Notwithstanding these burdensome restrictions and the other discouraging factors alluded to, the company has in the eight years of its life, earned \$23,026,000, having since 1914 closed each year with a substantial net income. The company had out of its operations alone established a cash reserve of \$11,198,000, after all operating expenses, the establishment of an adequate depreciation reserve and payment of dividends. This was composed of the surplus of \$3,744,000, and the \$7,454,000 reserve for depreciation and replacements of its fleet.

In referring to the purchase and sale of certain properties, he stated that they had been undertaken in good faith, and that about 50% of them had resulted in substantial benefit to the company. It was only fair to say they were covering now a period when, owing to the very extraordinary circumstances of the war, and more particularly conditions concerning ships, that a very enhanced opportunity existed during several years

for the purchase and sale of capital assets. That was a period that they hoped would not recur. In that period the company bought certain assets and securities of other companies, some of which had resulted to its great advantage and some of which had resulted to its great loss. It was very easy to judge transactions when they were two or three years old, in view of subsequent events. It was somewhat like judging the morality of a past age by the enlightenment of the present age. The transactions that had taken place included the following: The company bought the St. Lawrence & Chicago Steam Navigation Co. for \$2,002,000, and it had paid for itself in three years, and had brought in a large net income. In criticising some of the other transactions it might be well to bear this in mind. The Montreal Transportation Co. was bought at a total cost of \$3,338,000. That was a reliable company bought at a time when prices had reached about their maximum. It was bought on a 7% basis, and it had paid its own way, but no more. After the fullest investigation no adverse comment could be directed against the directors based either on assets or income at the price for which the Montreal Transportation Co. was taken over.

Then they came to a transaction which had been much commented on, and as to which they could not refer in quite the same terms. The company, through Tidewater Shipbuilders Ltd., had an account against the Davie Shipbuilding & Repairing Co. of \$622,000. The Davie Co.'s credit was not in satisfactory shape, and the question arose as to whether or not Canada Steamship Lines should write off its loss on the account, or send good money after bad and try to pull the chestnuts out of the fire, by undertaking to assist the company to a better position. The C. S. L. directors decided to buy a third mortgage to the amount of \$2,500,000. The Davie Co. had suffered by the drop in prices and business from that day to this had barely paid expenses. If the Davie Co. had to be sold today it would mean a loss of \$1,250,000. That, however, was not the case unless the property was sold for half of its outstanding mortgage, and that was improbable. Tidewater Shipbuilders Ltd. plant had been built at Three Rivers and cost \$1,548,000, and if sold today would not realize that, but there was no thought of selling either of them at this time. Eight ocean steamships had been bought at a cost of \$7,898,000, and in the first year made money, and the second year lost money, so their operations showed a profit to date, but there was no prospect of it in this year or in the future. The saddest part was that owing to the redundancy in tonnage there had been such a great fall in price as to make it unwarranted that the values of those ships should be carried at cost in the balance sheet, and there had been written off \$3,898,000, which, with the Davie Co., probable loss amounted to \$5,100,000, which represented 100% of the opinion of men who had spent 90 days in investigating their value and perhaps represented more, especially as they considered the lake and river tonnage represented \$2,500,000 more than the amount carried in the books at present.

A shareholder asked about the loss on ocean ships, and was told that in 1919-20 they had made \$729,000, and in 1920-21 they lost \$639,000, so that there was a net gain of \$80,000 for those two years, but the ships had been written down \$3,-

876,000. The shareholder remarked that the operating cost ratio for 1921 was 81%, which was a little high as compared with 70% in 1919, but the President said this was due to the amount written off for loss.

Mr. Joseph, another shareholder, asked if there was any likelihood of preferred dividends being paid, but the President could not give any hopeful or certain answer on that point, although he declared the company's credit would be rehabilitated within a year.

Changes were made in the bylaws increasing the executive from four to eight and a new bylaw was passed, the effect of which is that the original indenture of trust shall be closed at \$13,000,000 instead of \$15,000,000, as previously provided for. It was stated that there would be no change in the trustees, and that the bonds would be redeemed at the rate of 2% a year, the trustees calling for tenders for this purpose. Resolutions were passed that there would be no increase in indemnities paid the directors or officers.

The following directors were re-elected:—Senator J. P. B. Casgrain, D. B. Hanna, W. L. McDougald, J. W. Norcross, H. B. Smith and G. H. Smithers, and new directors were elected as follows:—W. H. Coverdale and Frank Humphrey, of New York; A. J. Brown, K.C., G. Caverhill, F. W. Molson and Senator Smeaton White, Montreal, J. H. Fortier and C. E. Taschereau, Quebec. Mr. Coverdale was doubtless elected as a representative of the New York financial interests which did the underwriting, and they are also represented by F. Humphrey, of Kissel, Kinnicut & Co. The general impression is that Mr. Coverdale will not retain the presidency for any great length of time. The following were not re-elected as directors: T. Bienvenu, Hon. E. Bristol, K.C., M.P., W. E. Burke, Hon. F. Carroll, J. E. Dalrymple, M. J. Haney, F. S. Isard, J. P. Steedman, R. M. Wolvin. At a subsequent meeting of directors the following officers were elected:—President, W. H. Coverdale; Vice President, Robt. Hobson; Vice President and Managing Director, J. W. Norcross; executive committee, W. H. Coverdale, Robt. Hobson, J. W. Norcross, A. J. Brown, F. Humphrey, F. W. Molson, C. E. Taschereau. F. P. Smith remains as Secretary, and J. I. Hobson as Treasurer. W. Grant Morden has resigned from the London Advisory Committee, which is now said to consist of Sir A. Trevor Dawson, Sir Vincent Caillard, Viscount Long, F. T. Strong, Col. Lorne Hamilton and F. W. Brown.

The Royal Mail Steam Packet Co. announces that, in the hope that it may further business with the British West Indies, it is prepared to give free conveyance by its steamships to genuine samples of Canadian manufactured articles destined for those colonies, whether accompanied or not, but as this concession is made for the sole purpose of promoting business and is one that might be abused, a limit will be placed on the size of the package. Beginning with the Chignecto, which sailed from Halifax, N.S., May 12, and expiring with the same ship from Halifax on Oct. 27, the following reduced fares are in operation: Bermuda, \$70; St. Kitts, Antigua, and Montserrat, \$185; Dominica, St. Lucia, and Barbados, \$195; St. Vincent and Grenada, \$205; Trinidad, \$215; Demerara, \$235.

Canadian Pacific Railway Ocean Steamship Services.

During the first three months of this year, there were 17 arrivals of C.P.R. ships at St. John, N.B., carrying 6,904 passengers, of whom 2,753 were newcomers.

During the past winter the company had 33 sailings to and from St. John, N.B. There were 408 saloon, 4,664 cabin and 8,372 third class passengers inbound, and 314 saloon, 3,827 cabin and 5,458 third class passengers outbound.

The s.s. Empress of India will make her first sailing from Quebec to Liverpool, July 5. She is of the twin screw type, 17,100 tons, with quadruple expansion engines, and has a speed of 17 knots. Her dimensions are: Length, 613 ft.; breadth, 68 ft. She has accommodation for 360 first class and 248 second class passengers.

The s.s. Montrose arrived at Montreal, May 14 on her maiden trip from Liverpool, Eng. She is a sister ship of the Montcalm and Montclare, and is of the geared turbine, twin screw type, with cruiser stern and 2 funnels. Her dimensions are,—length 566 ft., breadth 70 ft., depth 51 ft., 16,400 gross tons. She has accommodation for 550 cabin and 1,250 third class passengers.

The steamships Mattawa and Methven, which have been operated for some time in the Oriental service on the Pacific Ocean, are being transferred to the Atlantic service. They will proceed from Hong Kong, China, through the Suez Canal, direct to New York. They were built especially for the cattle trade, and though they have not been assigned to any particular service, it is anticipated that they will be used in that trade.

The steamships Empress of Japan and Monteagle will be withdrawn from the Pacific Ocean service shortly, owing to the advent of the steamships Empress of Canada and Empress of Australia. The Empress of Japan, which arrived at Vancouver, May 25, is scheduled to sail from Vancouver, June 1, on her last trip to the Orient, and is expected to return to Vancouver about July 19. The s.s. Monteagle arrived at Vancouver, May 19, on her last Oriental trip, having made nearly 100 voyages on that route.

With the sailing of the s.s. Empress of France from Quebec at the end of April, a direct all-water connection with Poland and the Baltic countries was inaugurated, and a similar service from Montreal was commenced with the s.s. Melita, May 24. Other ships on this route will be the Empress of Scotland from Quebec, and Minnedosa from Montreal. Passengers transfer at Southampton, Eng., and proceed on other C.P.R. ships to destination, thus eliminating any inconvenience in landing. At Quebec, arrangements have been made for running trains alongside the ships.

The s.s. Empress of Canada sailed from England early in May, on her maiden trip for Hong Kong, China, via the Suez Canal, and is scheduled to sail thence, June 7, for Vancouver, B.C. She was followed by the s.s. Empress of Australia, which is scheduled to sail from Vancouver, July 27. With the placing of these ships in the Oriental service, the company will give a fortnightly service between Vancouver, Yokohama, Kobe, Shanghai, Manila and Hong Kong, and form the Pacific link in the Orient to Europe service across Canada, the Atlantic service being given

by the steamships Empress of France and Empress of Scotland.

The steamships Methven and Mattawa, each 5,000 tons, which have been operated for some time between Vancouver and the Orient, have been ordered to New York for operation in the Atlantic service. They sailed from Hong Kong via the Suez Canal and are expected to arrive at New York during June. The prospects for trans-Atlantic freight traffic are improving to an extent not anticipated early in the year. In addition to these two steamships, which have not been assigned to any definite route, the company will have the freight steamships Bothwell, 6,800 tons, running between Montreal and London; Dunbridge, 6,650 tons, between Montreal and Avonmouth; Holbrook, 6,665 tons; Bolingbroke, 6,608 tons; and Bosworth, 6,660 tons, between Montreal, London and Rotterdam; Mottisfont, 5,700 tons, and Batsford, 4,800 tons, between Montreal and London.

Drydock Subsidy to Canadian Vickers Ltd.

The Minister of Public Works stated in the House of Commons recently, in answer to H. Marler, St. Lawrence-St. George, Montreal, that a subsidy of \$105,000 a year was paid by the former Dominion Government in connection with Canadian Vickers, Ltd., drydock at Montreal, the subsidy being based on the following valuation:—Buildings, \$561,075; fixed plant, \$199,915; machine tools in machine and ship departments, \$479,955; electrical equipment, \$178,495; patent self-docking floating dock of 25,000 tons lifting capacity, \$1,775,000; rent to be paid, capitalized at 4%, \$353,015; interest, during construction of plant, 5% for half year on \$3,000,000, \$75,000; total, \$3,622,455.

The subsidy was not originally intended to be paid, only on the construction of the actual dock, and it is to be continued. The value established was \$3,000,000, and under the Dry Dock Subsidies Act, 1910, a subsidy at the rate of 3½% is payable annually for 35 years from Jan. 1, 1914.

Welland Canal Traffic.

The Minister of Trade and Commerce, in answering a question by T. L. Church, North Toronto, recently, in the House of Commons, gave the following information as to traffic through the Welland Canal during the years 1913 to 1921:—

	Vessels—		
	No.	Registered tonnage	Cargo in tons
1913	3,229	3,164,530	3,570,714
1914	3,692	3,635,695	3,860,969
1915	2,922	2,855,195	3,061,012
1916	2,939	2,513,619	2,544,964
1917	3,251	2,776,261	2,490,542
1918	3,192	2,595,389	2,174,298
1919	3,213	2,616,014	2,170,779
1920	3,124	2,528,256	2,276,072
1921	3,770	3,329,371	3,076,422

The Canadian Stevedoring Co. Ltd. has been incorporated under the Dominion Companies Act, with \$25,000 authorized capital, and office at Montreal, to carry on a general stevedoring business. The incorporators are: F. Calaghan, J. D. Kearney, P. A. Gregory, A. Andrews and R. Bessette.

General Shipbuilding Matters Throughout Canada.

Canadian Vickers, Ltd., Montreal.—We are advised that dredge 16, for the Marine Department service on the St. Lawrence ship channel, has been completed, and it is expected that it will be delivered in June, after a series of trials. It is the intention to operate the dredge in the channel below Quebec.

The company has taken over the rights for the manufacture in Canada, Vermont, Maine, New Hampshire and Massachusetts, of sea sleds, a new type of power boat. The owner of the patents is Sea Sled Co., Ltd., incorporated under the Dominion Companies Act, in 1921, with \$1,000,000 authorized capital, and office at Montreal, for the building and selling of the Hickman surface propellers and sea sleds. The chief points about the sea sleds are, a surface propeller replacing the usual screw propeller, a side plate rudder, replacing the usual rudder operated by a rudder stock, and an inverted V bottom hull in place of the usual rounded bottom. The directors are: A. Hickman, president and managing director; C. R. Hosmer, Lieut.-Col. H. Molson, H. B. Plant, W. A. Black, J. W. McConnell, Hon. W. J. Shaughnessy and A. R. Gillham. The company has a plant at West Mystic, Conn., and Canadian Vickers, Ltd., is building a demonstration boat at Montreal, which is expected to be ready early in June. It will be 38½ ft. long, and will be equipped with 2 Sterling 6-cylinder engines of 275 h.p. each.

Collingwood Shipbuilding Co., Collingwood, Ont. We were officially advised May 20, that the special type steamship for securing and carrying sand and gravel that this company is building for National Sand and Materials Co., Welland, Ont., and which was described in Canadian Railway and Marine World for March, page 155, was expected to be launched May 27, and christened Charles Dick, by Charles Dick, son of the President of the owning company, David Dick, Jr.

Davie Shipbuilding and Repairing Co., Lauzon, Que., received a contract from the Dominion Public Works Department, April 19, for repairs, renewal, scraping, etc., to the dredge P. W. D. 110 for \$3,807.

J. Matheson, Edmonton, Alta., is building several small boats for service in the Arctic and the Mackenzie River delta, also a fishing schooner about 40 ft. long and 12 tons capacity. They will be sent to Waterways, Alta., where they will be launched, and after the portage at Fort Smith, will be lashed together and floated down the Mackenzie River.

Port Arthur Shipbuilding Co., Port Arthur, Ont., laid the keel of the s.s. Mathewston, yard no. 47, May 10. She will be a steel bulk freight steamship for Great Lakes service, for the Mathews Steamship Co., Toronto. Her dimensions will be: Length, 550 ft.; breadth, 58 ft.; depth, 31 ft., with capacity for over 400,000 bushels of grain. The propelling machinery will consist of triple expansion engines, with cylinders 25½, 41 and 67 in. diameter, by 42 in. stroke, supplied with steam by three Scotch boilers, each 13½ ft. diameter by 11 ft. 2 in. long, at 185 lb. working pressure, equipped with interchangeable furnaces. She is being built to the highest class for the Great Lakes, of the American Bureau of Shipping.

Turpel Shipyard, Victoria, B.C.—S. and E. Turpel, formerly connected with the Turpel Shipbuilding Yard and Marine Ry., at Victoria, are reported to be re-establishing the yard and marine railway on the old site, in the upper harbor. The original plant, which was absorbed by the Foundation Co. during the war, for the building of wooden steamships for the British Government, under orders from the Imperial Munitions Board, had been in existence for about 35 years. The marine railway is said to be in course of construction, and it is intended to operate a general ship repairing plant and to build small ships.

Vancouver Shipyards, Ltd., Vancouver, B.C., made the following repairs recently:—s.s. P. W., s.s. Jessie Mac and s.s.

Hercules, docking, cleaning, painting and under water repairs; Bank Line Co.'s s.s. Madawaska, 4,120 tons, repairs to evaporator; C.P.R. s.s. Princess Victoria, 1,943 tons, docking, scaling, cleaning, painting, repairs to hull and port A bracket; Commercial Cable Co.'s s.s. Restorer, 3,180 tons, minor engine room repairs.

Sir Alfred Yarrow, Chairman, Yarrow and Co., shipbuilders, Glasgow, Scotland, and with which Yarrow's, Ltd., Victoria, B.C., is associated, has retired from the company, which is being wound up voluntarily. A new company is being formed with H. Yarrow, C.B.E., as Chairman. Sir Alfred, who is over 80 years old, will retain an interest in the new company, which will have the benefit of his experience and advice.

Esquimalt and Vancouver Dry-docks.

The Dominion Government has decided to proceed with work on the new drydock at Esquimalt, Vancouver Island, for which P. Lyall & Sons Construction Co., have the contract, the work on which was suspended on March 31, but not to carry out its agreement with the Burrard Drydock Co., for a subsidy for the construction of a floating drydock at North Vancouver, B.C. These announcements were made in telegrams sent by the Minister of Public Works from Ottawa on May 13, as follows:

To Hon. Jno. Hart, Provincial Minister of Finance, Victoria, B.C.: "After careful consideration and investigation of the drydock policy on the Pacific coast, the Government have decided to continue the work at Esquimalt."

To the Board of Trade, Vancouver, B.C.: "The Government have carefully considered and investigated the drydock policy on the Pacific coast and have debarred in undertaking the construction of drydocks at both Vancouver and Victoria. Owing to the progress already made with the Esquimalt drydock and the serious losses and liabilities likely to be incurred by leaving the work at Victoria in an uncompleted condition, it has been considered advisable to continue that work. A careful investigation will be made of the requirements of shipping facilities at Vancouver with a view to improving same."

Hydrographic Surveys of St. Lawrence River.—Senator Dandurand stated in the Senate, recently, in answer to a question, that surveys of the navigable portions of the St. Lawrence River, between Cornwall and Montreal, had been made by the Dominion Government's Hydrographic Survey, between 1890 and 1910, and the charts of these areas can be obtained from the Hydrographic Survey, Ottawa, or the Marine Department's Agent, Montreal. The Government is not aware of any surveys of the area having been made by the United States.

British Shipbuilding Strike Settled.—The dispute between shipbuilding companies and their workers in Great Britain, involving about 300,000 men, was settled April 26. A reduction of 10s. a week was put into effect immediately, a further reduction of 3s. a week taking place in May, and another 3s. a week will be effective in June.

Dominion Marine Association.

Honorary President, A. A. Wright, President, Tidewater Shipbuilders, and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

President, T. R. Enderby, Operating Manager, Canada Steamship Lines, Montreal.

First Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Second Vice President, G. J. Madden, George Hall Coal Co. of Canada, Ogdensburg, N.Y.

Executive Committee, The President, First and Second Vice Presidents, and W. E. Burke, Canada Steamship Lines, Montreal; Yvon Dupre, Sincennes-McNaughton Line, Montreal; M. J. Haney, Canada Steamship Lines, Toronto; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transports, Montreal; Honorary members, L. L. Henderson and A. A. Wright, Montreal.

Counsel, Francis King, K.C., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

Gypsy, painting; s.s. Brunette and s.s. Dolphin, general overhaul; scows E.C.1 and E.C.3, caulked and painted, and also several gasoline boats overhauled and painted.

Vulcan Iron Works, Ltd., Vancouver, B.C., did the following repair work recently:—C.P.R. s.s. Charmer, general repairs; C.P.R. s.s. Montezuma, general repairs; steam tug Vulcan, general repairs; steam tug Stafford, general repairs; s.s. B.C.P., new boiler installed.

Wallace Shipbuilding & Drydock Co., North Vancouver, B.C.—Canadian Government Merchant Marine s.s. Canadian Highlander was docked at this company's yard recently, for overhaul, and for the installation of a complete refrigerating plant.

Yarrow's, Ltd., Victoria, B.C.—The following repair work was done at this company's yards at Esquimalt during April: Hudson's Bay Co.'s s.s. Baychimo, 1,000 tons, minor repairs; Canadian National Ry., car ferry Canora, 2,383 tons, docking, cleaning and painting, drawing tail shafts, and repairs to propeller and rudders; Sir John Jackson, Ltd. s.s.

Principal Drydocks Throughout Canada.

Hon. H. H. Stevens, Vancouver Center, B.C., ex-Minister of Trade and Commerce, moved in the House of Commons recently, for a return showing what drydocks are located and operated at Halifax, N.S.; St. John, N.B.; Quebec and Montreal, Que.; Vancouver, Victoria and Prince Rupert, B.C. The return contains the following information:—

Halifax, N.S.—Drydock operated by Halifax Shipyards, Ltd., completed in Sept., 1889. Length from bilge of caisson to coping head, 567 ft.; length over keel blocks, 500 ft.; length if caisson is placed in outer stop, 588 ft.; breadth at entrance, coping level, 89½ ft.; breadth of floor of dock, 70 ft.; depth at h.w. springs, over sill, 28 ft. 5¼ in.

St. John, N.B.—Drydock under construction under subsidy agreement with Dominion Government. Breadth at entrance, 133 ft. at coping level; breadth at floor, 113 ft.; length from bilge of caisson to coping head, 1,150 ft.; length over keel blocks, 1,025 ft.; length if caisson is placed in outer stop, 1,179 ft.; depth at m.h.w. springs, over sill, 42 ft.

Quebec, Que.—Lorne and Champlain drydocks owned by Dominion Government. Lorne completed in 1888, and Champlain in May, 1921.

Lorne:—Length from bilge caisson to coping head, 600¼ ft.; length over keel blocks, 588 ft.; no additional length if caisson is placed in outer stop; breadth at entrance, coping, 57½ ft.; breadth of floor of dock, 59¼ ft.; depth at m.h.w. springs, over sill, 25 ft. 8 in.

Champlain:—Length from bilge of caisson to coping head, 1,153 ft. 10 in.; length over keel blocks, 1,138 ft.; length if caisson is placed in outer stop, 1,183 1-3 ft.; breadth at entrance, coping, 120 ft.; breadth of floor of dock, 102 ft.; depth at m.h.w. springs, over sill, 40 ft.

[Editor's Note.—The Lorne and Champlain drydocks are not in Quebec City, but opposite it, in Lauzon, Levis, on the south side of the St. Lawrence River.]

Montreal, Que.—Floating drydock Duke of Connaught, operated by Canadian Vickers, Ltd., under subsidy. Completed in 1912. Length over all, 601 ft.; length over keel blocks, 599 ft.; breadth over all, 135 ft. 5 in.; breadth inside at top, 110 ft.; breadth inside at bottom, 100 ft.; clear breadth at water line, 100 ft.; maximum depth of water over bottom of dock — ft.; maximum depth of water over blocks, 27¼ ft. These two latter dimensions can be increased to 33½ and 28½, respectively. This is a self-docking dock in three sections; two sections are bolted together (402½ ft.), and one section loose (198½ ft.). Lifting capacity of dock, 25,000 tons.

Vancouver, B.C.—The Public Works Department entered into an agreement with Burrard Dry Dock Co. for the construction of a floating drydock and appurtenant works at North Vancouver. Lifting capacity 15,000 tons. Construction not yet started.

Editor's Note.—The Dominion Minister of Public Works telegraphed the Vancouver Board of Trade on May 12 that the Government had decided not to carry out the agreement with the Burrard Drydock Co.

Victoria, B.C.—No drydock at Victoria, but one in operation at Esquimalt and one being built at Esquimalt. Dock in operation was completed in 1887.

Old dock length from bilge of caisson

to coping head, 450 ft. 8¾ in.; length on keel blocks, 422 ft.; length from bilge of caisson to head of dock, when caisson is in outer stop, 481 ft. 9¼ in.; breadth at entrance, coping, 65 ft.; breadth at sill level of floor of dock, 41 ft.; depth at m.h.w. springs, over sill, 28.89 ft.

Dock being built: Estimated length from bilge of caisson to head, 1,150 ft.; estimated length when caisson is in outer stop, 1,186 ft.; length over keel blocks, 1,142 ft.; breadth at entrance, coping, 135 ft.; breadth at floor level of dock, 126 ft.; depth at h.w.o.s.t., over sill, 40 ft.

Prince Rupert, B.C.—Floating drydock owned by Grand Trunk Pacific Ry. Co., under subsidy agreement. Completed in 1915. Length over all, 600 ft.; length of keel blocks, no information; breadth over all, 130 ft.; breadth inside at top, 110 ft.; clear breadth at water line, 103 ft.; maximum depth of water over bottom of dock, inside, 32 ft.; maximum depth of water over keel blocks, 28 ft. This is a self-docking dock, in three sections, operated together or separately.

Mr. Stevens also asked for information as to the total gross tonnage entering and leaving the ports of Halifax, St. John, Quebec, Montreal, Vancouver, Victoria and Prince Rupert during 1921. The return stated "No information."

Cable Repair Steamship to be built in Germany.—It has been announced that the Western Union Telegraph Co. has ordered a cable repair steamship from Blohm & Voss, Hamburg, Germany, for \$650,000. Practically all of the cable steamships in operation have been built in Great Britain, but tenders were invited from shipbuilding yards in various parts of the world, as owing to the general unrest, especially in the shipbuilding trades, it was anticipated that prices would vary considerably. Reports state that the lowest prices quoted by British and U.S. shipbuilders were about equal at \$900,000, and that the lowest French tender was approximately \$750,000.

Canada Industries Ltd. is reported to have been organized, in connection with the Canada Cement Co., to operate a steamship service between Canadian ports and the West Indies, Mexican Gulf and Central America, with Montreal as the summer, and St. John and Halifax as the winter Canadian ports. H. C. Brubaker, President, is reported to have stated recently that arrangements have been made for the commencement of the service at once, and that 4 steamships of from 6,000 to 7,000 tons each had been bought. Cement and general cargoes are to be carried on the southward trips, and coffee, fruits and such other cargoes as are available will be brought back on the return trips.

Track Bridge for Toronto Harbor.—The Toronto Harbor Commission, on May 11, asked the city board of control to make application to the Board of Railway Commissioners for an order to permit the construction of a bridge over the railway tracks at the foot of Spadina Ave. The Harbor Commissioner's solicitor advised that a bridge at Spadina Ave. is part of the Toronto viaduct plan, and an application for its construction independently would not be prejudicial to the present situation of the viaduct proposition.

Ships Built in Canada in 1921 and Exported without being Registered.

The following table gives the number and tonnage of ships built in Canada during 1921, and exported without being registered in the Dominion. All were steel steamships.

	No.	Tonnage	
		Gross	Net
Nova Scotia	1	381.57	50.01
Quebec	3	13,682.24	8,013.76
	4	14,063.81	8,063.77

Quebec Harbor Improvements.—Some details of the proposed improvements to be done in Quebec harbor, were given in Canadian Railway and Marine World for May. In this connection, bill 78 was introduced in the House of Commons, May 5, providing that the Governor-in-council may advance to the Quebec Harbor Commissioners not more than \$1,500,000, as required by the commissioners to build such terminal facilities as are necessary to properly equip the port. Commissioners' debentures covering such advances will be deposited with the Government, and the interest thereon is to be deemed to be monoeq required to carry out the construction of the proposed terminal facilities and to be a part of the cost, and may be paid out of the money advanced. The time for carrying out the proposed works shall terminate on dates fixed by the Governor-in-council and plans, and estimates of the work must be submitted and approved before commencing.

H.M.C.S. Shearwater, which was offered for sale by tender, for breaking up only, by the Naval Service Department, recently, has been sold to the Western Shipping Co., Ltd., Vancouver, B.C. She is built of steel, wood sheathed, and is equipped with a single screw two-bladed propeller, triple expansion, surface condensing, inverted, reciprocating engines of 1,400 i.h.p., 4 water tube Belleville boilers, with a working pressure of 260 lb. a sq. in., electric light, evaporators, distilling plant, Weir's feed pumps, etc. Her dimensions are: Length, 200 ft.; breadth, 33 ft.; draft, 12 ft. 5 in.; and she has a displacement of 980 tons.

Canadian Built Drifters and Trawlers. A British Treasury minute, dealing with Admiralty accounts, states that 60 trawlers and 100 drifters were built in Canada in 1917 at a cost of \$19,000,000, the original estimate being \$14,000,000. After the armistice, efforts to sell these boats in Canada were only moderately successful. A British engineering company offered to take them to England and repair them at the Admiralty's expense, for sale on commission. This offer was accepted and £165,000 was advanced by the Admiralty. Of the boats taken to England, 6 trawlers and 26 drifters have been sold, realizing £60,650.

St. John, N.B. Drydock.—The St. John Drydock and Shipbuilding Co. had a dredge working on the drydock site during May, and a second one was expected to be in operation by the end of the month. The pouring of the concrete was expected to commence at the end of May.

The Pacific Steamship Co. (Admiral Line), opened its new offices at Victoria, B.C., May 1, with W. Allan, heretofore local manager, Rithet Consolidated Ltd., formerly agent for the line, in charge as General Agent.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

General.—R. B. Teakle, General Manager, in addressing the Export Club at Montreal, recently, gave an outline of the inauguration and growth of the Canadian Government Merchant Marine, and outlined the different trade routes which have been opened up by the service. He stated that the service has 2,340 officers and other employes afloat on its various ships, and 1,152 ashore. The establishing of a fleet of 65 freight steamships in three years, required considerable effort; this has taken place when conditions in the shipping world have been very difficult to cope with, and, as a result of these conditions, two of the services have had to be suspended. The main services, however, are being carried on with all the energy the staff can put into them.

British Columbia Registration.—Canadian Government Merchant Marine, Ltd., with an authorized capital stock of \$1,000,000, and head office at Toronto, has been registered under the B.C. Companies Act, to carry on business in that province. R. W. Hannington, Vancouver, is its attorney.

Canadian Scottish, Ltd.—Canadian Reaper, Ltd., which was incorporated to own the s.s. Canadian Reaper built at Prince Rupert, B.C., in 1921, and renamed Canadian Scottish, has had its corporate name changed to Canadian Scottish, Ltd.

Officers of Steamships.—Capt. J. P. Sharp, formerly of the s.s. Canadian Voyageur, has been appointed to the s.s. Canadian Trooper, vice Capt. F. J. Ormrod, who stands by for another appointment. Capt. J. H. Hubley, formerly of s.s. Canadian Warrior, at present laid up, has been appointed to the s.s. Canadian Voyageur, vice Capt. J. P. Sharp, transferred to s.s. Canadian Trooper.

Coal Supplies for Steamships.—The following questions were asked in the House of Commons recently, by A. W. Neill, Comox-Alberni, B.C., the answers being given by the Minister of Railways:—

Q.—Has the Government's attention been called to the fact that the s.s. Canadian Freighter, one of the Canadian Government Merchant Marine, recently brought a cargo of Japanese coal to Vancouver, and that 1,200 tons of the coal were transferred to the s.s. Canadian Prospector? A.—The s.s. Canadian Freighter took on board at Muroran, Japan, 1,000 tons of coal for ballast, as it was impossible to obtain a return cargo for the ship. The Canadian Freighter is an oil burning ship, and the coal had therefore to be transferred to the Canadian Prospector on arrival at Vancouver.

Q.—If so, what was the cost of this coal in Japan? A.—\$7 a ton.

Q.—What is the estimated cost of transportation of this coal across the Pacific to Vancouver? A.—No transportation cost. It was considered more economical to bring home coal on this ship than to purchase 1,000 tons of ballast. The saving claimed by the management is as follows:

	Per ton	Per ton
Price of ballast, including loading and discharging (approximately)	\$3.25	
Price of coal at Union Bay, B.C.	7.65	\$10.90
Price of Japanese coal	7.00	
Cost of transferring coal to Canadian Prospector	2.17	9.17

Approximate saving by purchasing coal for ballast..... 1.73
or, for 1,000 tons, \$1,730.00.

Q.—What is the estimated cost of transferring it by barge from one ship to the other? A.—Approximately \$2.17 a ton.

Q.—Is Cumberland steam coal recognized by the Imperial Navy as being a high-class steam coal? A.—No information.

Q.—At what prices could good steam coal from the Cumberland mines have been obtained and delivered into the bunkers of s.s. Canadian Prospector at Union Bay? A.—\$7.65 a ton trimmed in bunkers was the price paid for coal taken by Canadian Government Merchant Marine ship at Union Bay, on March 8.

Q.—Has the Government been advised that the Cumberland mines are only working half time, on account of lack of market for their coal? A.—No information.

Q.—Will the Government take steps to see that C.G.M.M. steamships hereafter use only B.C. coal on the Pacific Ocean? A.—As far as they can possibly do so, Canadian Government Merchant Marine ships will hereafter use only B.C. coal on the Pacific Ocean.

Atlantic Passenger Traffic.—The Minister of Railways stated in the House of Commons recently, in answer to L. H. Martell, Hants, N.S., that no person was employed, nor any commission appointed, by the Canadian National Rys. directors, during 1921, to proceed to England to investigate or report upon the question of passenger traffic on the Atlantic Ocean, in connection with the Canadian Government Merchant Marine.

Pacific Ocean Traffic.—Large bookings of wheat from Vancouver to Japan, and grain from Australia to Japan are reported for Canadian Government Merchant Marine ships operating on the Pacific Ocean.

Suggestions re West Indian Trade.—The Canadian Manufacturers Association's Maritime Division has suggested that all C.G.M.M. steamships under 5,000 tons be sold, and new steamships of larger tonnage be procured, in order to secure the West Indian trade.

Montreal Sailings.

Liverpool Service.—Canadian Cruiser, June 2; Canadian Commander, June 16; Canadian Explorer, June 30.

London Service.—Canadian Ranger, June 1; Canadian Pioneer, June 15; Canadian Challenger, June 29.

Glasgow Service.—Canadian Otter, June 23; Canadian Navigator, June 17; Canadian Volunteer, June 30.

Cardiff and Swansea Service.—Canadian Runner, June 15; Canadian Squatter, July 13.

Australia and New Zealand Service.—Canadian Conqueror, June 28; Canadian Spinner, July 26.

Barbados, Trinidad and Demerara Service.—Canadian Logger, June 7; Canadian Harvester, June 21.

Nassau, Kingston and Belize Service.—Canadian Fisher, June 20; Canadian Forster, July 11.

Newfoundland Service.—Canadian Sapper, June 17.

Vancouver Sailings.

Australian Service.—Canadian Britisher, June 12, Sydney, Melbourne, Adelaide; Canadian Skirmisher, July 15, Auckland, Sydney, Melbourne, Adelaide;

Canadian Scottish, Aug. 10, Auckland, Sydney, Melbourne, Adelaide.

Oriental Service.—Canadian Inventor, June 6, Yokohama, Kobe, Shanghai; Canadian Freighter, July 2, Yokohama, Shanghai; Canadian Prospector, July 20, Kobe, Shanghai.

Indian Service.—Canadian Importer, June 12, Madras, Bombay.

Longshoremen's Wages at Montreal.

As announced in our last issue, the steamship companies operating into and out of Montreal, and members of the Shipping Federation of Canada, outlined the wages and working hours for longshoremen for this season. The terms were not acceptable to the men, who refrained from working, the handling of cargoes to and from steamships being in most cases done by casual labor, assisted by the ships' staffs. There was no formal strike, but there was a certain amount of disturbance caused by interference with the casual labor employed, by union members. At the Mayor's request, a meeting took place between the shipping companies' representatives and the men, May 6, followed by a mass meeting of the men, when it was decided by a large vote to accept the companies' terms. The rates being paid under the new arrangements are: from 7 a.m. to noon and from 1 to 6 p.m., 50c. an hour; from 7 to 11 p.m. and from 12 midnight to 5 a.m., 60c. an hour, double time for Sunday work; nitrate and bulk sulphur cargoes, 65c. an hour for day work and 75c. an hour for night work; grain trimming and bagging, 65c. an hour for day work and 75c. an hour for night work.

Canadian Navy Abandoned.

The Minister of Militia and Defence announced in the House of Commons, May 12, a practical abandonment of the nucleus of a Canadian Navy. The new policy provides as follows: Five ships are to be laid up. These include the cruiser Aurora and the destroyers Patriot and Patricia, presented to Canada by Great Britain after the armistice. The other two ships laid up are submarines. Canada's naval force will consist of three ships on each coast, viz., a small ship and two trawlers as tenders at both Halifax and Esquimalt. The three ships on either coast are to be used for training a volunteer force in protection of shores and harbors, mine sweeping and mine laying. Protection and care of wharves and docks at Halifax and Esquimalt is to be continued, with provision of a reserve force of officers and men numbering 233. With the exception of four, officers from the Royal Navy are to be returned to it.

Chippawa Sand & Towing Co., Ltd. has been incorporated under the Ontario Companies Act, with \$100,000 authorized capital, and office at Chippawa, Ont., to carry on the business of towing, dredging and carrying sand and gravel, and to own steam tugs, docks and other facilities for such business. The provisional directors are: J. C. Carr, J. P. Maloney and W. E. Greenwood, Chippawa, Ont.

Atlantic and Pacific Oceans.

The Hudson's Bay Co. is reported to have chartered the U.S. auxiliary powered schooner Ruby, to take supplies to its Siberian stations. The Ruby has been operated out of Seattle, Wash., in the northern trade for some time, and was expected to leave Seattle during May for Vancouver, to take on cargo.

The British s.s. Arbeeco, from Liverpool, Eng., to Quebec, in ballast, struck a rock on the south coast of Newfoundland, during dense fog, May 10, and is reported a total loss. The crew landed safely. She was built at Ayr, Scotland, in 1894, and was screw driven by engine of 99 h.p. Her dimensions were, length 190 ft., breadth 27.1 ft., depth 13.2 ft.; tonnage, 745 gross, 396 net.

The Cunard Line's service to Canada was reopened April 20, after a lapse of seven years, with the sailing of the s.s. Albania from Liverpool. Other of the company's ships to be operated on the route are the Andania, Antonia, Ausonia and Tyrrhenia. Owing to labor troubles in England, the May sailings of all but the first named were cancelled, but it was expected that they would all be in service during June. On the outbreak of war, all of the company's ships engaged on the Canadian service, were requisitioned by the British Government, and were sunk by the enemy.

The White Star-Dominion Line s.s. Cornishman was the first trans-Atlantic steamship to arrive at Montreal this year, docking there April 26, Capt. A. B. Calvert being presented with a gold-headed cane on behalf of the Montreal Harbor Commissioners. She met considerable ice at the entrance to the Gulf, and also went 322 miles from her course, to aid another ship in distress. Canada Steamship Lines s.s. Bilbster was the first steamship to arrive from the ocean, docking April 24, but as she had come in from a coasting trip, and had not crossed the Atlantic, she did not qualify for the cane presentation. It is stated, however, that this year the presentation was duplicated, the captains of both ships receiving canes.

The motorship Hauraki, which arrived at Vancouver, B.C., during May, on her maiden voyage, is being operated in the Canadian-Australasian service, by the Union Steamship Co. of New Zealand. She is one of the latest ships of this type, and is fitted for cargo, livestock, and a limited number of passengers. Her dimensions are: Length, 450 ft.; beam, 58 ft.; depth, 34 ft. She maintains a speed of 12 knots, on a consumption of 12 tons of oil in 24 hours. She is heated by electricity, which power also operates the winches, windlasses, steering gear, alarms, whistles, etc. A course indicator is also provided, by means of which the officer on the bridge can indicate the course to the quartermaster and know the position of the rudder at all times.

Baggage Insurance.—The C.P.R. has made arrangements that passengers who desire to insure their baggage and personal effects against loss or damage, when travelling by land or sea, may do so. The policies are particularly designed for Atlantic and Pacific Ocean steamship traffic and cover the property insured against all risks of transportation and navigation, except while in the permanent residence of the assured.

Maritime Provinces and Newfoundland.

The s.s. Empress, operated in the C.P.R. Bay of Fundy service, has been converted into an oil burner at St. John, N.B.

The Newfoundland Government has laid up the steamships Sebastopol, Senef and Watchful, of its coastal service, until an improvement is evident in the shipping business.

The Newfoundland s.s. Mary, while en route from St. John's to Catalina, at the end of April, broke her tail shaft and lost her propeller. She was towed to St. John's, by the s.s. Cabot, for repairs.

Lightship 15, which has been stationed at Sambro Bank, at the entrance to Halifax Harbor, is being transferred to Heath Point, Anticosti, for the summer, her place being taken by an automatic gas and whistling buoy.

The Nova Scotia Highways Board has invited tenders for a steam ferry service across the Strait of Canso, between Port Mulgrave and Port Hawkesbury. The boat to be used must be capable of carrying not less than 4 large motor cars and other traffic, and docking facilities must be provided.

The Majestic Steamship Co.'s s.s. Champlain was burned, and afterwards sank, in the St. John River, near the Glenwood wharf, April 25. Most of the cargo was saved. The loss is estimated at \$15,000. She was built at Valleyfield, Que., in 1897, was originally named Queen, was rebuilt at St. John, N.B., in 1904, and renamed Robinault. Her dimensions were: length, 110.8 ft.; 392 gross, 267 net. She was screw breadth, 22.4 ft.; depth, 7.9 ft.; tonnage, driven by engine of 28 h.p.

The F. W. Roebling Co.'s steam tug F. W. Roebling, which ran ashore at Ives Knoll, near Halifax, N.S., late in April, was released by the s.s. Chedabucto, with considerable damage to her upper works. She was towing the Canadian Government Merchant Marine s.s. Canadian Warrior from the Northwest Arm to an anchorage in the Eastern Passage, when she grounded, the Canadian Warrior overrunning her. It is claimed that the Ives Knoll, Middle Ground and Point Pleasant buoys were out of position owing to pressure of ice.

Province of Quebec.

The Memphremagog Navigation Co.'s s.s. Anthemis, which was berthed at Sherbrooke, Que., for the winter, sank

at her wharf towards the end of April, while undergoing some repairs.

G. W. Stephens, a former Chairman of the Montreal Harbor Commissioners, who returned to Montreal May 2, on the C.P.R. s.s. Montcalm, made some flattering remarks on the improvements in the harbor during his long absence.

Lachine Canal traffic, between Apr. 24, when the canal opened for traffic, and Apr. 30, was as follows: wheat, 149,000 bush.; corn, 841,792 bush.; rye, 74,946 bush.; butter, 36 cases; eggs, 30 cases; cheese, 66 cases; coal, soft, 9,215 tons, hard 9,520 tons.

J. A. Lemay, Portneuf, owner of the steam tug Sir Lomer, is suing the Dominion and British Governments for \$1,625 alleged damage sustained by the tug by camouflaging, while she was under lease for war purposes between November 2 and 22, 1918.

The s.s. Toldjoe, which arrived at Montreal, May 17, from Havana, is to be utilized in the port by the Shell Co. of Canada, as an oil tender for ships using oil as fuel. She is 168 tons gross, and is said to be the smallest steamship to enter the port from the ocean.

The Montreal Harbor Advances Act 1922, introduced in the House of Commons, May 5, provides for the advance of money to the Montreal Harbor Commissioners, in addition to previous advances heretofore authorized, not exceeding \$5,000,000, for the construction of terminal facilities in the harbor which have already been approved, and to build such additional terminal facilities as may be necessary for the proper equipment of the port. Advances will be made on the commissioners' monthly applications, which are to be accompanied by statements of the total expenditures of the different items in detail for the month which the advance is to cover. On the advances being made, the commissioners are to deposit with the Finance Minister debentures equal in par value to the advances made, repayable within 25 years from the date of issue, bearing interest at 5% per annum, payable half yearly, out of their revenues.

The Montreal City Council has awarded the contract for a ferry service to St. Helen's Island, with all refreshment, game and amusement privileges on the island, to Capt. Jos. Rinfret, Montreal. The contractor has bought the s.s. Garden City from the Niagara, St. Catharines & Toronto Navigation Co., for use in the service, and she has been thoroughly overhauled and refitted, and left Lake Ontario for Montreal, May 10. She was built at Toronto in 1892, with steel hull and wood upper works. Her dimen-

Ships Added to and Deducted From the Canadian Register During February, 1922.

Added.	Steam.—Tonnage—			Sailing.—Tonnage—		
	No.	Gross	Net	No.	Gross	Net
Built in British Possessions	3	140	93	.....	.....	.....
Purchased from foreigners	2	10,833	7,448	1	217	195
Transferred from British Possessions .....	.....	.....	.....	1	152	132
Registered anew	1	11	11	2	419	367
Other ships	1	1,057	637	.....	.....	.....
Totals.....	7	12,041	8,189	4	788	694
Deducted.						
Wrecked or otherwise lost	6	470	269	4	2,103	1,946
Broken up or unfit for use	5	807	548	4	754	748
Sold to foreigners	3	4,530	3,780	.....	.....	.....
Transferred to British Possessions	1	370	194	.....	.....	.....
Registered anew .....	.....	.....	.....	2	423	389
Other ships .....	.....	.....	.....	1	931	851
Totals.....	15	6,177	4,791	11	4,211	3,934

sions are, length 177½ ft., breadth 26 ft., depth 10 ft.; tonnage, 637 gross, 401 net. She is equipped with electric light and wireless telegraph, and is paddle wheel driven. She has inclined compound engines, with cylinders 28 and 54 in. diam. by 48 in. stroke, 800 i.h.p. at 50 r.p.m., and is supplied with steam by 2 Scotch boilers 11 x 11 ft. at 125 lb. She was operated by the N. St. C. & T. N. Co. for a number of years, between Toronto and Port Dalhousie, but was displaced by the s.s. Dalhousie City a few years ago.

Ontario and the Great Lakes.

The Port Huron & Sarnia Ferry Co. is rebuilding its Sarnia dock.

The name of the s.s. A. D. Cross, owned by J. J. Harrigan, Port Dalhousie, has been changed to Austin H.

The Dominion Sugar Co. has built a wharf at Wallaceburg, for unloading raw sugar from barges brought direct from New York, via the Erie Canal.

Work on the raising of the Port Huron & Sarnia Ferry Co.'s ferry steamship Omar D Conger, which sank at Sarnia, after her boiler exploded, March 26, was commenced May 22.

The Reid Towing and Wrecking Co.'s steam tug Smith, bound from Midland to Sarnia, grounded near Port Hope, May 7, and was released shortly after by the s.s. Manistiquia, without damage, and proceeded to Sarnia.

Canada Steamship Lines' s.s. Arabian, which went aground at the head of Gallops Rapids during the last week in April, was released Apr. 29. After reloading her cargo at Prescott, she resumed her voyage to Montreal.

The C.P.R. s.s. Keewatin grounded at the Government dock at Sault Ste. Marie, May 8, and after unloading her water ballast and a portion of her cargo, she was released by a tug and resumed her voyage without damage.

The Ontario Government locks between Lake Muskoka and Lake Rosseau at Port Carling, which have been under construction during the winter, are practically completed, and were expected to be ready for traffic by the end of May.

Sailing directions for Canadian shores of Lake Ontario have been published by the Naval Service Department's Hydrographic Survey, covering the territory from Kingston to the Niagara River, and including a description of the Trent Canal.

We are officially advised, by Canada Steamship Lines, that the barge Brighton, fully equipped as a wrecking lighter, together with the tug Bronson, will be stationed at Prescott, for this season, under the direction of the Reid Towing and Wrecking Co., Sarnia.

Imperial Oil, Ltd., has appointed Capt. J. W. Abbott and J. Lyons as master and chief engineer, respectively, of the s.s. Montrolite. No appointments have been made to the s.s. Imperial, and we are advised that it is doubtful whether she will be operated this year.

The steam tug Gracie, owned by John Maloney, Port Arthur, is reported to have been sold to parties at Meaford. She was built at Goderich in 1904, and is screw driven by engine of 13 h.p. Her dimensions are: length, 72.5 ft.; breadth, 15.1 ft.; depth, 6.8 ft.; tonnage, 41 gross, 28 net.

Canada Steamship Line's s.s. Midland

King collided with the Great Lakes Transportation Co.'s s.s. Glenfinnan near Caribou Point in Lake Superior, May 17, during a heavy fog. The Midland King was upbound to Fort William, light, and the Glenfinnan was outbound from Fort William with grain.

Considerable repair work will, it is reported, will be undertaken this year at the Sault Ste. Marie Canadian canal. It is said that the old wooden pier at the west end of the locks will be replaced, and that a concrete road will be laid extending the existing road down Huron St. to the sheds below the locks.

The Northern Navigation Co.'s steamships Hamonic and Huronic were equipped with new propeller blades at Detroit, prior to commencing their summer schedules on May 2 and 6, respectively. The s.s. Noronic will be placed in service June 2, when she will take an excursion party from Owen Sound to Sault Ste. Marie.

Cleveland, Ohio, press report of May 4, stated that grain tonnage was in fair demand, charters having been made for wheat from Buffalo to Chicago at 2½c., and from Georgian Bay to Buffalo at 2c. Spot tonnage from Duluth to Buffalo was quoted at 2½c. but was reported scarce, 2¼c. being offered for early loading.

We are advised that the s.s. B. F. Berry, which the Mathews Steamship Co., Toronto, purchased from the Franklin Steamship Co., Cleveland, Ohio, recently, as mentioned in our last issue, has been renamed Berryton, and that she is to be overhauled at Buffalo, N.Y., before being transferred to the Canadian register.

Canada Steamship Lines inaugurated a weekly steamship service, May 4, between Montreal and Detroit, calling at Toronto, Port Dalhousie, Welland, Cleveland, Windsor and Walkerville. Connection is made at Detroit with the Wabash Rd. for the handling of freight to Chicago and other points in the U.S. middle west. The line is known as the Montreal-Cleveland-Detroit Line.

The United States Lake Survey reports the mean stages of the Great Lakes in feet above mean sea level, for April, as follows:—Superior, 601.45; Michigan and Huron, 579.93; St. Clair 575.08; Erie 572.35; Ontario 246.06. Compared with the average April levels for

the past 10 years, Superior was 0.37 ft. below; Michigan and Huron 0.45 ft. below; Erie, 0.12 ft. below; Ontario 0.35 ft. below.

The C.G.S. Lambton was reported lost towards the end of April, during a heavy storm on Lake Superior, while carrying light keepers and supplies to various light stations. There are believed to have been 17 men on board, all being lost. The Lambton was built at Sorel, Que., in 1909, and was screw driven by engine of 89 h.p. Her dimensions were: length, 108 ft.; breadth, 25.1 ft.; depth, 12.7 ft.; tonnage, 323 gross, 182 net.

The s.s. Aragon, which ran ashore at Salmon Point, near Kingston, November 17, 1921, while bound from Chicago to Kingston, with a cargo of corn, was released May 14 by the wrecking outfit owned by John E. Russell, Toronto. The work was taken in hand soon after the casualty, but was abandoned in January, on account of weather conditions. After being released she was taken to Kingston, where she was drydocked.

Masters of ships navigating into, or out of, Toronto harbor, by the western entrance, must pass north of the northerly pile dolphins situated about 800 ft. south of the harbor head walls, between Spadina Ave. and John St. The pile dolphins are well lighted from sunset to sunrise, by white lights, and ships when passing the pile dolphins that are protecting the pipe line must proceed with caution as to speed.

Canada Steamship Lines' s.s. Canadian, which ran on the rocks at Giant's Tomb, near Midland, on Lake Huron, towards the end of April, and which was released by the Reid Towing & Wrecking Co., has been surveyed at the Collingwood Shipbuilding Co.'s dock at Collingwood, where she went under her own steam. She is reported to be seriously damaged at the bottom, over 40 plates having to be removed and replaced. She is expected to be again ready for service during June, or early in July.

The Northern Navigation Co. placed in operation, May 20, a ferry service between Sarnia and Port Huron, with the Canada Steamship Lines s.s. Louis Phillippe. She has accommodation for about 500 passengers and 35 motor cars, each trip, and runs from the Northern Navigation dock at Sarnia to the Reid dock at Port Huron. She was built at Lauzon, Que., in 1914, and is screw

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during April 1922:

Articles	Eastbound	M. ft. B. M.	Canadian Canal	U.S. Canal	Total
Lumber	Barrels	.....	51,730	51,730
Flour	Bushels	432,000	9,276,560	9,708,560
Wheat	Bushels	1,303,428	4,448,282	5,751,710
Grain, other than wheat	Short tons	.....	.....	.....
Copper	Short tons	.....	80,864	80,864
Iron Ore	Short tons	40	.....	40
Pig Iron	Short tons	.....	.....	.....
Stone	Short tons	.....	.....	.....
General Merchandise	Short tons	40	39	79
Passengers	Number	.....	.....	.....
Coal, Soft	Short tons	.....	109,000	109,000
Coal, hard	Short tons	.....	5,000	5,000
Iron Ore	Short tons	.....	.....	.....
Manufactured Iron and Steel	Short tons	52	1,690	1,742
Salt	Short tons	.....	.....	.....
Oil	Short tons	.....	2,544	2,544
Stone	Short tons	.....	.....	.....
General Merchandise	Short tons	.....	.....	.....
Passengers	Short tons	4,250	19,099	23,349
	Number	.....	.....	.....
Summary		Number	88	188	276
Vessel Passages	Net	240,578	435,424	676,002
Registered Tonnage	Short tons	37,242	460,172	497,414
Freight—Eastbound	Short tons	4,302	137,333	141,635
Westbound	Short tons	41,544	597,505	639,049
Total Freight	Short tons	.....	.....	.....

The Canadian and U.S. canals were opened

April 17.

driven by engine of 58 h.p. Her dimensions are: length, 162 ft.; breadth, 37 ft.; depth, 11 ft.; tonnage, 600 gross, 251 net.

The Cleveland, Ohio, Chamber of Commerce is urging the repeal of what is known in the U.S. as the La Follette Seamen's Act. It is stated that since the Act came into force, 76 Great Lakes bulk freight steamships have been transferred from the U.S. to the Canadian register, and that the U.S. Great Lakes fleet tonnage has only increased 1%, while the Canadian Great Lakes fleet has increased 35%, and that no additional ship has been placed in the passenger service by U.S. interests on the Great Lakes.

Canada Steamship Lines s.s. Rapids King has been transferred to Northern Navigation Co.'s service for operation on the Detroit River. Commencing June 24, she will make trips four times a week between Detroit and Walpole Island, and three times a week between Detroit and Wallaceburg. She will be used for moonlight excursions four nights a week during the summer. She was built in 1907, and has since been operated regularly in the St. Lawrence River rapids service. The Northern Navigation Co. will also operate the s.s. Thousand Islander between Detroit and Chatham, commencing June 17.

The following additional appointments and changes have been made in Canada Steamships Lines steamship officers, since those published in Canadian Railway and Marine World for April, page 212: — N. McGlennan, formerly master s.s. Quebec, transferred to s.s. Montreal; W. J. Brown and Jas. Kirk, formerly master and chief engineer s.s. Glenmount, transferred to s.s. Rapids King, which has been transferred to the Northern Navigation Co. for operation; G. Batten and W. Hazlett, formerly master and chief engineer, respectively, s.s. Rapids King, transferred to Rapids Queen; F. Lumley, chief engineer s.s. Simla; A. Mondor, master s.s. Three Rivers; T. S. Patterson and L. E. Spencer, master and chief engineer, respectively, s.s. Winona.

The Henderson Transfer and Lighterage Co.'s s.s. Robert L. Fryer is reported to have been sold at Fort William recently, to C. Carlson, Minneapolis, Minn., for \$30,000. She was built at West Bay City, Mich., in 1888, and has an oak hull, with diagonal strapping on frames, wooden arches, steel boiler house, and steam pump wells. Her dimensions are: Length b.p., 281 ft., breadth moulded 41½ ft., depth moulded 21½ ft. tonnage 1,810 gross, 1,451 net. She is equipped with triple expansion engines, with cylinders 19, 32 and 50 in. diameter, by 40 in. stroke, 850 i.h.p. at 88 r.p.m., supplied with steam by two Scotch boilers, each 10 ft. diameter by 11 ft. long, at 150 lb. She has been used as a grain elevator transfer ship and is equipped with hopper bottom, operating after the type of a grain elevator.

J. F. Sowards, Kingston, Ont., has bought the s.s. Brantford from the Brantford Navigation Co., Montreal, for the coal trade from U.S. lower Lake Ontario ports to Kingston and Montreal. The Brantford was built at Grand Haven, Mich., in 1888, and was formerly named Samuel Marshall, and owned by Central Canada Coal Co., Brockville, Ont. She is of the well deck type, with oak hull, bow sheathed for operation in ice, iron lined boiler house, and steam pump wells. Her dimensions are: Length

198 ft., breadth moulded 34 ft., depth moulded 16½ ft., tonnage 772 gross, 540 net. She is equipped with fore and aft compound engine, with cylinders 23 and 42 in. diameter, by 36 in. stroke, 325 i.h.p., at 82 r.p.m., supplied with steam by a Scotch boiler, 12 ft. diameter by 12 ft. long, at 130 lb.

Canada Steamship Lines s.s. Joyland, which ran aground near Clayton, N.Y., at the end of April, and was reported to be in a critical position, was abandoned to the underwriters May 1. She was bound from Port Colborne to Montreal, with corn. She was built at Detroit, Mich., in 1884, and has an oak hull, with diagonal strapping on frames, and was of the spar deck type, with steel boiler house. Her dimensions are: length, 240 ft.; breadth, 37 ft.; depth, 25 ft.; tonnage, 1,530 gross, 1,440 net. She is equipped with a fore and aft compound engine, with cylinders 27 and 44 in. diam. by 42 in. stroke, 725 h.p. at 72 r.p.m., and supplied with steam by 2 firebox boilers, each 7½ ft. diam. by 15½ ft. long, at 120 lb. working pressure. She was originally named William A. Haskell, and was formerly owned by the Rutland Transit Co., Buffalo, N.Y.

Manitoba, Saskatchewan, Alberta and Northwest Territories.

Navigation from McMurray to the Great Slave Lake was reported open, May 16, when the Northern Trading Co.'s s.s. Northland Echo sailed from McMurray for Fitzgerald.

The Alberta and Arctic Transportation Co. has appointed the following captains and chief engineers: s.s. Distributor, J. P. Bucey, captain, R. Haws, chief engineer; s.s. Slave River, C. Myers, captain, F. J. Mavis, chief engineer; motor boat Canadusa, W. H. Alexander, captain, W. Scriven, chief engineer; motor boat Lady Mackworth, C. A. Gardner captain, O. E. Polzin, chief engineer.

British Columbia and Pacific Coast.

Navigation on the Yukon River was opened during the second week in May.

Victoria, Vancouver, Nanaimo, Prince Rupert and Port Alberni port authorities have announced the abolition of the handling charge of 60c. a ton on cargo at those ports, to meet U.S. Pacific ports competition.

The Government is reported to have advanced \$1,500 for building a wharf at Sidney, in connection with the motor car ferry service between Sidney and Anacortes, Wash. It was expected that the service would be in effect at the end of April, two boats being used, one with capacity for 25 motor cars and the other for 15 cars.

A bill to amend the Vancouver Harbor Commissioners Act was introduced in the House of Commons, May 18, providing that the port warden and shipmaster of the port be controlled by the Marine Department, as in other Canadian ports, instead of by the Harbor Commissioners, as obtains in Vancouver.

A Vancouver press dispatch of May 11 stated that up to that date, 6,048,068 bushels of wheat had been shipped through the port to British and foreign markets during the 1921-22 crop season, compared with 640,000 in 1920-21. From October, 1921, to April 8, the shipments to Japan were 2,858,079 bushels, to the United Kingdom 3,189,327, and to the U.S. 6,666.

The C.P.R. British Columbia Coast Steamship Service has removed its wharf office and docking of steamships at Seattle, Wash., from pier 1 to the Coleman dock at the foot of Marion St., where all steamships will arrive and depart. The new location is more convenient for passengers to and from the uptown districts, as it is no longer necessary to cross yard tracks to reach the pier.

Canadian Railway and Marine World for May, gave a list of steamships operated by the Grand Trunk Pacific Coast Steamship Co., with their captains and chief engineers, as appointed in March, but since that time, changes have been made, so that the appointments at present stand as follows: Prince Albert, J. McKernan, captain, C. F. Davis, chief engineer; Prince George, W. S. Morehouse, captain, A. S. Munro, chief engineer; Prince John, H. E. Nedden, captain, H. G. Milvain, chief engineer; Prince Rupert, D. Donald, captain, W. E. Baillie, chief engineer. R. Knox, heretofore chief engineer of the s.s. Prince George has been appointed acting Superintendent Engineer at Vancouver, vice A. L. Brownlie, granted three months leave of absence on account of ill-health. We are advised that the foregoing positions will be held until July 1, when it is possible changes will be made.

Canada West Coast Navigation Co.'s motorships Geraldine Wolvin, Jean Steedman and Jessie Norcross have been sold to Egyptian parties, and have been removed from the Canadian register. These are three of eight wooden, auxiliary powered ships of the bald-headed schooner type, built for Canada West Coast Navigation Co., associated with Canada Steamship Lines, at North Vancouver, and Victoria, B.C., in 1916 and 1917, for general purposes, and were the first of their type to be built in Canada. The particulars of each are as follows: Geraldine Wolvin, built at North Vancouver in 1917—length 240 ft., breadth 43.9 ft., depth 19 ft., tonnage 1,472 gross, 1,259 net, screw driven by engine of 36 h.p.; Jean Steedman, built at Victoria in 1917—length 245.7 ft., breadth 43.8 ft., depth 21 ft., tonnage 1,577 gross, 1,253 net, screw driven by engine of 18 h.p.; Jessie Norcross, built at North Vancouver in 1917—length 240.5 ft., breadth 43.6 ft., depth 19.3 ft., tonnage 1,481 gross, 1,268 net, screw driven by engine of 36 h.p.

Overages at Terminal Elevators.—J. Millar, Qu'Appelle, Sask., asked in the House of Commons, recently, what financial benefits, if any, did the Dominion Government derive from overages at Port Arthur and Fort William terminal elevators in 1921. The Minister of Trade and Commerce replied: "For the crop year 1920-21 the total value of the overages to be delivered to the Government was \$130,524.06. Accounts have been rendered for this amount, but no payments have yet been made."

The s.s. Grilse is reported to have been sold by the Naval Service Department, to S. R. Guggenheim, New York, for use as a pleasure yacht. She was built at Glasgow, Scotland, in 1912, and is screw driven by engines of 6,000 i.h.p., and has the following dimensions,—length 202.3 ft., breadth 18.3 ft., depth 9.2 ft.; tonnage, 287 gross, 157 net. She was owned formerly by J. K. L. Ross, Montreal, and handed over to the Dominion Government during the war, when she was used as a patrol ship.

Mainly About Marine People.

Edward Adams, formerly Chairman, Board of Steamship Inspection, Marine Department, died at Ottawa, May 11, aged 82.

G. M. Bosworth, Chairman, Canadian Pacific Steamships Ltd., returned to Montreal, on the C.P.R. s.s. Empress of Scotland, May 1, after a short business trip to England.

H. J. Bouchier has been appointed harbor master, Penetanguishene, Ont., vice M. Dusome, resigned.

G. A. Browning, Superintendent Engineer, Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., is reported to have resigned, and to have been appointed Marine Representative, Vancouver Engineering Works, Vancouver.

Wm. Hugh Coverdale, B.A., D.Sc. (Geneva College, Beaver Falls, Pa.), who has been elected President Canada Steamship Lines, Ltd., Montreal, was born at Kingston, Ont., in 1871, and graduated from Geneva College in 1891. From 1892 he was engaged in engineering work, in various capacities, in the United States, until 1903, when he travelled in Europe for six months, and in 1894 he opened an office as a consulting engineer in New York and conducted investigations and prepared reports on various steam and electric railways, harbor works, light, heat and power companies, coal mining and handling companies, industrial companies, realty developments, and hotel building propositions. In Jan. 1913, he formed a partnership with W. W. Colpitts, in consulting engineer practice in New York. Either separately, or as a member of Coverdale and Colpitts' firm, his work has included the following in Canada: 1906. Estimates Nipigon Rd. construction and traffic; examination and report on Imperial Coal Co.'s leases physical property and output in New Brunswick. 1910. Appraisal and estimate of earnings of Algoma Steel Co.'s plant at Sault Ste. Marie, Ont.; appraisal and estimate of earnings of Trans St. Mary's Traction Co., Sault Ste. Marie, Mich.; an examination and report on condition, and estimate of cost to complete, Michigan Lake Superior Power Co.'s plant at Sault Ste. Marie, Mich., with estimate of future earnings, etc. 1916. Report for Algoma Steel Corporation, on release of Lake Superior Power Co. from mortgages. 1917. Report on Canadian

Northern Ry. system, for special commission consisting of E. E. Loomis and J. W. Patten, covering physical and financial condition, traffic analysis, improvement and betterment program required to complete property, and estimates of revenue when completed. 1918. Testimony on value of Canadian Northern Ry. property before arbitration board at Toronto, 1922; report on Canada Steamship Lines, covering general investigations of the corporate, financial and operating affairs from the incorporation on June 17, 1913, to Feb. 28, 1922. Mr. Coverdale is Chairman of the Board of Directors of Pittsburgh and West Virginia Ry. and Pittsburg Terminal Rd. & Coal Co.; president and director of West Side Belt Rd. Co., director of Gulf States Steel Co., Chicago & Eastern Illinois Ry., Gulf, Mobile & Northern Rd., Meridan & Memphis Ry. and Stutz Motor Car Co. of America. He is a member of the American Society of Civil Engineers and of the American Institute of Consulting Engineers. His partner, W. W. Colpitts, LL.D., M.Sc., McGill University, Montreal, was born at Moncton, N.B., in 1875, and was engaged in engineering work on the Intercolonial and Prince Edward Island Rys. from 1891 to 1898. In 1899 he graduated in civil engineering at McGill University, and was appointed chief clerk to T. G. Shaughnessy, then Vice President C.P.R., now Lord Shaughnessy, and was engaged principally in making an analysis of operations, and in preparing statistical data with a view of reducing unit costs of operation. In 1900 he was transferred to the Western Lines, C.P.R., and was employed on surveys and construction of lines, and in determining the economical value of grade reductions throughout the system, and wrote a paper outlining the method used in the work. In 1901 he went to the United States and was engaged in railway and other engineering work until he entered into partnership with Mr. Coverdale in Jan., 1913.

David Drummond, who has been appointed Agent, C.P.R., Southampton, Eng., entered steamship service with the Allan Line Steamship Co., at Glasgow, Scotland, in 1899, and was transferred to London, Eng., in 1910, as secretary to the Chairman, and London Secretary of the company. During the war, he acted as Embarkation Staff Officer at United

Kingdom ports, for the Canadian Expeditionary Forces. He was appointed General Freight Agent, Ocean Services, C.P.R., London, Eng., in 1920; and from 1921 has been Freight Claim Agent, C. P.R., London, Eng.

Wm. Knight, who was in charge of construction of the Ogden Point breakwater, at Victoria, B.C., from 1914 until recently, for the contractor, Sir John Jackson, Ltd., has returned to England, to take charge of another contract there.

Capt. A. Landry has been appointed harbor master at Quebec.

E. H. McMicken, heretofore General Passenger Agent, has been appointed Passenger Traffic Manager, Admiral Line, Seattle, Wash., vice A. F. Haines, appointed Vice President and General Manager.

A. S. Ray, Passenger and Freight Agent, C.P.R., Bristol, Eng., and recently elected chairman of the Bristol Steamship Owners Association, addressed the local Shipping Staffs Association recently, and dealt chiefly with the North Atlantic shipping trade as it affects the port of Bristol.

Capt. H. L. Waite, master of the C.P.R. s.s. Melita, which sailed from St. John, N.B., April 15, was operated on, at sea, for appendicitis, on April 20, and died April 22, the day before she was due at Southampton, Eng. He was born in 1872, entered C.P.R. service in 1904, and served on the steamships Empress of Britain, Empress of France, Metagama and Victorian, of the latter of which he was master, just prior to his transfer to the Melita.

Capt. J. W. Snow has been appointed harbor master, Port Wade, N.S., vice A. Holmes, resigned.

Appointment of Nautical Assessors.—The House of Commons, on May 10, passed a motion by T. L. Church, North Toronto, for a copy of all correspondence between the Minister of Marine and Fisheries, or any official of that Department, and the Minister of Justice, or any official of that department, in reference to a judgment given by Mr. Justice Morrison, of the British Columbia Supreme Court, in regard to the mode of appointment of persons to act as nautical assessors to assist Dominion wreck commissioners in the investigation of wrecks and other marine cas-

Ships Registered in Canada During February 1922.

In compiling the following lists of ships registered, steamboats and motorboats operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, n.h.p. etc.	Owner or Managing Owner
141378	Jed(1)	Kingston, Ont.	Marine City, Mich. ....1889	208.0	35.9	14.0	1057	637	104 Sc.	J. F. Sowards, Kingston, Ont.
150466	Victrolite*	Victoria, B.C.	Kearney, N.J. ....1921	500.4	68.2	30.6	10825	7443	350 Sc.	Imperial Oil Ltd., Toronto.

(1) Formerly Maplegrove. *Equipped with wireless.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owner or Managing Owner
138425	Annie M. Nadeau	Quebec, Que.	Schr.	Port Daniel, Que. ....1918	94.5	25.9	9.2	152	132	Iheriault Shipping Co., Belliveau's.
141571	E. P. Theriault	Weymouth, N.S.	"	Belliveau's Cove, N.S. ....1919	136.0	31.6	11.5	349	310	G. Carre, Quebec, Que. , Cove, N.S.
150481	Mary A. Daryaw(1)	Kingston, Ont.	"	Port Huron, Mich. ....1886	125.0	27.3	8.2	217	195	C. Daryaw, M.O., Kingston, Ont.
33646	Paspebiac	Paspebiac, Que.	"	Paspebiac, Que. ....1872	75.7	20.6	8.1	70	57	Robin Jones & Whitman, Ltd., Halifax, N.S.

(1) Formerly Keewaunee.

Dominion Marine Association's Activities.

Arrangements are proceeding for the removal of the Middle Ground shoal, which divides the upbound and downbound channels, between Port Huron, Mich., and Sarnia, Ont. This has been recommended by the Dominion Public Works Department's engineers, and the U.S. War Office District Engineer, and is supported by the Dominion Marine and Lake Carriers' Associations.

An investigation is proceeding at the Association's instance and is being conducted under the Dominion Health Department into the question of an amendment of the Canada Shipping Act, for the exemption from hospital taxes in Quebec of ships hailing from any port on the Great Lakes instead of those from Ontario ports only. Statements are being collected which the Association expects will support its contention that the exemption should be granted to all ships from the Great Lakes.

With reference to the agitation for a reduction in the charges upon a ship in connection with the transshipment of grain, a conference was held at Montreal, May 3, between the Association's representatives and representatives of the Montreal Harbor Commissioners, C. P.R., Canadian National Rys., Railways and Canals Department, and elevators at Goderich and on Georgian Bay, when the whole subject was thoroughly discussed. No action was taken immediately, but an understanding was reached as to the views of the respective parties, and further developments are expected in the way of proportionate reductions where costs are admittedly high.

The Association's request for the abrogation of compulsory payment of pilotage dues on the St. Lawrence River below Montreal was under discussion recently, in the House of Commons. Bill 79, which was introduced and read a first time early in May, provides for the amendment of the Canada Shipping Act (Pilotage), by exempting from compulsory pilotage dues, ships of war, and hospital ships belonging to such foreign nation or nations as may be specified by the Governor in council, and ships registered in Canada engaged exclusively in fishing. The larger question, however, has not been discussed.

Shipbuilding in Newfoundland.—As mentioned in a previous issue, the Newfoundland Government is paying a bonus for the building of sailing ships in the Colony. The act under which the payments are made, provides for payment of \$30 a ton on ships from 20 to 50 tons inclusive, built under the Consolidated Statutes, Chap. 176, Schedule B, and registered in the Colony; and \$24 a ton on similar ships built under Schedule C. The keels must have been laid on, or after Oct. 15, 1921, and the ships are to be fully equipped and ready for sea on, or before, July 1, 1922, and furnished with Lloyd's tested chains of suitable size and length, anchors, chain plates, deadeyes, hawsepipes, rigging, sails and spars, according to tonnage, and all of which must be new. Where a ship exceeds 50 tons, but does not exceed 100, the bonus may be claimed for each ton up to, and including, 50 tons, and the further bonus shall be payable on the excess tonnage over 50 tons, as the ship may be entitled to under Chap. 176.

Welland Ship Canal Construction.

Tenders have been invited to June 9, for the completion of the work on the combined sections 3 and 4 of Welland Ship Canal. Similar tenders were called for in Sept., 1921, but owing to the then imminent Dominion elections, it was decided to postpone the matter for a while. The original contract for sec. 3, which extends from station 380 to station 490, about 2 miles, was awarded to O'Brien & Doheny and Quinlan & Robertson, in the autumn of 1913. Owing to war conditions the work was suspended at the end of 1916, and eventually the contract was cancelled. As part of the reconstruction work following the war, work was carried on from 1919 by Doheny, Quinlan and Robertson, at actual cost, plus 8%, and under these contracts the bulk of the earth and rock excavations was done, but only a comparatively small amount of the large quantity of concrete work required for the important structures was placed.

Sec. 4 extends from station 490 to station 597, about 2 miles. Only a comparatively small amount of excavation has been done. It crosses the present canal below lock 25, and, except for this portion, the excavation, etc., can be done in the dry. For economic reasons, due to the interlocking of different items of work on these two sections, it has been decided to complete the work under one contract. The principal items involved are: Rock excavation, 1,659,000 cub yd.; earth excavation, 5,074,000 cub. yd.; watertight embankment, 446,000 cub. yd.; mass concrete, 1,300,000 cub. yd.; other concrete, 100,000 cub. yd.; steel bars for concrete reinforcement, 7,400,000 lb. The principal structures are: Twin locks, 4, 5 and 6 in flight, single lock 7 and the guard gate, together with their entrance piers and other retaining walls, safety regulating and waste weirs, bridge substructures, concrete bridges, two large syphon culverts and two docks.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities—Canadian Counsel, W. D. Lighthall, K.C., Montreal.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—L. E. Moreland, Hull Electric Co., Hull, Que.

Canadian Freight Association (Eastern lines)—G. C. Ransom, Chairman, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, Chairman, 805 Boyd Block, Winnipeg.

Canadian Passenger Association—Eastern Lines, G. H. Webster, 54 Beaver Hall Hill, Montreal; Western Lines, E. J. Stone, 306 Union Station, Winnipeg.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club—W. A. Booth, 53 Rushbrooke St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Ticket Agents' Association, E. de la Hooke, London, Ont.

Canadian Traffic League—R. J. Fitzgerald, 93 Wright Ave., Toronto.

Dominion Marine Association—F. King, K.C., Counsel, Kingston, Ont.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, Des Moines, Iowa.

Niagara Frontier Summer Rate Committee—James Morrison, Canadian National Rys., Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, General Secretary, 263 St. James Street, Montreal; Western Operating Committee, E. J. Stone, 306 Union Station, Winnipeg.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacramento Street, Montreal.

Transportation Club of Toronto—W. J. Hotrum, 595 Runnymede Road, Toronto.

Transportation Club of Vancouver—C. A. Dorflier, 450 Hastings St. West, Vancouver, B.C.

Winnipeg Traffic Club—A. J. Barber, 114 Dominion Bldg., Winnipeg, Man.

Transportation Conventions in 1922.

June 1, 2.—Canadian Electric Railway Association, Quebec, Que.; L. E. Moreland, Hull, Que.

June 14 to 21.—American Railway Association, Mechanical Division, Atlantic City, N.J.; V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

June 18.—American Train Dispatchers' Association, Chicago, Ill.; C. L. Darling, 1310 Mallers Bldg., Chicago, Ill.

June 19 to 21.—American Railway Association, Purchases and Stores Division, Atlantic City, N.J.; J. P. Murphy, General Storekeeper, New York Central Rd., Collinwood, Ohio.

June 26 to 30.—American Society for Testing Materials, Atlantic City, N.J.; C. L. Warwick, University of Pennsylvania, Philadelphia, Pa.

June 28, 29.—American Association of General Baggage Agents, Minneapolis, Minn.; E. L. Duncan, 332 South Michigan Ave., Chicago, Ill.

Aug. 23 to 25.—American Association of Railroad Superintendents, Kansas City, Mo.; J. Rothschild, 400 Union Station, St. Louis, Mo.

October.—American Electric Railway Association, Chicago, Ill.; J. W. Welsh, 8 West 40th St., New York.

Oct. 17 to 19.—American Railway Bridge and Building Association, Cincinnati, Ohio; C. A. Lichty, 219 North Waller Ave., Chicago, Ill.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

S. F. Bowser, founder of S. F. Bowser & Co., manufacturers of oil and gasoline tanks and pumps, and other allied products, including an oil filtration system, Fort Wayne, Ind., with a Canadian plant at Toronto, another plant at Milwaukee, Wis., and assembly plants at Albany, N.Y., and Sydney, Australia, has retired from the Presidency and become Chairman of the Board of Directors, after having served for 37 years as the head of the business, which he started in 1885. S. B. Bechtel, who has been elected President, entered the company's employ in 1889 in the Collection Department, subsequently becoming Assistant Superintendent of Salesmen; Manager of Mail Orders, Sales and Advertising Departments; Assistant to General Manager; Secretary, Assistant General Manager, and General Manager respectively, and since 1920 Vice President and General Manager.

Metal & Thermit Corporation, New York, N.Y., and Toronto, has removed its Pittsburg, Pa., branch office to 801-807 Hillsboro St., Corliss Station, Pittsburg.

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under

Positions Wanted and Positions Vacant, 3c. per word.
Equipment for Sale advertisements, 4c. per word.
Allow five words where replies are to be sent to a box number. Minimum order—\$1.

Rates under other headings and for display advertisements on application.

CANADIAN PACIFIC RAILWAY COMPANY

Dividend Notice

At a meeting of the Board of Directors held today a dividend of two and one-half per cent. on the Common Stock for the quarter ended 31st March last, being at the rate of seven per cent per annum from revenue and three per cent per annum from Special Income Account, was declared payable on 30th June next to Shareholders of record at 3 p.m. on 1st June next.

By order of the Board,
Ernest Alexander,
Secretary.

Montreal. 3rd May, 1922.

THE TORONTO, HAMILTON & BUFFALO RAILWAY COMPANY.

Hamilton, Ontario, May 6, 1922.

Notice is hereby given that the Annual General Meeting of the Shareholders of this Company, for the election of a Board of Directors, and for the transaction of such other business as may lawfully be brought before the meeting, will be held at the office of the Company, corner James and Hunter Streets, in the City of Hamilton, Province of Ontario, on Tuesday, June 6th, 1922, at 11 o'clock in the forenoon.

EDWARD F. STEPHENSON,
Secretary.

THE CANADA SOUTHERN RAILWAY COMPANY

St. Thomas, Ont., May 13, 1922.

The Annual General Meeting of the Shareholders of The Canada Southern Railway Company, for the election of Directors, and other general purposes, will be held at the company's Head Office, in the City of St. Thomas, Ontario, on Wednesday, the 7th day of June, 1922, at 11 o'clock in the forenoon.

EDWARD F. STEPHENSON,
Secretary.



DEPARTMENT OF RAILWAYS AND CANALS, CANADA.

Welland Ship Canal.

Sections 3 and 4 Combined.

Notice to Contractors.

Sealed tenders, addressed to the undersigned and marked "Tender for Sections 3 and 4 Combined, Welland Ship Canal" will be received at this office until 12 o'clock noon, on Friday, June 9, 1922.

Plans, specifications and form of contract to be entered into can be seen on or after this date at the office of the Chief Engineer of the Department of Railways and Canals, Ottawa, and at the office of the Engineer in Charge, Welland Ship Canal, St. Catharines, Ontario.

Copies of plans and specifications may be obtained from the Department on the payment of the sum of fifty dollars. To bona fide tenderers this amount will be refunded upon the return of the above in good condition.

An accepted bank cheque on a chartered bank of Canada for the sum of \$850,000 made payable to the order of the Minister of Railways and Canals, must accompany each tender, \$700,000 of which sum will be forfeited if the party tendering declines entering into contract for the work at the rates stated in the offer submitted.

The cheque thus sent in, will be returned to the respective contractors whose tenders are not accepted.

The cheque of the successful tenderer will be held as security, or part security for the due fulfilment of the contract to be entered into.

The lowest or any tender not necessarily accepted.

By order,

J. W. PUGSLEY,
Secretary.

Department of Railways and Canals,
Ottawa, May 15, 1922.

NOTICE.

The General Railway Signal Company of the United States of America, the owner of the exclusive rights to Canadian patents No. 92323, No. 93127, No. 96256, and No. 97758, issued to Young and Townsend, and covering methods of signalling electrified railways, wishes to call the attention of all possible users of the devices and systems covered by such patents to the fact that it is prepared to sell and furnish, at short notice, all such devices and to install such systems upon any railway in the Dominion of Canada.

All inquiries regarding the above should be addressed to The General Railway Signal Company of Canada, Limited, Lachine, Province of Quebec, Canada.

THE VICTORIA ROLLING STOCK & REALTY CO. OF CANADA, LTD.

NOTICE is hereby given that a dividend of 5% on the paid-up capital stock of the Company for the six months ended May 31st, 1922, has been declared payable June 1, 1922, to the shareholders of record as of the 31st of May, 1922.

By order of the Board,
G. T. CHISHOLM, Secretary.
Toronto, May 20, 1922.

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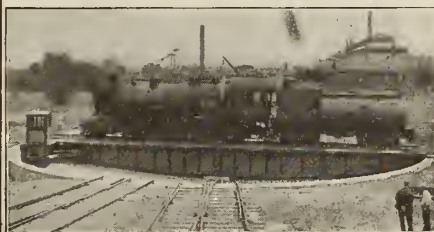
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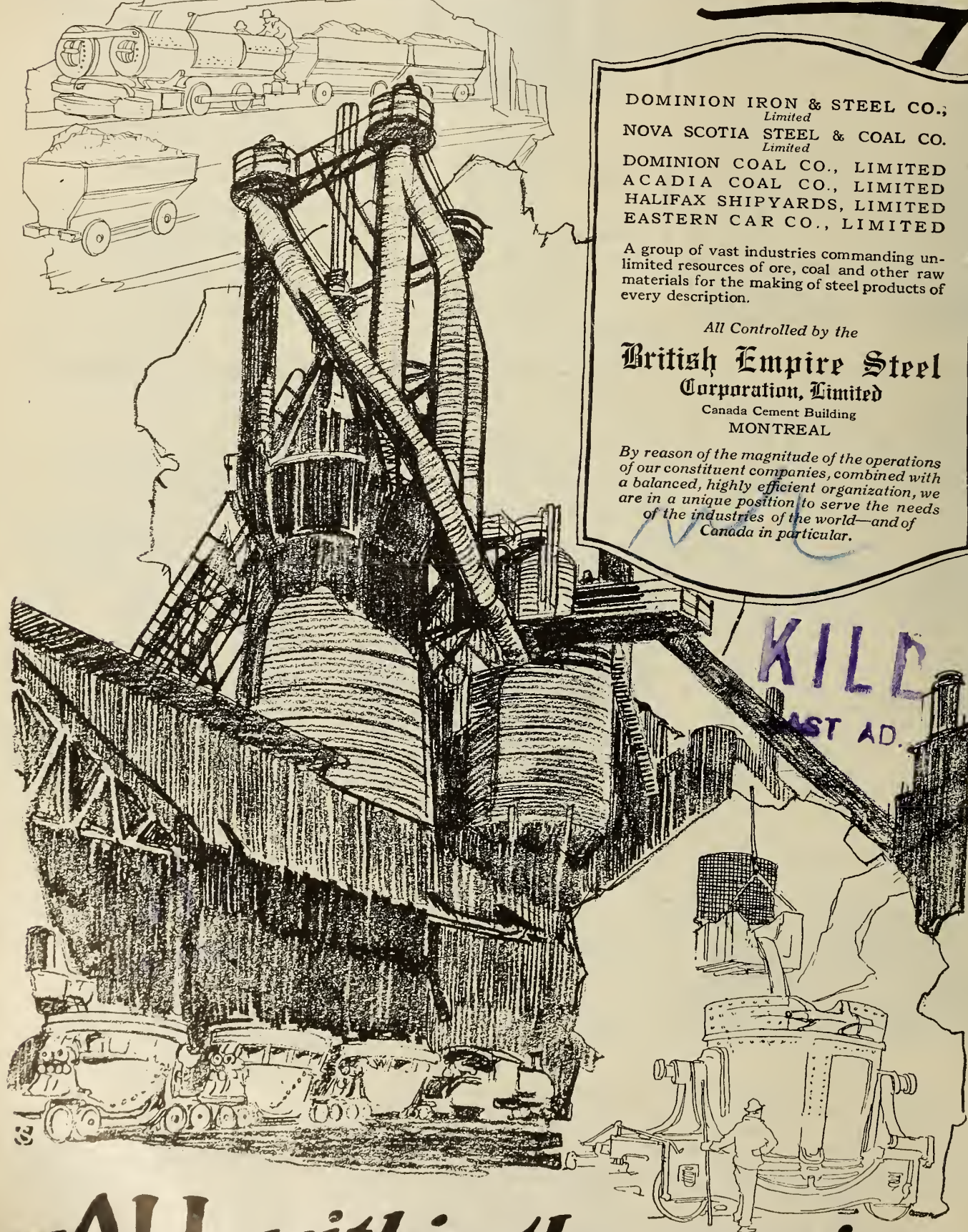
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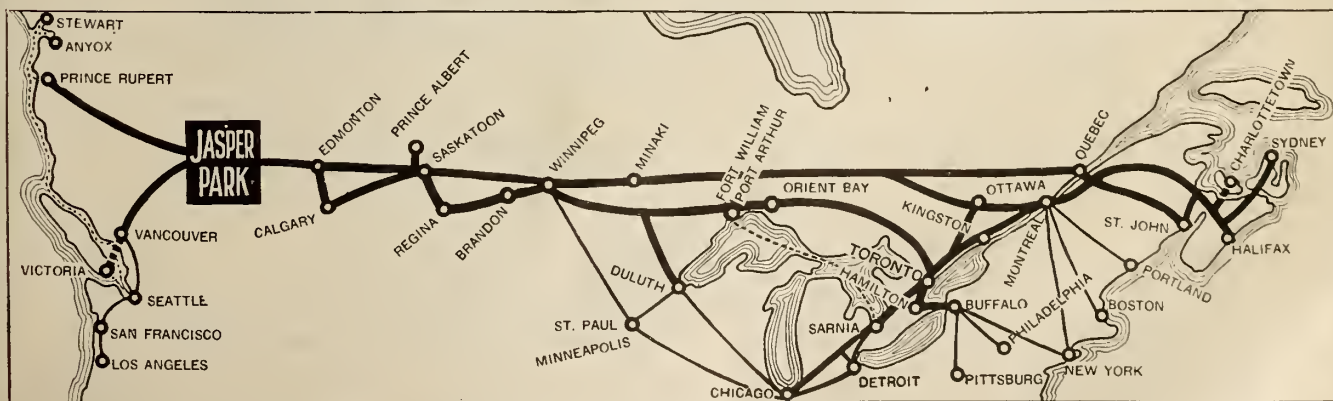
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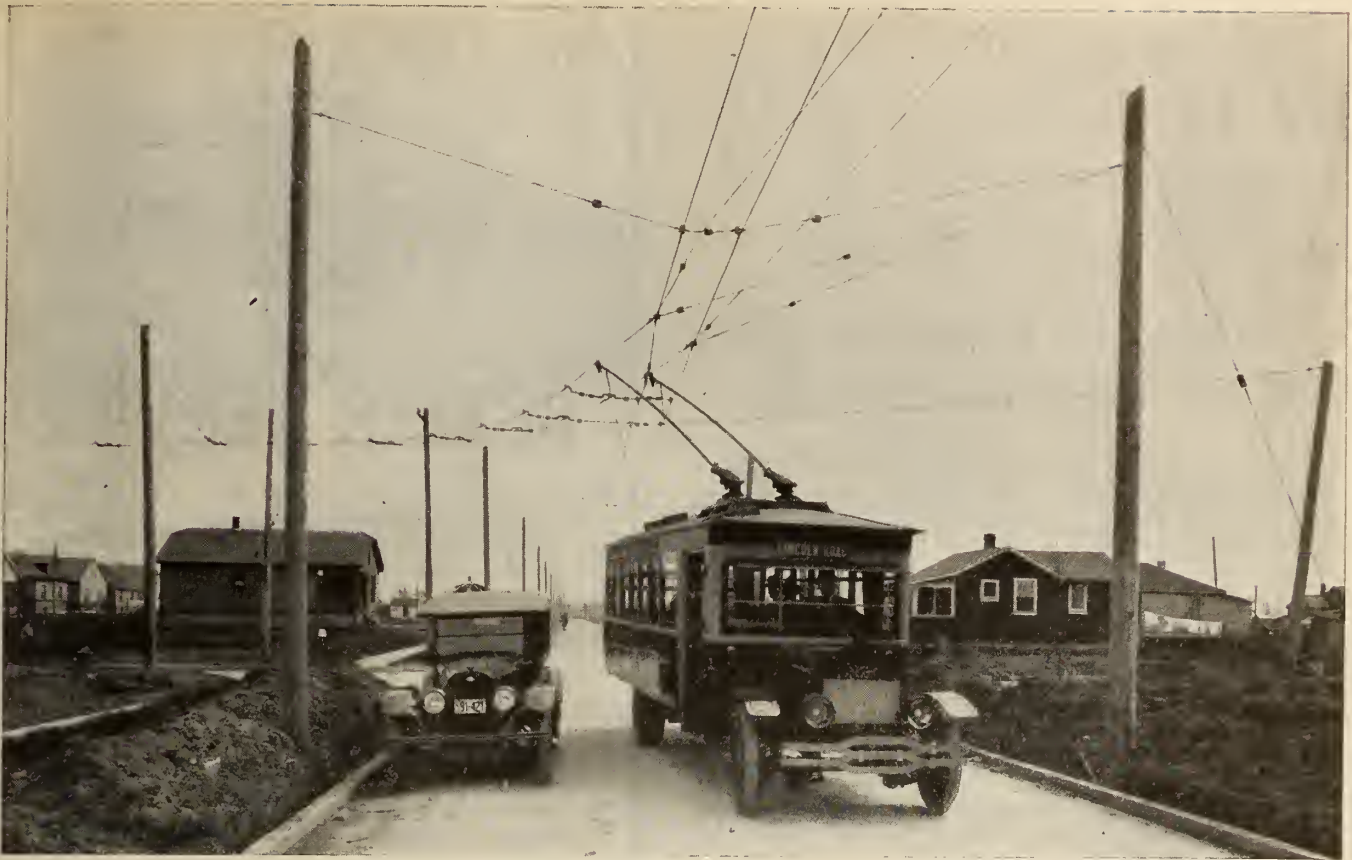
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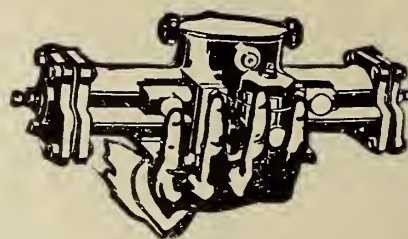
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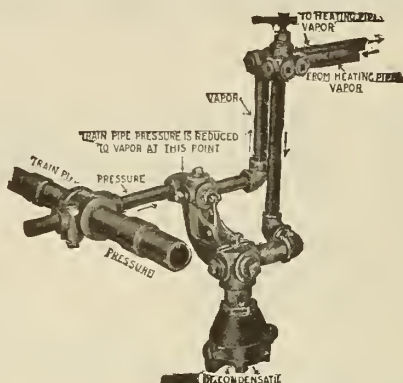
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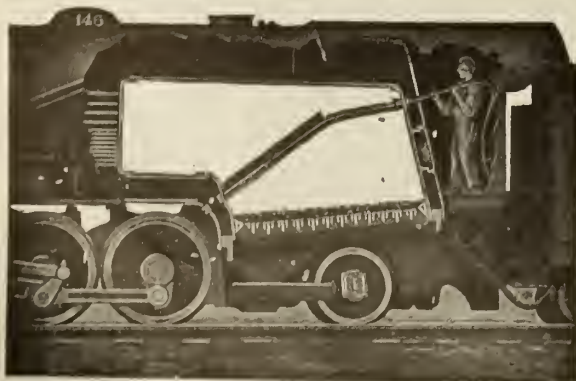
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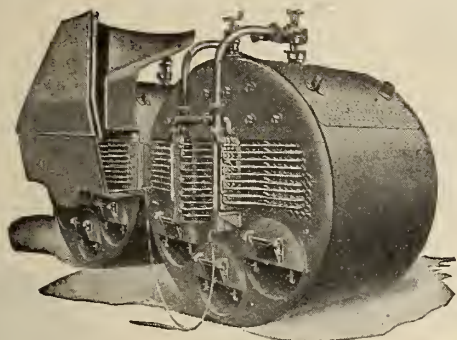
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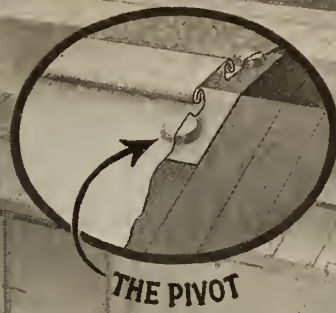
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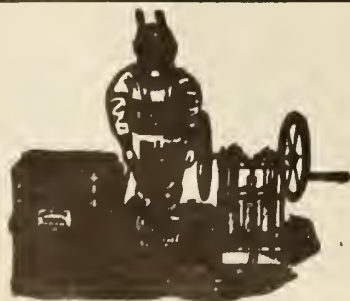
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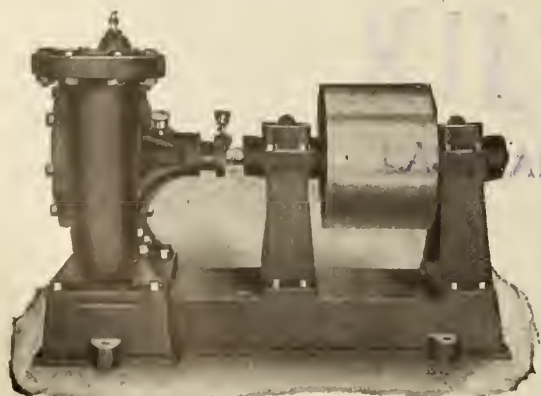
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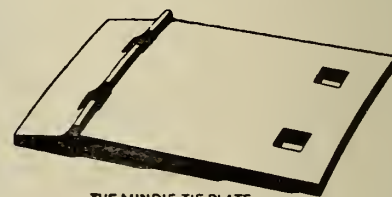
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VALVES, ANGLE AND GLOBE

Ohio Brass Co.

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VARNISHES

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Railway & Power Eng. Corp.

WASHERS

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B. J. Coghlin Co.

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Dearborn Chemical Co. of Can.

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Metal & Thermit Corporation
Reid Newfoundland Co.

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F. H. Hopkins & Co.
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Griffin & Griffin.

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Association of Manufacturers of
Chilled Car Wheels
Canada Iron Foundries Ltd.
Canadian Steel-Tire & Wheel Co.

WHEELS, LOCOMOTIVE

Canada Iron Foundries Ltd.
Canadian Steel-Tire & Wheel Co.

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John E. Russell

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MINER RAILWAY APPLIANCES MANUFACTURED IN CANADA

CANUCK SUPPLY CO., Ltd.
MONTREAL



**ROLLING ROCKER
SIDE BEARINGS**



**EFFICIENT
FRICTION
DRAFT
GEARS**



**IDEAL
SAFETY
HAND
BRAKES**

**W. H. MINER
CHICAGO**

THESE DEVICES ARE VERY EXTENSIVELY USED

FLANNERY

"F.B.C." Welded Flexible Staybolts

an improved welded sleeve forged from ductile material and heat treated—one that is practically unbreakable and guaranteed to last the life of the firebox.

This combined with the fact that thirty-two styles of threaded type sleeves are replaced by three types of welded sleeves means material savings to all railroads who standardize on "F.B.C." WELDED FLEXIBLE STAYBOLTS.

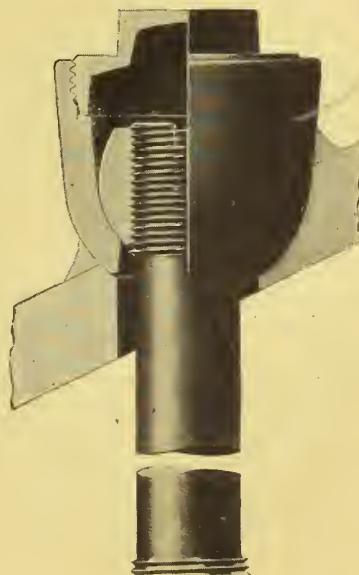
Ask us to send complete information to your mechanical department.

We also manufacture Tate Flexible Threaded Staybolts, Forged Crown Stays, Realock Nuts.

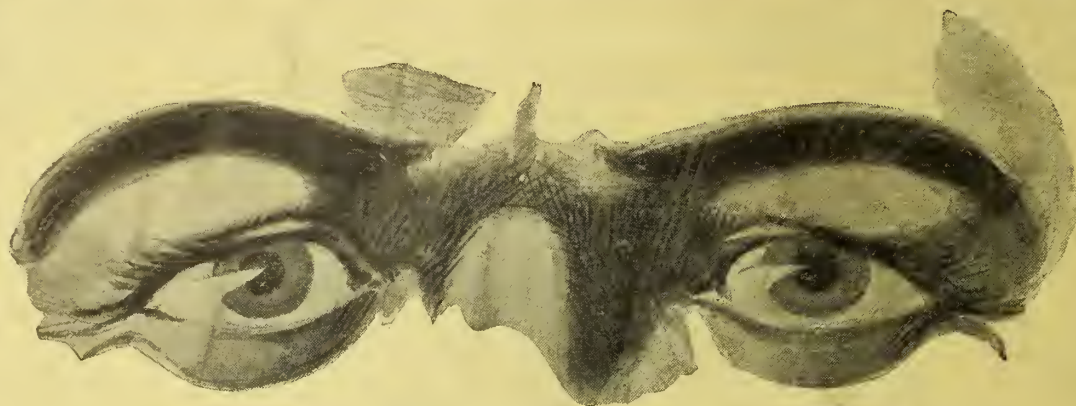
We have reserved spaces 592-593 in Young's Million Dollar Pier during the June Convention. Drop in and see us.

FLANNERY BOLT COMPANY

VANADIUM BUILDING
PITTSBURGH, - PENNA.



FLEXIBLE STAYBOLTS



EYES THAT COMMAND

THE eyes that read Canadian Railway and Marine World are the eyes that command; and the hands that turn its pages are the hands that direct.

For our readers are Canada's MASTERS of land and water transportation, and their skilled subordinates. They are the men who build and equip and operate our steam and electric railways, and the men who design, build, equip and operate Canadian ships, on both salt and fresh water.

Three systems of Canadian railways are understood to purchase current equipment and supplies averaging \$245,000,000.00 a year — not counting extension of lines—and, the men who do the specifying, the deciding and the buying are all readers of Canadian Railway and Marine World.

Rail and Water Transportation, and the many industries related to them, are more closely interwoven in Canada than in the United States, Great Britain and other industrial countries; for the Canadian Railways

pioneered in the industrial and agricultural development of Canada, and in the creation of Canada's Merchant Marine.

So the readers of Canadian Railway and Marine World are more than railway men or steamship men; they are the moving spirits in all that makes this young nation great.

Our editors sense the responsibility of addressing this masterful audience of trained thinkers and doers; and, as a result, Canadian Railway and Marine World is a serious minded publication for serious minded men.

Puff-stuff is foreign to our columns. Inspired "write-ups," to flatter advertisers, run up against a "no admittance" sign. Even technical papers of deep interest are pared down to their vital essence.

And our off-repeated advice to our advertisers is to remember that they are talking to busy men—and to make their business messages conform to that simplest definition of good advertising "Easy reading, worth reading."

CANADIAN RAILWAY AND MARINE WORLD

Toronto

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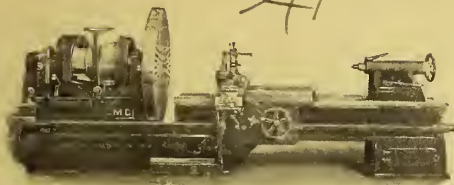
Canadian Railway AND Marine World

Founded in 1898 by Acton Burrows.

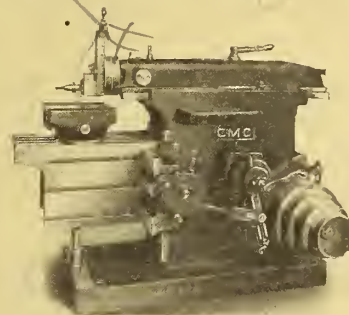
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TORONTO, CANADA, JULY, 1922

See page 359 for
Subscription Rates



26" x 46" x 12' Quick Change Gear Gap Lathe



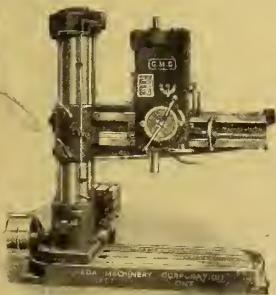
26" x 30" Crank Shaper

We manufacture Machine Tools for locomotive, tank, boiler and round house equipment of the highest grade and unsurpassed efficiency.

Our Machines are extensively used by the leading Canadian Railroads and endorsed by their mechanical executives.

Inquiries solicited.

Illustrations and specifications sent gladly on request.



4' Plain Radial Drill



No. 4, 36" Punch or Shear

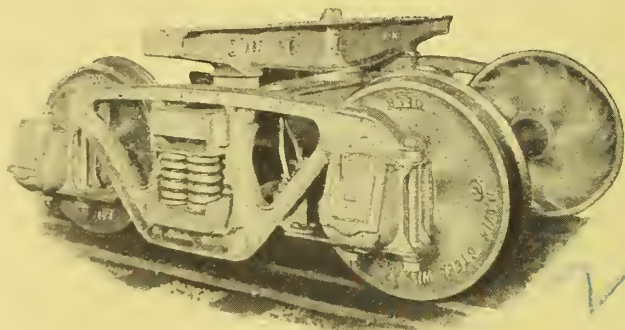
CANADA MACHINERY CORPORATION, GALT, ONTARIO
LIMITED

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AMERICAN STEEL FOUNDRIES

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The changing of Wheels is made easy with the Vulcan Truck.

The removal of the Safety Tie Bolt over each Journal Box, and the jacking up of the end of the Truck, permits the wheels to be rolled out.

Vulcan Trucks mean strength and decreased maintenance charges.

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INTERNATIONAL EQUIPMENT CO. LTD.
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KENNEDY PROPELLER WHEELS

Cut Shows Propeller 17 Ft. 6 Inches in Diameter, Weight 10 Tons. All Sizes, Sectional or Solid Iron, Semi-Steel or Steel.

Marine Machinery Anchor-Windlasses
Winches, etc.

Steel Castings, All Sizes

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THE WM. KENNEDY & SONS, LIMITED

:

OWEN SOUND

ESTABLISHED 1860



Interlocking Interests of Canadian Rail and Water Transportation

There is an intimate interrelation of Canadian Railway, Marine and Industrial activities.

This is especially true of the interlocking interests of Canadian Railways and Canadian Navigation Companies. For Canadian Railways own and operate great fleets of steamships on the high seas and on the Great Lakes and the Rivers.

As the only Railway paper in Canada, Canadian Railway and Marine World has, for 24 years, made, and held, a commanding place for itself in the esteem of the far-seeing railway men who were the creators and are the directors of the Canadian Merchant Marine. This fact makes the WORLD a stronger Marine paper than could possibly be created by any group of men, however able, who undertook to issue a purely "marine" publication.

And, conversely, the WORLD is a stronger Railway paper by reason of its understanding of maritime affairs.

This anomalous condition of affairs is peculiarly Canadian. It is a reflex of the Dominion's industrial development, in which the Railways blazed the way, conquering the wilderness, fostering agriculture and mining, building industry and finally creating merchant fleets to carry the railway-built commerce to every corner of the globe.

Thus, though in one sense ours is a Railway and a Marine audience; in a larger sense our readers are the leaders who have built and are building the "new" Canada; and their well paid lieutenants upon whose capable shoulders they lean in carrying out great plans.

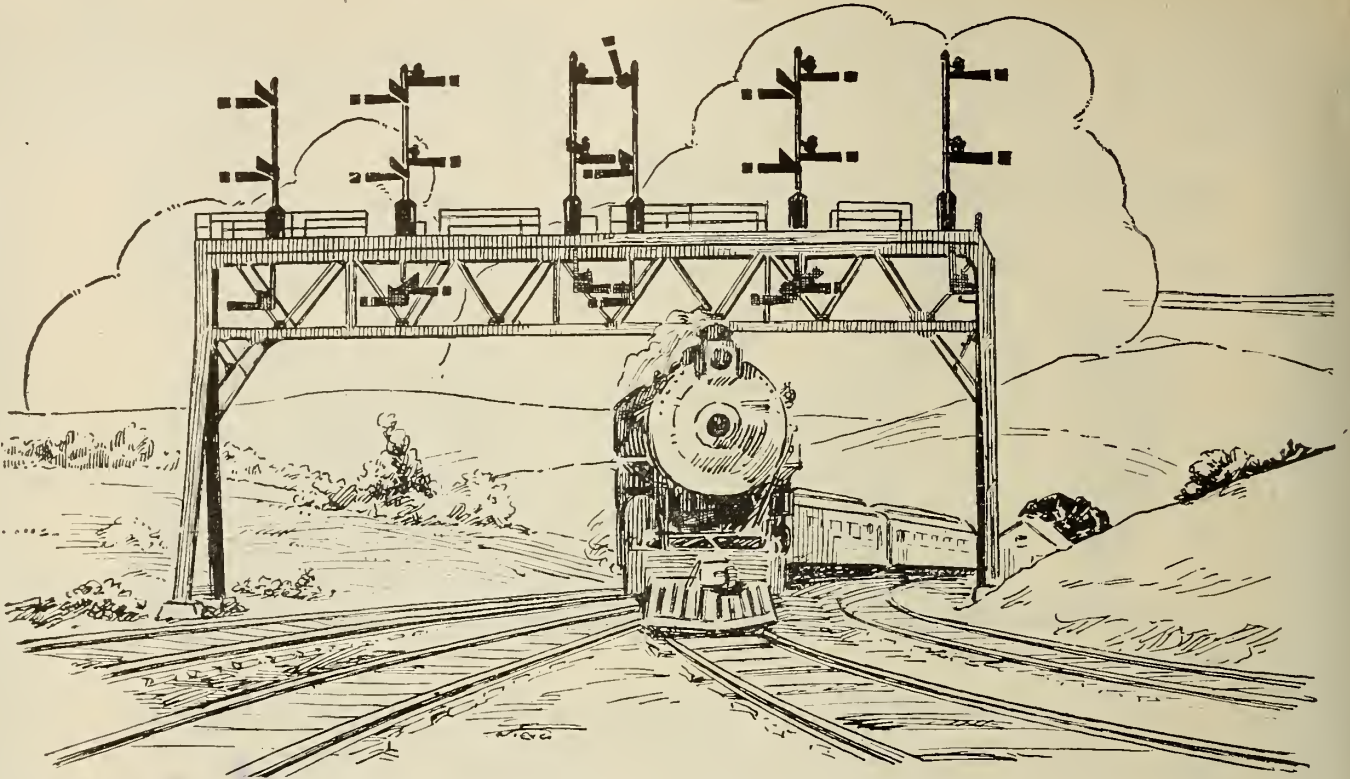
CANADIAN RAILWAY AND MARINE WORLD

Toronto

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Canadian National Newspapers and Periodicals Association,
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Which Way?

THERE are two viewpoints commonly used in the purchase of railway lubricants—one, the buying of oil; the other, the buying of *lubrication*. One distinguishes only the price per gallon of the oil, the other looks to the cost per unit of service rendered by the oil.

To the inexperienced buyer the "cost of oil" represents the "cost of lubrication" and a shaving of the oil bill means a saving in the lubrication bill. The expensive and oftentimes disastrous effects of unsuitable materials on maintenance costs are not considered.

To the practical and experienced purchaser, lubrication is interpreted in terms of *service*. Operating efficiency cannot be maintained without first securing lubricating efficiency. Expenses arising from defective lubricants must in all fairness be charged to those lubricants.

The exceptionally efficient and economical results secured with Galena lubricants on representative railroads in Canada and the United States stand as examples of *lubrication service* far beyond the capabilities of the ordinary railroad oils. The experienced and discerning judgment of recognized leaders in railway operation, who have testified to the value of Galena Service as an aid to operating efficiency, should in itself be a safe and reliable guide for selection.

*"More miles to the pint,
Better service to the mile!"*



Galena-Signal Oil Company

of Canada, Limited

Toronto

Montreal





All Dearborn's Accomplishment Is Waiting for you

Stops Foaming, Scale, Pitting, and Corrosion

By scientific methods of water analysis the actual amounts of all substances present are determined.

Silica and the calcium and magnesium salts are the principal scale-forming substances found in most waters, while the various salts of soda (sodium and potassium sulphates, carbonates, nitrates and chlorides) constitute the chief salts which produce foaming and corrosion.

The results obtained from the analyses are incorporated in our report and form the basis for determining a formula for the treatment to be used.

Complete reports of analyses and recommendations are furnished without charge.

Try Dearborn

*Base Your Conclusions
on Results*

Dearborn Chemical Company
of Canada, Limited

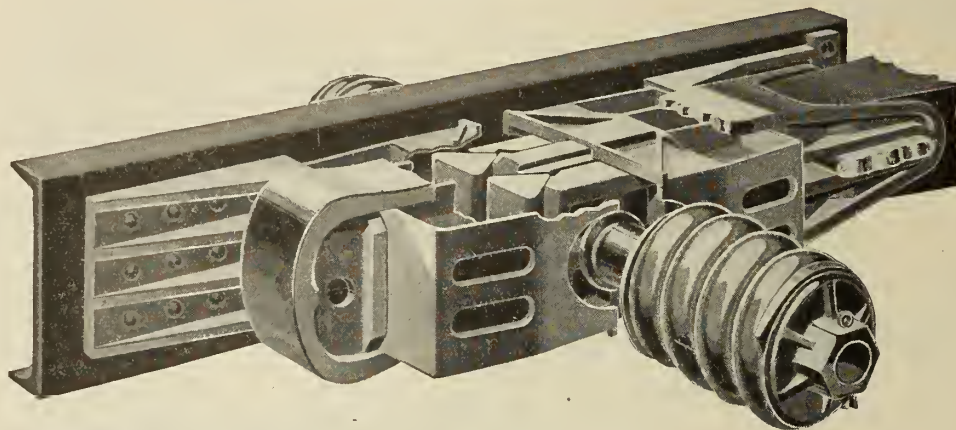
2454-2464 Dundas St. W.

TORONTO, CANADA

**Leading Railways
in Many Countries
Use Dearborn**

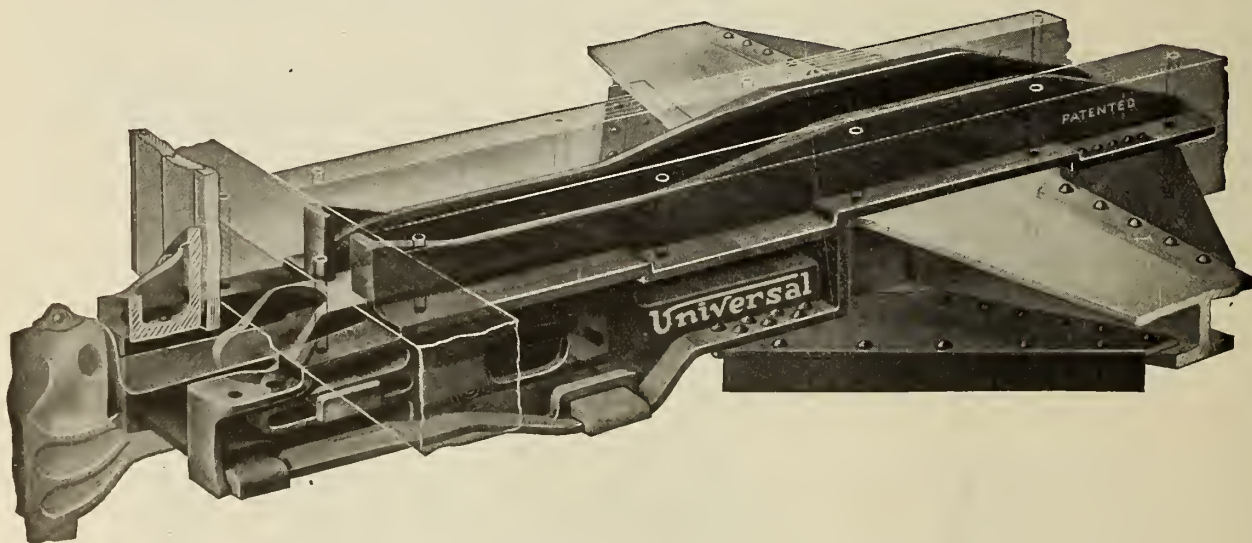
CARDWELL FRICTION DRAFT GEAR

MADE IN CANADA



Universal ATTACHMENTS

MADE IN CANADA



REENFORCING DRAFT ARMS
TANDEM SPRING DRAFT RIGGING
TWIN SPRING DRAFT RIGGING

CAST STEEL YOKES
DRAFT LUGS or PLATES
FRICTIONLESS SIDE BEARINGS

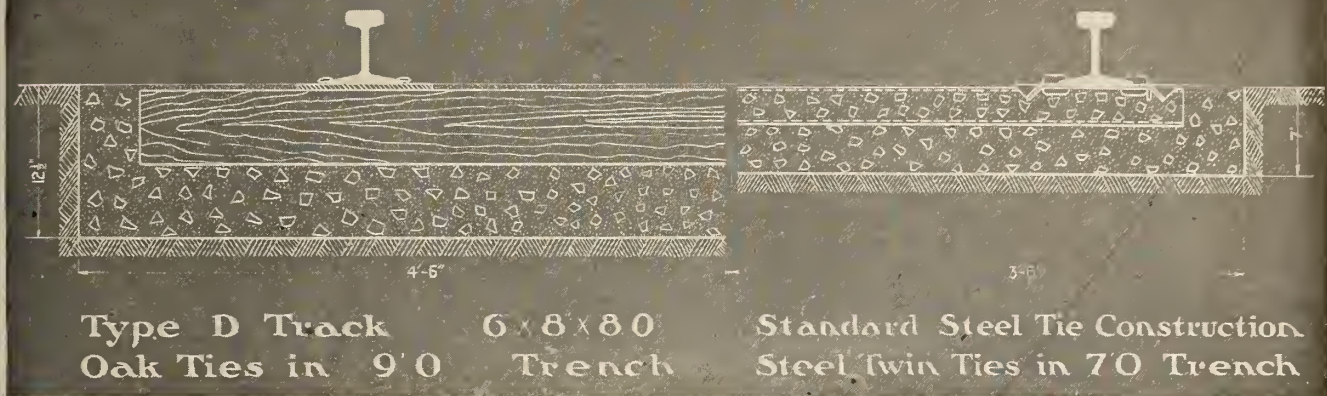
MADE IN CANADA

WEBB. G. KRAUSER

Transportation Building, MONTREAL

International Steel Twin Ties

Comparative Cross Section



Used by

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 The Ottawa Electric Railway
 St. Thomas Municipal Street Railway

Port Arthur Civic Railway
 Hydro Electric Railway, Guelph
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SIMPLICITY of Construction.

SAVING of Concrete.

SAVING of Excavation.

ELIMINATION of Water Absorbing Material.

ACCURACY of Gauge.

PERMANENCY of Construction.

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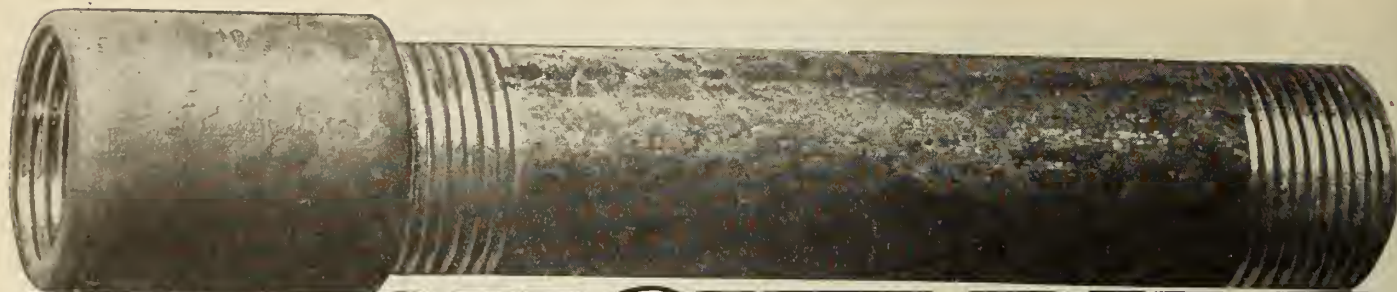
We solicit your inquiries for Steel Ties, Tie Rods, Crossing Foundations, Curb Guards, Steel Girders, Structural Steel, and Transmission Towers.

Manufactured and Sold by

SARNIA BRIDGE CO.

Limited

SARNIA - ONTARIO



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COUPLINGS^{AND} NIPPLES

Do away with experiments when buying wrought pipe.
Insist on Pipe that is rigidly tested, specify

M. R. M. PIPE

Each length is tested to withstand a pressure of 600
pounds per square inch.

BLACK and GALVANIZED

THE
STEEL
COMPANY
OF
CANADA
LIMITED

HAMILTON

MONTREAL



2—Arc Gasolene Driven Unit
Wilson Plastic Arc System
of
Electric Welding

G. D. PETERS & CO., LTD.
1001 New Birks Building
MONTREAL



For best results in welding and cutting

—DOMINION OXYGEN

—PREST-O-LITE DISSOLVED ACETYLENE

By placing within easy reach of every manufacturer an unlimited supply of fuel gas and oxygen—

By using cylinders light in weight, easy to handle, and leak-proof—

By a policy of liberal cylinder loans—

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Dominion Oxygen service will take care of your requirements efficiently and at the lowest prices. Send your orders by wire, telephone, or mail to our nearest Distributing Station.

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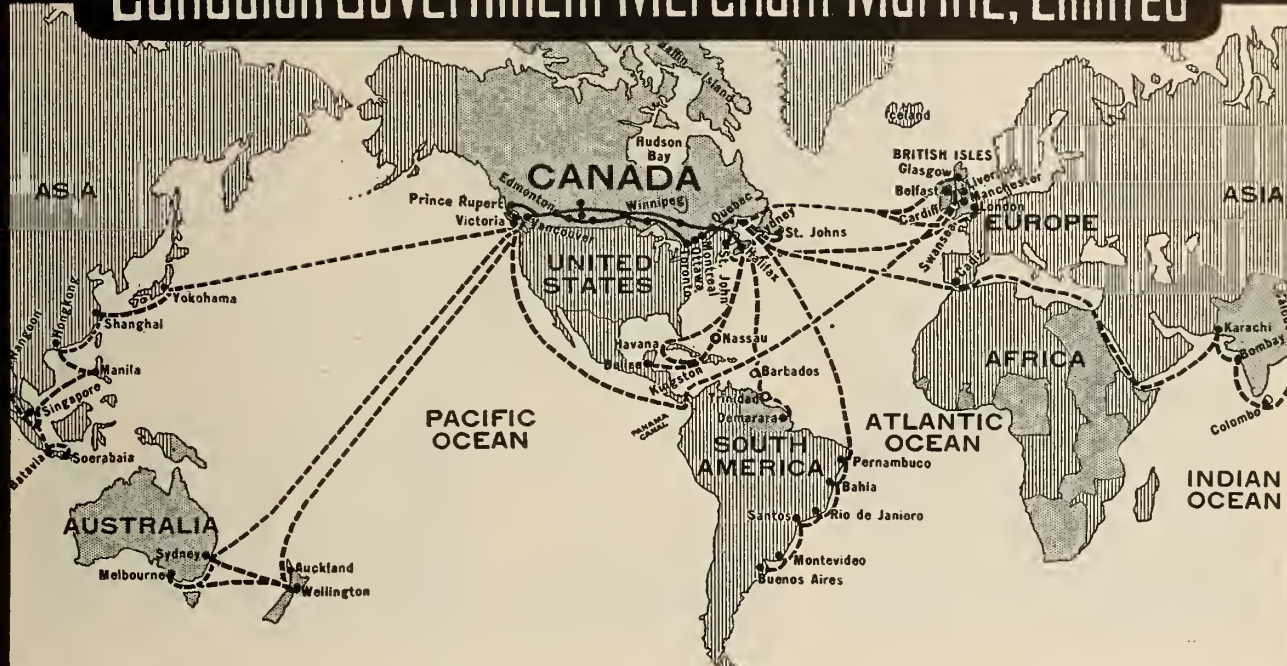


66 Vessels

Canada's
Commerce
Carriers

**Total
Tonnage
390,000**

Canadian Government Merchant Marine, Limited



REGULAR FREIGHT SERVICES

From Montreal and Quebec in Summer
From St. John, N.B., and Halifax, N.S.,
in Winter.

To the United Kingdom, Liverpool, London,
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To Barbadoes, Trinidad and Demerara.
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Sailings every ten days.
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Every three weeks from Montreal in Summer, and Halifax, N.S., in Winter,
To Nassau, Bahamas, Kingston, Jamaica, and Belize, British Honduras.

Superior First Class Accommodation. Excellent Cuisine.

B. C. KEELEY, General Agent, Vancouver, B.C.

F. G. WOOD, General Ontario Freight Agent, Toronto, Ont.

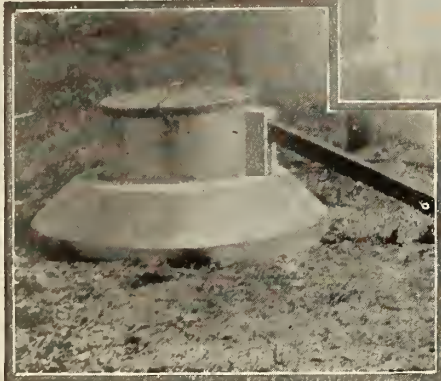
R. B. TEAKLE, General Manager, W. A. CUNNINGHAM, General Freight Agt.,
230 St. James Street, Montreal, P.Q.



Canadian National Railways



Concrete Battery Box
on C. P. R. at
Islington, Ont.



Concrete Oil House
at
Stoney Creek, Ont.

**CANADA CEMENT
CONCRETE
FOR PERMANENCE**



Concrete Fence Posts
along Right of Way
of Hydro Power
Commission Development,
Chippawa Canal.

Railways Are Constantly Finding New Uses for Concrete

AN important use to which Concrete has been put by the Toronto, Hamilton and Buffalo Railway is shown in the above illustration of a Concrete Oil House, at Stoney Creek; an eight-sided building nearly 8 feet in height and with a circumference of 23½ feet.

Even the roof is of Concrete; the latter having a spring of 18 inches to a small ventilator—and an overhang of 9 inches.

The House was poured in one piece, at the plant of the Massey Concrete Products Corporation, and shipped on a flat car to its place of erection.

Such a building is ideal for the storage of oil, grease and gasoline; being fire-proof.

The fire-proof quality of Concrete also recommends it for many other Railroad uses—including fence posts. Records of various railways indicate that Concrete is now used in some manner in approximately one hundred different types of structure.

Railroads have taken advantage of the permanence and strength of Concrete for such important structures as Bridges, Coaling Stations, Engine Houses, Grade Crossings, Grain Elevators, Retaining Walls, Station Platforms and Canopies, Water Tanks, Trestles and Viaducts.

Our Service Department is anxious to co-operate in all lines of work for which Concrete is adapted. Our library is comprehensive and is at your disposal at all times without charge.

*Specify Canada Cement
—Uniformly Reliable*

CANADA CEMENT COMPANY LIMITED

Canada Cement Company Building - Phillips Square Montreal

Sales Offices at Montreal Toronto Winnipeg Calgary



No. 7

CRANE

RENEWABLE DISC GLOBE & ANGLE VALVES

UNION BONNET

For use in Plants where continuous service is required and where discs must be changed quickly without injury to the valve.

Made in Sizes $\frac{1}{4}$ to 3 inch.

FOR STEAM WORKING PRESSURE UP TO 150 LBS.

Steam Working Pressure Cast on Valve. Body, Bonnet, Stem, Disc Holder and Gland made of Brass. Wheel, Stuffing Box Nut and Union Bonnet Ring, made of Malleable Iron, which is Stronger, Stiffer and Tougher than any Brass, an essential Feature when considering the rough treatment these parts receive.

*Manufacturers of Valves, Fittings and Piping Equipment
for all Pressures and Purposes Distributors of
Heating and Plumbing Supplies.*

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No. 7

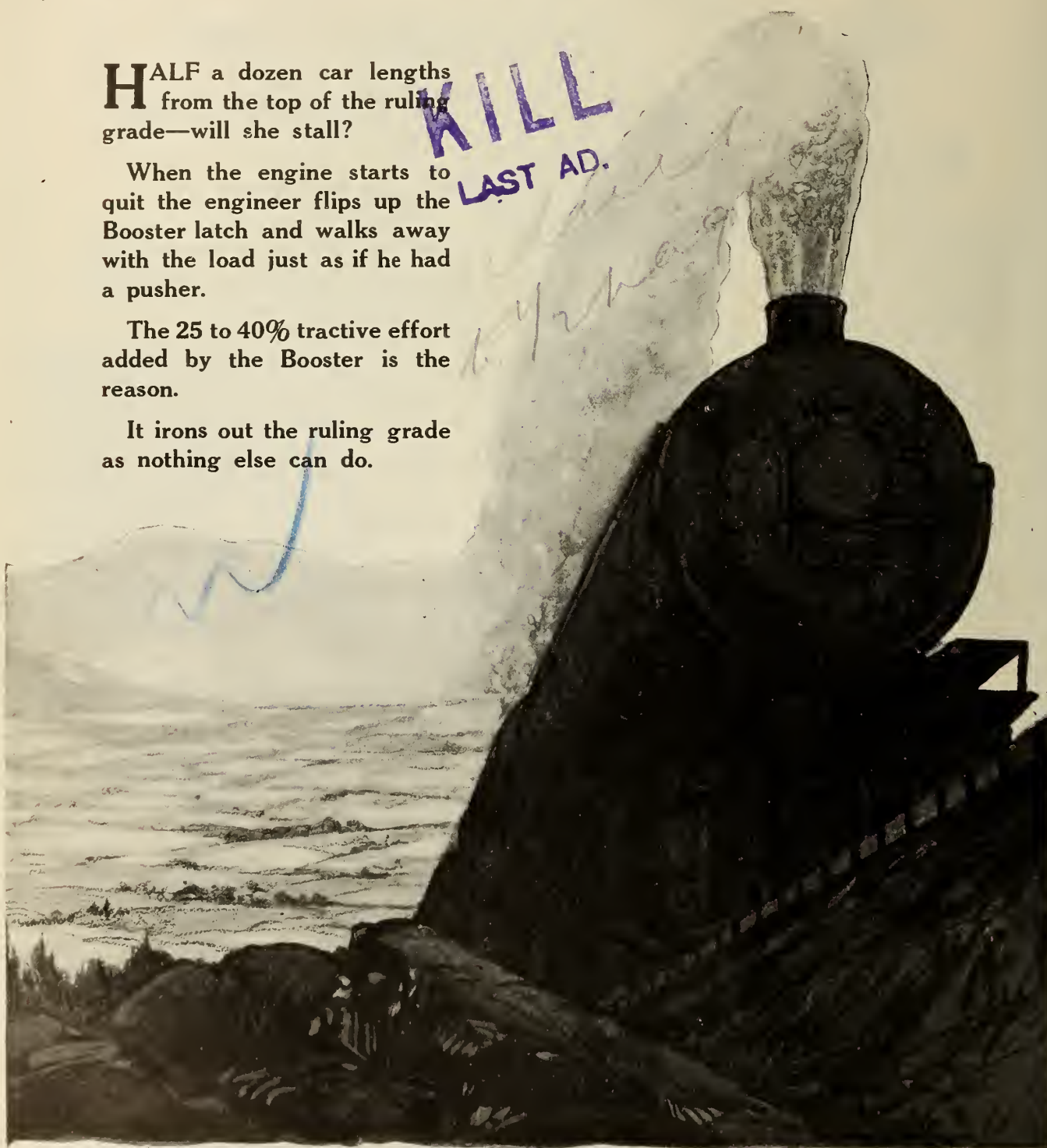
Is She Going To Quit?

HALF a dozen car lengths from the top of the ruling grade—will she stall?


When the engine starts to quit the engineer flips up the Booster latch and walks away with the load just as if he had a pusher.

The 25 to 40% tractive effort added by the Booster is the reason.

It irons out the ruling grade as nothing else can do.



Franklin Railway Supply Company
of Canada, Limited
Transportation Bldg., Montreal



FLANNERY FLEXIBLE STAYBOLTS

"F. B. C." Welded Flexible Staybolts

insure better and stronger boilers—eliminate leakage—decrease application costs and greatly strengthen the wrapper sheet.

REMEMBER THIS—THREE styles of "F.B.C." WELDED SLEEVES replace thirty-two styles of Threaded Sleeves.

Can you afford to overlook "F. B. C." Welded Staybolts for new equipment or repairs?

*We also manufacture Tate Flexible
Threaded Staybolts—Forged
Crown Stays, Realock
Nuts.*

**FLANNERY
BOLT CO.
PITTSBURGH, PA.**

Carbon-Vanadium — The "Normalized" * Forging Steel


A THOROUGHLY tested Vanadium-alloy steel, possessing advantages which peculiarly fit it for main rods, side rods, crank pins and other locomotive forgings:

Carbon-Vanadium steel does not have to be quenched and tempered. Consequently it can be handled successfully with the facilities of the ordinary railroad shop;

It is not seriously affected by the heating required for straightening, shortening, stretching or other repairs.

After a simple annealing, Carbon-Vanadium steel shows physical properties equal to those obtained from heat-treated nickel and low chrome-nickel steels:

Carbon-Vanadium Forging Steel	Minimum Yield Point	Minimum Tensile Strength	Elongation in 2 inches	Reduction of Area
Up to 5" diameter or thickness of section	62,500	90,000	20%	40%
5" to 9" diameter or thickness	60,000	90,000	20%	40%
9" to 13" and bored; 5½" maximum wall	60,000	90,000	20%	40%


NORMALIZED
means heated and allowed to cool in still air; not quenched or tempered.

Carbon-Vanadium is the simplest of all alloy steels, readily forged and machined. It may be obtained from a number of steel companies, whose names we will gladly furnish.

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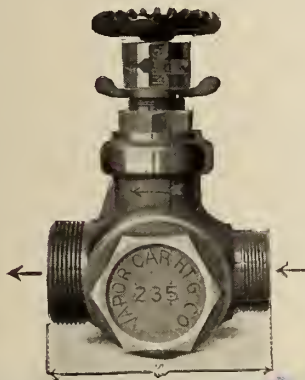


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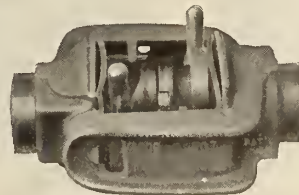
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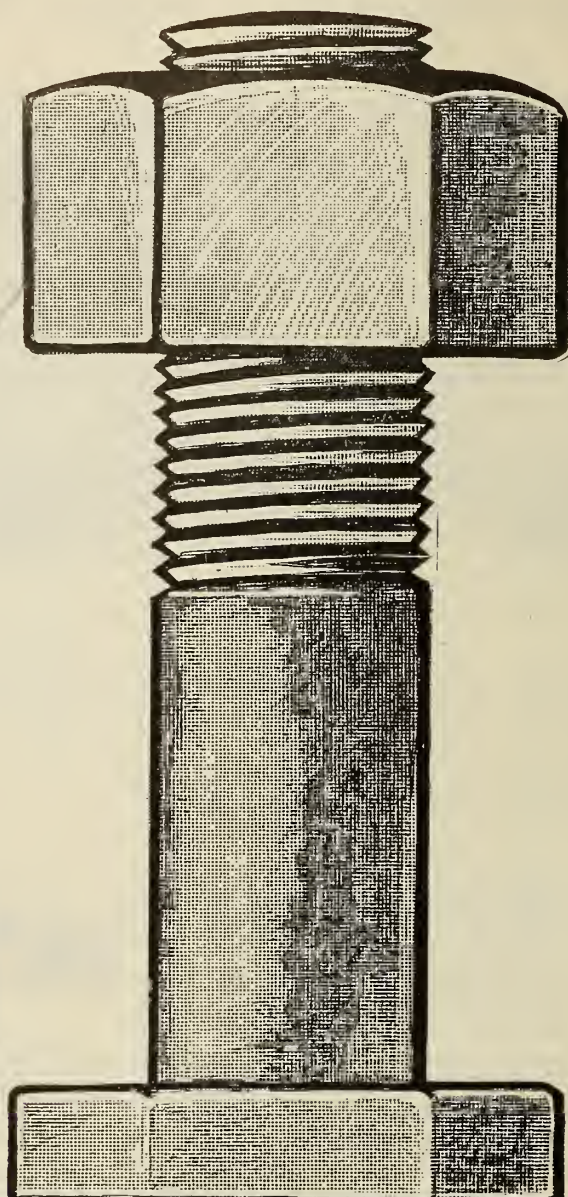
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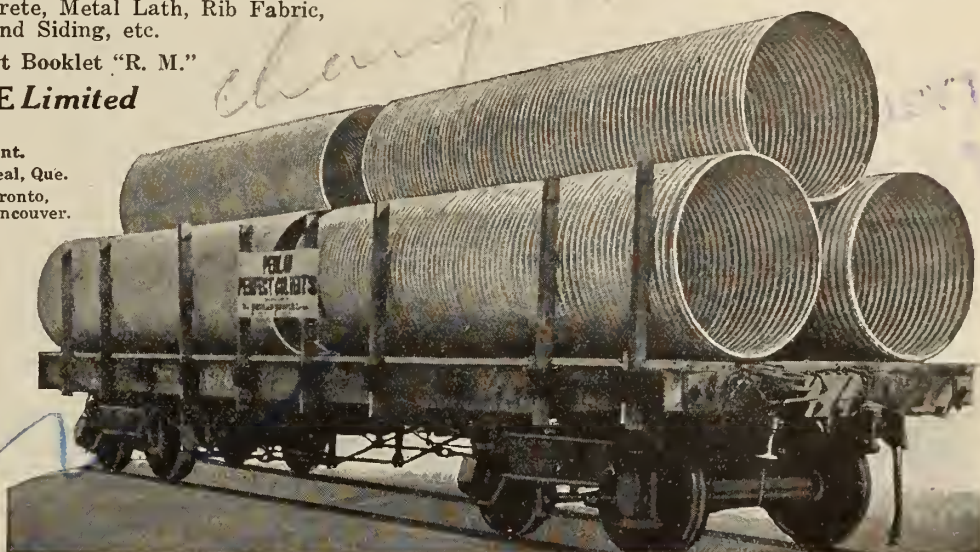
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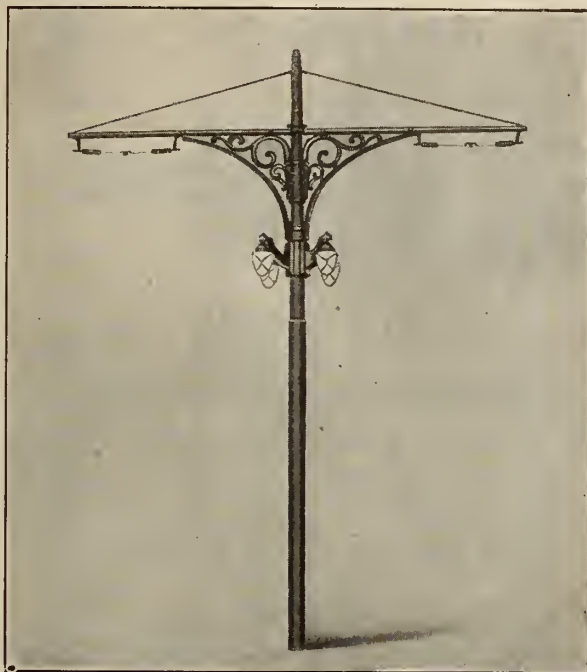
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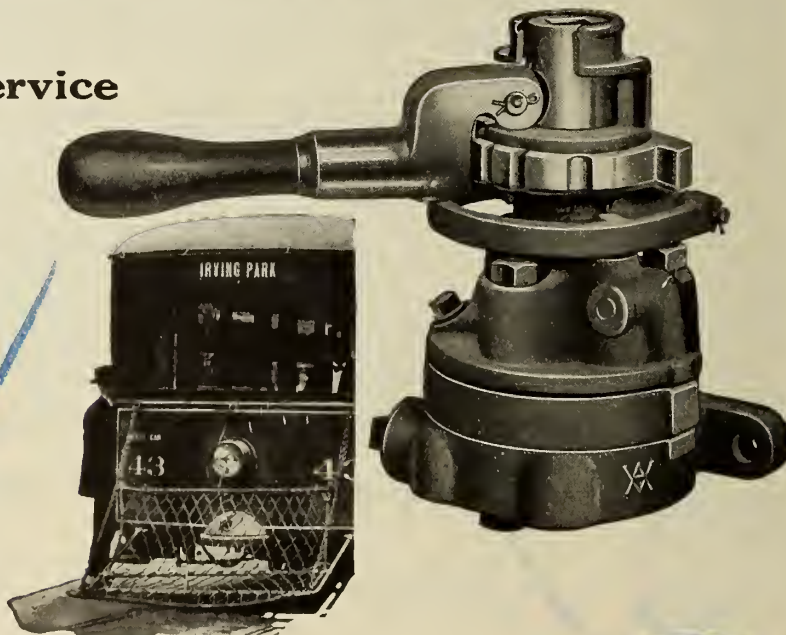
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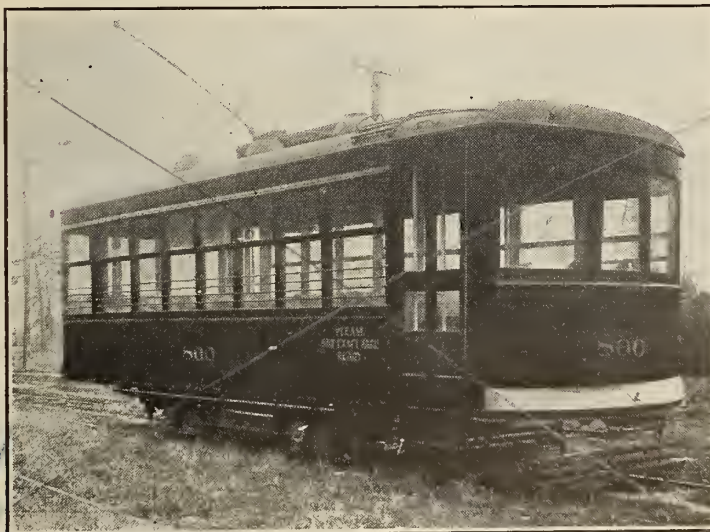
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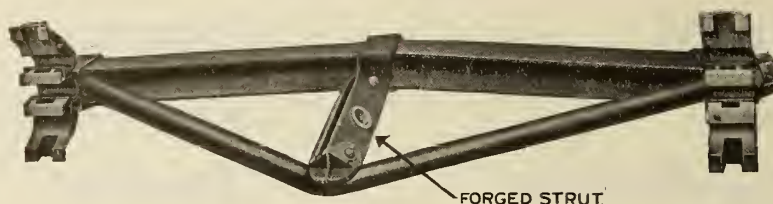
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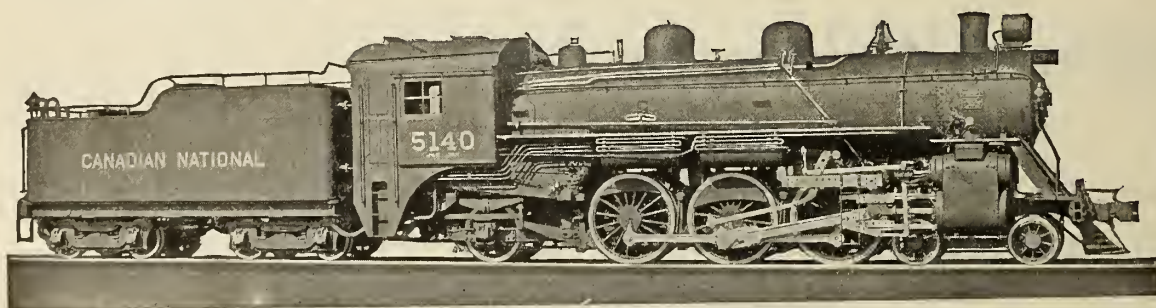
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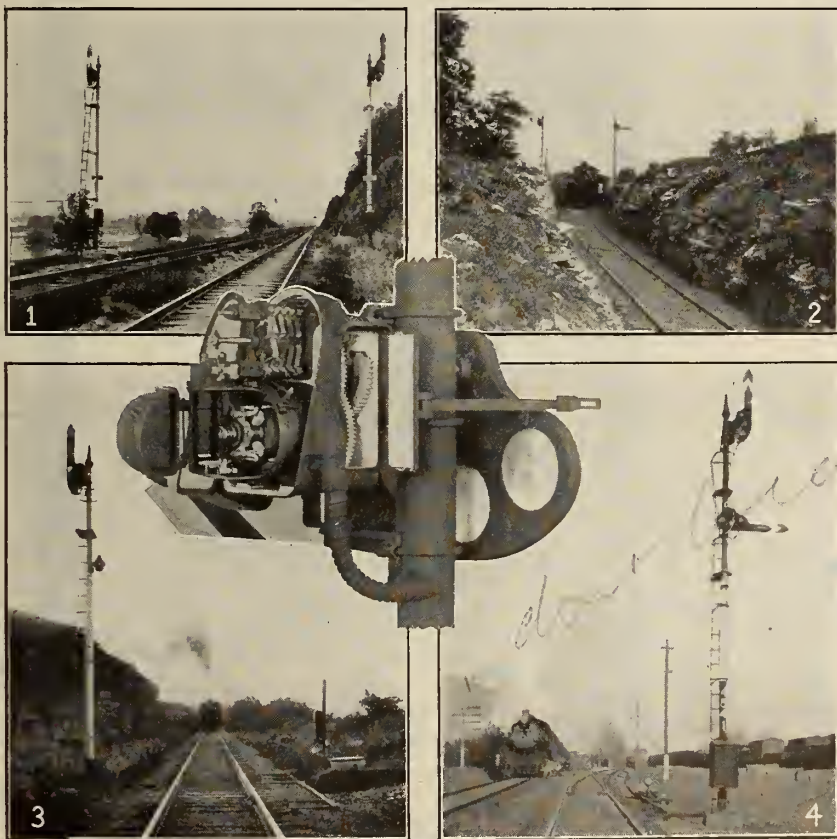
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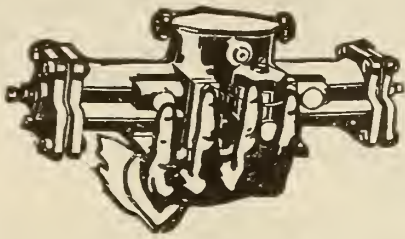
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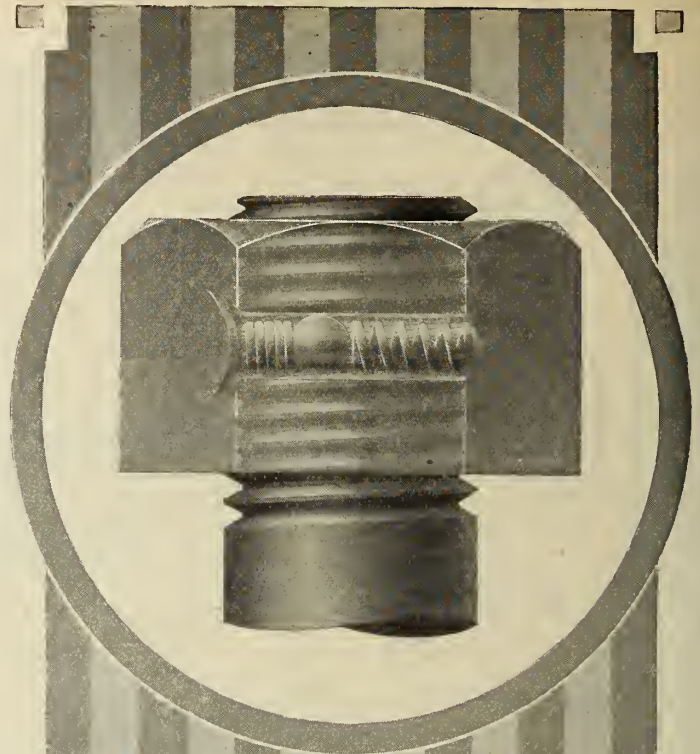
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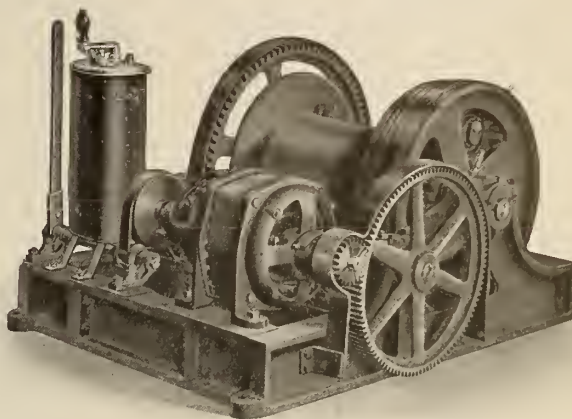
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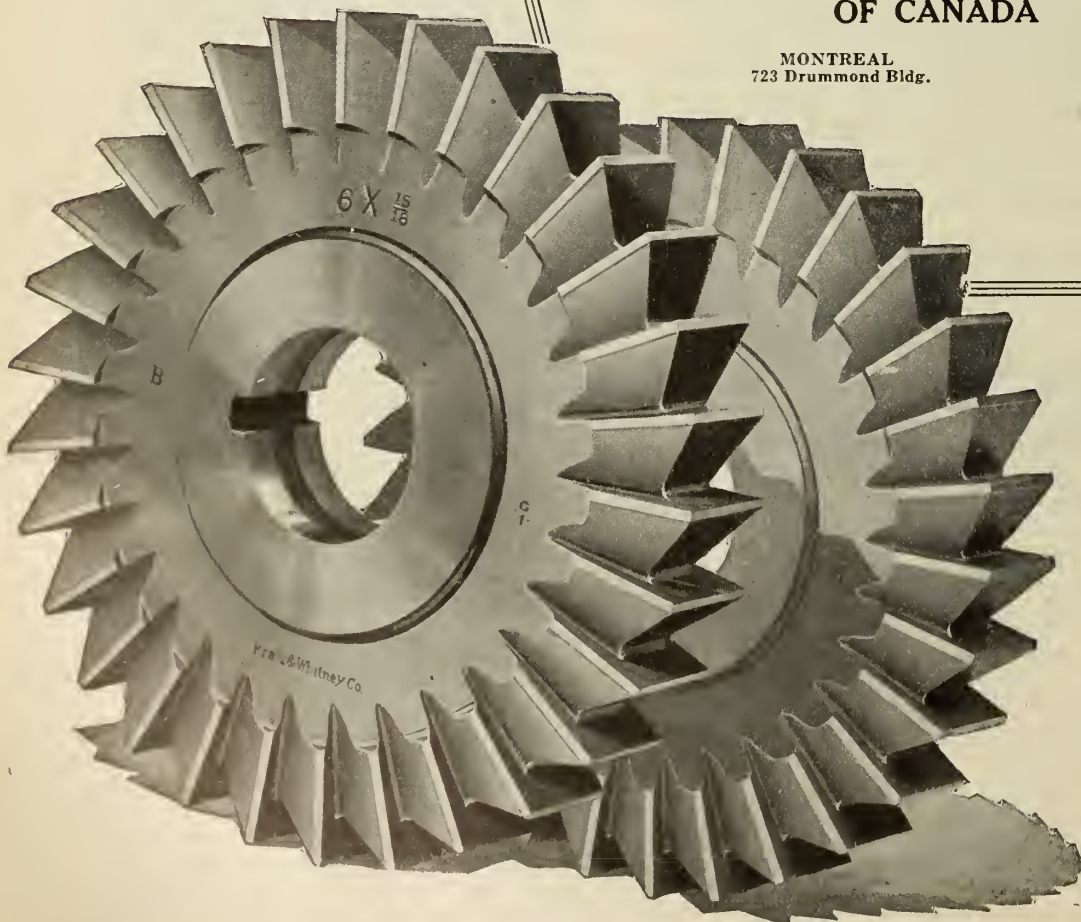
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Canadian Railway and Marine World

July, 1922

American Railway Association Mechanical Division's Convention at Atlantic City.

The American Railway Association's Mechanical Division, which embraces the former American Railway Master Mechanics' Association and the Master Car Builders' Association, resumed its annual conventions by meeting at Atlantic City from June 14 to 21, inclusive. It was the intention to hold a convention there in June, 1921, but in consequence of the then prevailing financial stress and serious business conditions in the United States, the idea was abandoned. The

chairman of the general committee for this year's convention was W. J. Tollerton, General Mechanical Superintendent, Chicago, Rock Island & Pacific Rd.; the Vice Chairman being J. Coleman, Assistant to General Superintendent, Motive Power & Car Department, Grand Trunk Ry. W. H. Winterrowd, Chief Mechanical Engineer, Canadian Pacific Ry., was also a member of the general committee. Mr. Tollerton was also chairman of the

arrangements committee, Mr. Coleman being another member of it. General business was dealt with on June 14, car matters on June 14, 15 and 16; election of officers was held on June 19, and locomotive matters on June 19, 20 and 21. The most important features of the convention were, as usual, reports of the standing and special committees, the principal ones are given on this and the following pages, either in full or in abstract.

Feed Water Heaters for Locomotives Committee's Report.

The committee, of which F. M. Waring, Engineer of Tests, Pennsylvania System, was chairman, reported as follows:—That considerable increase in the use of feed water heaters has developed during the last two years is evident from the number that have been applied. The committee's report for 1920 showed that there were 16 locomotives equipped at that time. A table in the report shows that 197 feed water heaters are now in service or on order. Of these 15 of the open type are in service and 110 on order; 43 of the closed type are in service and 29 on order; a total of 58 in service and 139 on order. None are reported as on Canadian lines, but the Central Vermont Ry., part of which is in Canada, has one of the closed type in service.

All new applications reported to the committee have been exhaust steam heaters either of the open type, manufactured by the Worthington Co., or of the closed type, manufactured by the Superheater Co., with the exception of one, a Foster-Thompson exhaust gas heater.

A questionnaire was again submitted to the members, and a digest of the replies received shows that considerable information of value has been obtained relative to the economy, maintenance cost and general operation of the heaters. The various important features included in the questionnaire are given below as sub-heading of the report and they are followed by a brief summary of the replies received.

Maintenance Cost.—The cost of upkeep of either the open or closed type heaters as reported by the different roads varies from \$1 to \$9 per 1,000 locomotive miles. Such a range is to be expected, as development work is still in progress and we cannot expect close agreement of the cost figures until a large number of heaters are in service and the supervision and repairs follow the general practice accorded other devices.

Tests of Heater.—No railway reports any systematic daily inspection of feed water heaters. The usual practice is to depend upon the locomotive man's report, and to supplement it by having the locomotive house inspector run the pump

and note its actions and any leaks in the pump or piping. Some roads report that at boiler wash periods they make a systematic inspection which includes special examinations of valves, tubes and other parts.

Piping.—Some trouble has been experienced in maintaining the joints, but some of the roads advise that, by using iron pipe, bracing it thoroughly, and keeping the number of joints to a minimum, little trouble will occur. A majority of the replies report the use of iron pipe with flanged joints.

Boiler Check.—A number of roads reported difficulty maintaining the boiler check, but have overcome it to a certain extent by reducing the lift of the valve. Where a small valve was in use, a larger valve was applied to compensate for the reduced lift.

Freezing of Heater.—In ordinary cold weather the heat radiated from the boiler has been sufficient to prevent freezing and where proper precaution is used no trouble should result. All roads are using drain cocks where necessary and in addition some of them have applied a small steam supply line to the suction pipe, which is used when the pump is not working. Both the open and closed type heaters are thoroughly lagged.

Oil Separator.—The use of oil separators with heaters seems to be general. Only two roads report having found traces of oil in the boiler, and both state that it has not resulted in any damage to the boiler. One of these roads, which is located in bad water districts, attributes an increased amount of foaming to the presence of oil in the boiler. The other road, which is located in a good water district, reports that it has had heaters in service for several years and that frequent chemical analyses of the boiler scale have never shown more than a trace of oil, although one heater was in service for one year with the oil drain from oil separator closed.

Economy Tests.—A number of the roads have made economy tests of the heater in comparison with the injector, and some very excellent results have been obtained. Some of the figures submitted are given below. Your committee has no information as to how these

tests were run, and therefore cannot vouch for the accuracy of the results reported, but give them as information.

Road 1.—Closed type, Increased evaporation per lb. of coal, 15.3%; coal saving per 1,000 gross ton miles, 12.3%; increase in over-all boiler, furnace and grate efficiency, 14.3%; type of locomotive tested (cylinders 27x30 in., drivers 69 in., 200 lb. boiler pressure), 4-8-2.

Road 2.—Open type, Coal saving, 12%.

Road 3.—Closed type, Increased evaporation per pound of coal, 24.1%; decrease in fuel consumption, 10.5%; decrease in superheat, 3.6%.

Road 4.—Open type, Saving in coal per 1,000 ton miles, 14.0%; increased boiler efficiency, 16.1%; exhaust steam recovered from cylinders, condensed and returned to boiler, 8.6%; decrease in superheat, degrees F. 21.7.

Road 5.—Closed type, Saving in coal per 1,000 ton miles, 8.9%.

Road 6.—Open type, Saving in fuel oil, 12.5%.

Road 7.—Closed type, Saving in coal per trip, 12.5%; increased evaporation per pound of coal fired, 16.0%.

Road 8.—Closed type, Saving in fuel, 13.0%.

Road 9.—Closed type, Saving in fuel, 16.5%.

Road 10.—Closed type, Saving in fuel, 14.0%.

Temperature of Feed Water.—The rise in temperature of the feed water is a very definite indication of the economy which is gained by the use of feed water heaters, and accordingly, in the questionnaire, temperatures obtained, with the locomotive working at or near maximum power and also with a light train, of the delivery water, suction water and exhaust steam, were requested in order to more fully bring out this feature. A digest of the replies shows that the rise in temperature for heavy trains ranged from 135 to 185 degrees F., with an average of 156. For light trains the rise ranged from 92 to 175 degrees F., with an average of 144. Many of the roads reported but small differences in the temperatures obtained for heavy trains and for light trains. Typical examples of the results submitted are as follows:

Freight Locomotives.	Heavy trains.	Light trains.
Suction water	60	60
Delivery water	220	205
Exhaust steam	235	220

Cleaning of Heaters.—In good water districts no trouble has been experienced with the collection of mud or scale in the heaters, but in bad water districts such has been the case and consequently it has been necessary to clean them. With the open type the usual method has been to scrape the scale and mud loose and then wash it out with a hose. With the closed type the inside of the tubes are usually cleaned by pumping through them a solution of muriatic acid and the outside of the tubes are cleaned by boiling them in a solution of washing soda for about twenty minutes and then washing them with hot water.

Exhaust Nozzle.—There was no agreement as to the necessity or the advisability of changing the size of the exhaust nozzle. Four roads found it necessary to decrease the size of the nozzle and 10 have made no change at all. One of the groups of 10 referred to above has found that while in ordinary service no change is necessary, when the locomotive is forced to its maximum capacity, a decrease in the size of the nozzle is necessary if the maximum capacity is to be sustained for any period of time.

Indicating Device for Pump.—Pres-

sure gauges of various types have been the only device used to indicate the action of the pump. The opinion is general that there should be some device which will tell the locomotive men that the pump is running, but the results so far obtained with the gauges have not been entirely satisfactory due to their inability to stand the severe service.

Injector.—With a general use of heaters the removal of one of the injectors is favored.

When the locomotive is standing or drifting the use of the heater is not recommended, because the water from the heater is then colder than that delivered by an injector. Objection has been made to the application of feed water heaters on the ground that it would be impossible to prevent their use, when there was no exhaust steam to heat the water and then cold water introduced into the boiler would have a bad effect on the flues and firebox. The replies to the questionnaire indicate that while nearly everyone is opposed on principle to the introduction of cold water, there is no evidence that the use of the feed water heater has resulted in any damage to the boiler. The use of exhaust steam from the auxiliaries, such as air pump, headlight generator and stoker may be advisable in order to maintain the temperature of the feed water when the locomotive is not working. Several

roads express the opinion that any damage from the introduction of cold water to the boiler would be reduced by the use of a top head check.

Capacity of Heater.—A few of the roads were of the opinion that the capacity of the heat should be equivalent to that of one injector, while the majority desire an increased capacity ranging from 10 to 100%, with an average of about 33%. Some additional capacity no doubt should be provided to compensate for the reduction in the capacity of the feed water heater due to worn packing, worn cylinders or leaky valves.

The committee's investigation shows that it is a generally accepted fact that the use of a feed water heater will increase the efficiency of a locomotive. There is very little complaint in regard to their maintenance, but more information on this subject and further improvements in design may be expected when feed water heaters are applied in larger numbers, so that they are subjected to the same character of repair work and supervision as other parts of the locomotive. It is recommended that the committee's work be continued and that additions be made to the rules covering locomotive tests, whereby standard methods may be introduced for testing the two types of heaters so that the results of heater tests made on different roads may be comparable.

Car Construction Committee's Report.

The car construction committee, of which W. F. Kiesel, Jr., Mechanical Engineer, Pennsylvania System, was chairman, and of which W. H. Winterrowd, Chief Mechanical Engineer, C.P.R., was a member, dealt first with the arrangement of refrigerator cars to prevent salt water dripping on the rails. The various refrigerator transportation companies have either developed a brine retaining valve of their own, or favor some particular type. The following rules were suggested for adoption as an Association standard:

For Brine Valve and Operating Rigging.—Operating rods shall be solid and

ranged that weight of brine in tank will hold the valve closed. The diameter of wearing pins and connecting bolts shall be not less than $\frac{1}{2}$ in. All nuts shall be held in place by cotter pins at end or by lock nut.

For Clean-Out or Hand-Hole Castings.—Cast parts shall be of malleable iron,

riveted and soldered. Connection castings shall be made of heavily galvanized or sherardized malleable iron castings. The brine tank shall be securely supported and fastened in end of car.

For Inspection.—See that rods, levers, and other parts of the brine valves are connected, and that valves function prop-

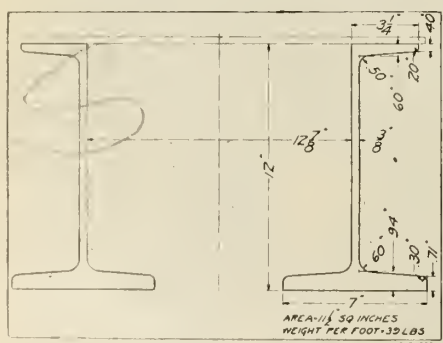


Fig. 1. Recommended Center Sill Section.

not less than $\frac{5}{16}$ in. in diameter. Operating lever at top shall be of wrought or malleable iron, with cross-section area not less than 1.5 sq. in. Rubber seats shall be made of pure rubber, to resist the action of salt water. Cast parts shall be of malleable iron, not less than $\frac{1}{4}$ in. thick. All parts of brine valves shall be heavily galvanized or sherardized. All surfaces adjacent to rubber or other seats in the valves shall be machined, and free from fins, blow holes, or other defects. Valve operating mechanism shall be so constructed that valve must be closed before plug can be put in place. Where possible, valves should be so ar-

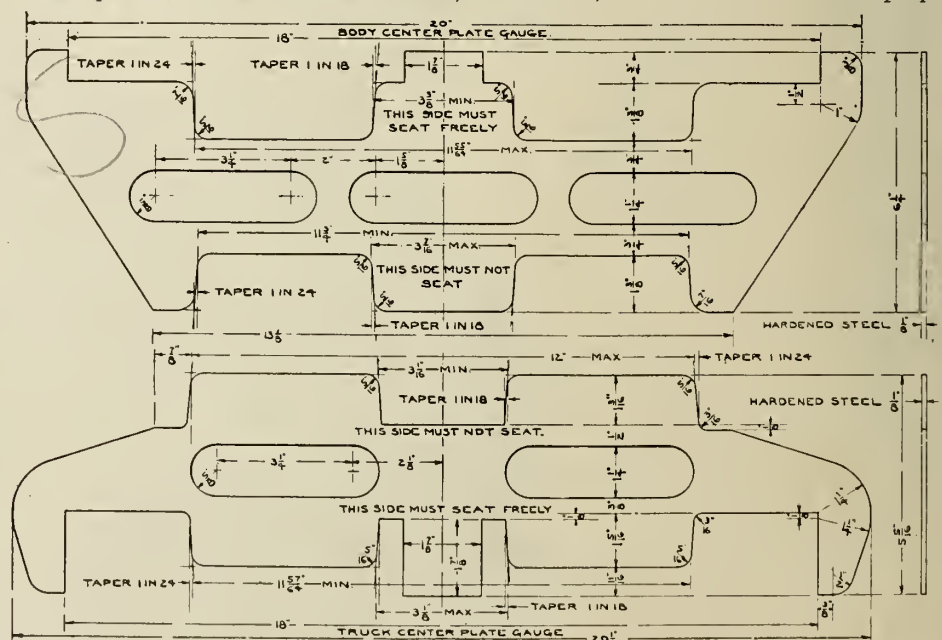


Fig. 2. Recommended Center Plate Tolerance Gauge.

not less than $\frac{1}{4}$ in. thick. All parts of clean-out casting shall be heavily galvanized or sherardized. Clean-out casting shall have a gasket between cover and clean-out frame. The cover locking device should be simple in operation and easy to close.

For Brine Tank.—The tank shall be made of heavily galvanized iron, not less than $\frac{1}{16}$ in. thick. All joints shall be

erly. Inspect the following parts for leaks: Clean-out castings; tanks; valves; connections between tanks; all leaks shall be repaired before a car is loaded. A card, reporting the brine tank equipment in serviceable condition, signed by the foreman in charge of the inspection, shall be filed before a car is loaded.

Standard Fundamentals for Cars.—The committee presents the center sill

and Key.—A canvass of the situation developed that brake shoe keys conforming to the standard drawing and properly applied give little trouble. It is believed that an improvement can be made by lengthening the head from $\frac{1}{2}$ in. to 1 in. and bending it over, instead of upsetting it. This change is recommended for submission to letter ballot, as it involves a change in the standard drawing. It is further suggested that purchasers of brake shoe keys have such inspection

made that will ensure keys conforming to standard and that railways co-operate by having repair points use more care in maintaining better fitting keys, and when manufacturing their own keys to see that they comply with the standard.

Standard Practice Brake Beam Design.—The committee is not prepared at this time to submit a standard design of brake beam and the subject will be continued.

Capacity Markings — Brake Beam Struts.—On the suggestion of the chair-

man of the Brake Beam Manufacturers Institute Mechanical Committee, in letter dated Chicago, Jan. 10, 1922, the committee recommends for letter ballot changing of the Standard Specifications for Brake Beams, Sec. 14, to read:

"The A. R. A. nos. 1, 2, 2 plus, 3, 4, 5 or 6, as the case may be, shall be cast on the center strut with raised letters and figures not less than $\frac{5}{8}$ inch high and $\frac{1}{8}$ inch in relief, where they can be readily inspected when beam is in place on car."

Locomotive Construction Committee's Report.

The locomotive construction committee, of which H. T. Bentley, Superintendent of Motive Power and Machinery, Chicago & Northwestern Ry., was chairman, and of which W. H. Winterrowd, Chief Mechanical Engineer, C.P.R., was a member, reported as follows: "The committee has this year confined its report to the study of various details of locomotive design and construction which have been referred to it. Each of these subjects is reported upon separately in exhibits A to K, inclusive."

Exhibit A deals with formulae concerning the tractive power of Mallet locomotives.

Exhibit B deals with attachment of locomotive boilers to frames, and with frame breakages and suggested remedies, in connection with which the report says: "The study made by your committee has developed that in but a few instances it will be found the breaking of frames can be ascribed to method of attaching boilers to frames. It is the committee's opinion that if locomotives are designed with frames of proper strength to withstand stresses, little trouble should be experienced with broken frames, provided a locomotive receives necessary running maintenance. Through neglect, however, of loose pedestal binders, loose wedges and worn rods, which cause high dynamic stresses above which the frames are designed to absorb, many frame failures result. It is the committee's opinion, also, that locomotives have been designed with insufficient frame crossties, as well as those having crossties deficient in strength, or improperly located so that frames are not properly tied together. When many of the older locomotives were designed, the art had not advanced to a sufficient degree to clearly understand the varied stresses set up in locomotive frames, and undoubtedly there is much yet to be learned in this respect."

"The springs and spring equalizer rigging must provide the necessary flexibility and absorb the stresses which are imposed on the locomotive laterally, due principally to centrifugal forces on curves, and due to the reaction of the guiding effect of the locomotive truck and the reacting pressure resulting therefrom, which is concentrated at the first frame pedestal as a fulcrum, with its resulting lateral bending stresses in the frame, between the pedestal and the cylinder. The longitudinal flexibility, due to brake application, would likewise be absorbed in the spring rigging, as well as the vertical pressure due to the dynamic augment resulting from the driving wheel counterbalance."

"The bracing to the frames should be applied as closely as possible to the points of application of pressure in the various directions, to absorb the rigidity of the frame work, which, if carefully done, should result in the fewest possible frame failures."

"Pedestal caps should be used on all heavy locomotives having the following or greater weight on drivers: Four-coupled, 80,000 lbs.; six-coupled, 120,000 lbs.; eight-coupled, 130,000 lbs.; ten-coupled, 140,000 lbs."

"Some of the steel companies are at this time in position to furnish one-piece cast steel locomotive bed, which does away with many of the undesirable features of the present frame design. The main advantage, however, is stronger frame with less weight, enabling larger boiler to be applied to locomotives without increasing the wheel load, decreasing parts that work loose and require repairs, with subsequent reduced cost of maintenance, and would seem to be a very great improvement over what has been used heretofore."

Exhibit C deals with the maintenance and lubrication of slide valves on the low pressure cylinders of Mallet locomotives. After describing the various arrangements for lubricating with both 5-feed and 3-feed lubricators, the report says: "The different methods of application of lubrication of cylinders and valves have not proved satisfactory, and the problem is yet to be solved. There is being tried a new lubricant recently placed on the market to be delivered through a hydrostatic lubricator, in which graphite is employed, the graphite being broken up so very fine that it is readily held and carried in suspension with the lubricating oil, the claim being that the graphite will adhere to the surfaces lubricated, thereby forming a coating, which prevents cutting of the metal. As graphite lubricant on bearing surfaces has proved to give good service, we may reasonably hope that the methods now being used will prove graphite a satisfactory lubricant for steam surfaces, and the committee will follow this up with interest."

Exhibit D deals with the use of extended piston rods on locomotives. It points out that the extended piston rods have been tried with more or less success on a large number of American roads, as a means for reduction in cylinder and piston wear. Two general methods have been resorted to in treating the extended piston rod, one, the use of another metallic packing on the front cylinder head, the other employing an extension sheath, in which the piston rod is permitted to reciprocate with the bronze or other suitable form of bearing at the inner end of the sheath, to take the weight of the rod or piston.

The report says: "The general opinion among railway men and locomotive builders is that if extended piston rods of proper design are maintained, they will reduce the wear and prolong the life of the cylinder packing. The extended piston rod adds weight to the reciprocating parts, which detracts slightly from its advantages. The committee believes finally that as there seems to be a diverse

opinion as to the merits of extended piston rod, definite conclusions should be deferred and more investigation made on this subject."

Exhibit E deals with the possibility of the use of solid front main rod, with bushing instead of keys, and two-piece brass. The committee had not received enough information to make any definite recommendations.

Exhibit F deals with tender tank bottoms, a comparison of the flanged tank bottom with the riveted joint construction being desired. "After careful consideration, the committee feels that the efficiency of the flanged tank should be equal to the old style of construction in every way. It is felt that ultimate life should be somewhat extended, and that the cost of construction should be no greater."

Exhibit G deals with a comparison of the mikado and the consolidation locomotive, and in this connection the committee said: "With a given weight on driving wheels and equal ratios of adhesion, a mikado type locomotive will show no superiority over a consolidation, as far as a starting tractive force is concerned. As the speed increases, however, the tractive force of the mikado type will fall off less rapidly than that of the consolidation, because of the greater boiler power of the former locomotive. As a result, at higher speeds the mikado type will develop a larger percent of its maximum tractive force, as compared with the consolidation. The mikado, on account of its wheel base arrangement, is somewhat easier on flanger wear, and somewhat safer in high speed without danger of derailment. The element of time in handling trains over long divisions has become so important with most roads in this country that it is absolutely necessary to provide in modern locomotives the maximum efficiency and this maximum steaming efficiency can only be maintained when a portion of the total weight of the locomotive is carried upon the leading or trailing trucks, or both. On some roads the mikado type has made an excellent combined passenger and freight locomotive, being used interchangeably for either service as occasion requires. On consolidation type locomotives, having wide fireboxes, and comparatively large driving wheels, the depth of the furnace throat is necessarily restricted, making it difficult to apply a satisfactory design of brick arch. This difficulty is avoided in the mikado type, as there is ample space between the grate and bottom row of flues for an arch with its supporting tubes. The necessity of placing a driving wheel under the firebox makes it practically impossible to apply a satisfactory ash pan to the consolidation locomotive, on account of the pocket over the driving wheel being so close to the underside of the grates. Summing up the subject, the suc-

cess of the mikado type is due chiefly to the following: Larger sustained steaming capacity provided in proportion to the adhesive weight. Greater increase in tonnage handled, with relatively small increase in weight and coal consumption. Greater power obtained without increasing the weight per pair of drivers beyond permissible limits or the necessity of increasing the rigid wheel base by adding another pair of drivers. Opportunity to provide a furnace that will burn inferior grades of coal. Increased depth of water legs and greater distance from fuel bed to flues resulting in improved and more efficient furnace conditions and reducing cost of boiler maintenance. In general a larger, more powerful and better balanced design of locomotive throughout, having greater capacity, reserve power and efficiency, resulting in greater tonnage handled, saving in coal and water per ton mile and reduction in operating costs."

Exhibit H deals with the advantages and disadvantages of lifting and non-lifting injectors. The committee says:

"It would appear from replies received to questions sent out that little is known about the comparative efficiency of the two types of injectors as regards steam consumption for a given quality of water delivered; that cost of repairs and maintenance is less with the non-lifting injector; that the non-lifting injector is more easily located and repaired; that the non-lifting injector is generally considered preferable and is gaining in favor, particularly on modern large locomotives."

Exhibit I deals with saturated steam drifting devices for superheated locomotives. Replies to a questionnaire sent out by the committee led it to the following conclusions: Automatic drifting valves on superheater locomotives are not generally being used. The common practice when drifting is to crack the throttle. The use of the manually controlled steam line from cab to valves and cylinders has not proved satisfactory. Some roads are using home made devices for supplying air compressor exhaust steam to valves and cylinders, with sat-

isfactory results. A few roads are using automatic drifting valves apparently with success. A few roads are experimenting with various forms of automatic drifting valves. An automatic drifting valve is desirable if one can be found or developed which will operate successfully both at high and at low speeds, and be simple and rugged enough to be reliable and stand the service requirements without undue maintenance cost.

Exhibit J deals with tank syphons as opposed to tank valves. In summarizing data furnished by various railways, the committee says: "It appears that the syphon is well adapted for use with lifting injectors, while the tank valve is more suitable for non-lifting injectors."

Exhibit K deals with tank hose, as opposed to metallic connections. "Your committee concludes that in the light of the information at hand, we are not justified in discarding the hose. We feel assured that with a reasonable amount of attention to this detail the present maintenance may be considerably reduced."

Train Lighting and Equipment Committee's Report.

The committee on train lightning and equipment, of which J. R. Sloan, Chief Electrician, Pennsylvania System, was chairman, reported that it interpreted its instructions to make an investigation to determine the merits of direct driving axle generators for passenger cars as being intended to cover any mechanical form of drive other than by belt. Accordingly, it investigated the following types of drive for car lighting generators: 1. That evolved by W. L. Bliss, and tested from 1898 to 1904 on the Pennsylvania Rd., between Jersey City and Washington. 2. The Deutsch, which was in service on the C.P.R. sleeper car Narbome and on about 10 G.T. and Intercolonial Ry. cars, and one Lake Shore & Michigan Southern car. These drives were in service in 1906 or 1907. 3. The Fitz drive. 4. The Gould chain drive. 5. The Safety Car Heating & Lighting Co's safety drive, applied to Long Island Rd. car 336 in Feb., 1912, and removed Oct. 1, 1912, when the car was derailed and the shaft damaged. 6. The Gould shaft drive, applied on the Delaware, Lackawanna & Western Rd., Jan. 17, 1918. At July 14, 1920, this drive was still working satisfactorily, and no expense other than lubrication and inspection had been necessary. 7. The Pitt drive. So far as is known, this drive has never been placed in service. 8. The Matthews drive, which has never been placed in service, so far as the committee could ascertain. 9. United States Light & Heat Corporation drive, which has been operating for some time in experimental service in the shop, but has never been placed in service on the road.

The report describes all of the foregoing drives at length, and says it will be conceded by all who are familiar with present day operation of axle generators, that, at present, failure of the drive is the cause of a larger number of failures of light than any other one item. The records of the company operating the largest number of axle generators show that 18.4% of the lighting failures and 25.2% of the equipment failures are due to the drive. The causes of the trouble experienced with belt drive are many and various, but they are not germane to the subject assigned. Their effect on car lightning, however, is and has been so

detrimental that, as has been shown, repeated efforts have been made to design a satisfactory positive drive which would eliminate the belt. The advantages of such a form of drive are: Decreased liability of failure of drive. Decreased liability of failure of light. Decreased liability of deterioration of battery, due to undercharging of battery on account of the belt slipping and sulphating on account of battery becoming discharged and standing in that condition. Decreased liability of having train detentions. Decreased liability of annoyance to passengers, due to flickering of lights caused by belt slipping and to failure of lights due to loss of belt. Positive drive under all conditions of weather. Elimination of belt tension device, simplification of suspension, with consequent reduction in first cost and cost of maintenance of these parts of the equipment. The disadvantages of such a form of drive are: Increase in first cost of drive. Increase in cost of application. Increase in length of time of train detention when drive does fail. Increased difficulty in testing generator by motoring.

To be really successful, the direct drive should, of course, in addition to its advantages over the belt drive, be capable of being operated at a total cost comparable with the total cost of operating the belt drive. In order to determine what the cost of operating a belt drive might be, the committee presents data furnished by various railways, showing that the mileage per belt varies from 5,132 to 84,775, and that the average percentage renewals per belt per month vary from 5.8 to 85.6. As an economical proposition, considering the drive only, the direct drive, on the basis of the figures used, should be capable of being operated at a total cost, counting in operation, maintenance, depreciation and interest, of not more than \$56 per year.

The points that, in the committee's judgment, should be avoided in designing a positive drive for axle generators are: Construction which necessitates the use of a special axle; which in any way changes a standard axle; which necessitates the removal of the wheel from the axle in order that the equipment may be applied; which uses a helical spring in a plane other than that perpendicular to

its axis; which, on account of wear, necessitates scrapping of material other than the material worn; which does not provide for maintaining pitch circles of bevel gears in contact; which does not readily permit the turning of wheels in center drive wheel lathes; which does not provide for the full movement of the axle in all planes; which does not provide efficient lubrication and protection to all working surfaces from dirt and grit.

The points that, in the committee's judgment, should be provided in the design of a positive drive for axle generators are: Connection to axle that can readily be removed. Mounting of the axle generator on the truck or underframe of car in the simplest possible manner. That the universal joints, if used, should have a free angular movement in any direction in excess of the angle between center lines of truck and car body as found on the curve of least radius over which the car is capable of moving in service condition. That a safety device should preferably be provided which will operate to break the connection between the drive and generator, in the event of the drive tending to become overloaded. That the generators should be so mounted as to provide a maximum of accessibility. That means should be provided by which the generator may be readily "motored."

The committee feels that at present there is no type of direct or positive drive which does not include features that are objectionable to the extent of practically prohibiting its general use, nor does any drive possess all of the points that we consider necessary. The committee is, however, of the opinion that the advantages of the direct drive are of such importance as to justify its further development, and further that its use would be justifiable even at a cost in excess of the belt drive. The committee believe that there is a demand for a direct or positive drive and that its development should be encouraged by all concerned.

The report proposes a change in the specification for axle generators, in connection with the lamp regulator, making paragraph 6 i l read as follows, the words in parentheses being those of the present text eliminated: "6 i l. With the battery discharging and with the battery

voltage 31 volts or less, the drop in voltage across the terminals of the lamp regulator resistance shall not exceed 1 volt (per 25 amperes flowing) for the connected lamp load." And paragraph 6. i. 2, to read as follows, the words in parentheses being those of the present text eliminated: "6. i. 2. With armature r.p.m. increasing at an approximately uniform rate from inimum full load speed to maximum speed in not more than five minutes

and again decreasing to its original value, the voltage shall be maintained at volts plus or minus one volt (at any current value not exceeding amperes) at any current value equal to or less than the connected lamp load."

The committee presented a full schedule of train lighting lamps, divided into a standard or regular schedule and a special or intermediate schedule.

The committee's final recommendations

are as follows: That the portion of the report pertaining to the direct or positive drive on which a report was ordered be accepted. That the proposed change in paragraphs 6 i. 1 and 2 of the specification for axle generators be referred to letter ballot as recommended practice. That the schedule of train lighting lamps, together with the limiting dimensions as given, be referred to letter ballot as recommended practice.

Scheduling of Equipment Through Repair Shops Committee's Report.

The committee on scheduling of equipment through repair shops, of which H. Gardner, Special Engineer, Baltimore & Ohio Rd., was chairman, and of which E. T. Spidy, Assistant Superintendent, Dominion Engineering Works, was a member, presented a report which is summarized as follows: The last previous report from the committee, which was made in June, 1920, and published in Canadian Railway and Marine World for July, 1920, pg. 337, covered the scheduling and routing of locomotives through repair shops. One road in Canada has this work highly perfected, and claims are made for a considerable increase in output, with decreased costs due to its adoption. At least one road in the U.S. has recently introduced scheduling and routing practices in its passenger car repair shops, and indications point to an increase in understanding and appreciation of methods widely used in contract shops and which are equally applicable to railway shops.

Details covering the following items incident to installing shop systems were fully covered in the committee's 1920 report and apply essentially to passenger and freight equipment: Schedule supervisor and assistant, experience and duties; location of schedule office; description of schedule and planning boards; shop blackboards and slide rules. This information is therefore not repeated.

Passenger Equipment.—The committee recommends considering only those classes which include all repairs having a labor cost of \$50 and over. Separate master schedules should be prepared for passenger cars, mail, baggage, express, combination, dining, parlor and sleeping cars. These schedules should be further subdivided for wood or steel construction. All master schedules should show exterior, interior and paint work separately, also work in all other participating departments, such as the tin and pipe shop, electrical department, air brake shop, etc. Any convenient combination of figures and letters may be used to designate particular schedules. For example, a 1-A-2 repair schedule would indicate a class 1 heavy exterior repair, class A heavy paint repair and a class 2 medium interior repair.

Schedule and planning boards or loose sheets may be used to advantage in the schedule supervisor's or foreman's office. Shop sheets, blackboards or bulletins conveying dates transferred from master schedules to department foremen will be found useful and are recommended. A calendar slide rule will greatly shorten the work of assigning actual dates on shop sheets. Daily delay sheets should preferably be made from colored paper, to distinguish them from other forms. Departments recommended for separate shop and delay sheets are as follows: Erecting and paint shop, tin and pipe

shop, cabinet shop, smith shop, truck shop, upholstering and plating shops and electrical department.

The committee is of the opinion that passenger car repair schedules are to a large extent governed by schedules for painting and recommend examination of report by the American Railway Association, section 3, Equipment Painting Division, Committee 8, for 1920: "Classification of painting repairs and shopping of equipment." The intent is to eventually co-ordinate and standardize painting and repair schedules so far as may be possible. The operation of a passenger car repair shop scheduling system conforms generally to procedure already described in the committee's 1920 report. Schedule supervisor issues shop sheets to department, and checks all work daily, recording delays, which are posted or sent to foremen interested. Supervisor also directs material routing clerk. Delays per car per day, or per month, or departmental delays must be collected weekly or monthly, in any convenient form, and forwarded by supervisor to higher shop officers for information or action.

Freight Equipment.—The committee suggests that only heavy repairs should be considered in any discussion of freight car scheduling. Such repairs require 20 man-hours and over. Separate master schedules should be prepared for flat, coal, box and refrigerator cars, these to be subdivided for wood or steel construction. For example, a steel gondola requiring class B-2 repairs would require a different schedule than a wood box car requiring class B repairs. The above separation may be varied to some extent when cars are repaired under a group system with specialized shifting gangs.

It is not possible at this stage of development to define arbitrary rules for scheduling freight equipment. Shop tracks and buildings are lacking in uniformity and a majority of shops and tracks are not so arranged that practices giving excellent results in one shop will work equally well in another. In general it may be definitely stated that some easily understood and workable system can be adapted to any shop, large or small, which turns out heavy repairs. It is generally conceded that individual cars should not be scheduled, the cost would be prohibitive even if thought advisable, but groups of cars of the same type and class of repairs may be scheduled successfully. Close attention should be paid to segregation of incoming cars if best results are to obtain. The stripping operation is important and should be given careful study. By a method used at one large shop, it is possible to schedule 10 or 15 cars in a group, on one track, as a unit. The time for each gang may be predetermined and stated on a master schedule exactly as outlined for passenger car units. This schedule, with hours,

dates and duties inserted, should hang in a conspicuous position near the head of each working track, where foremen and inspectors may check the progress of the work and quickly locate each gang, or each man, at any hour of the day. Under this shifting gang plan, when one gang loses time and another gang gains, those ahead may be used temporarily to help those behind their schedule.

The usual arrangements, where one foreman supervises all men on two or more parallel tracks, and cars are switched in or out as fast as needed, or finished, should be studied carefully, and it will be apparent that a good system for expediting repairs may also be fitted into this situation, although forces may not admit of specialization, and track room may be insufficient for the more elaborate methods described above. More experience is necessary before a system can be definitely outlined and recommended for shops operating on the single foreman plan. A daily delay sheet, similar to that for passenger cars, should be provided.

Material may be handled by a separate system, controlled by the schedule supervisor. One large freight car repair shop has a material routing plan operating as follows: An assistant foreman in the main repair shop inspects incoming cars, and lists all material required for making repairs. This list is written up on a special form, or order, which is taken up by supply men at frequent intervals daily. The material routing clerk receives copies of these orders, and periodically checks all departments visited by supply men, and also checks material arriving at destination in the main repair shop. Records of delays by departments, and delays for which supply men are responsible, are tabulated by the routing clerk, and forwarded subsequently to the general foreman or higher shop officer. Material clerk co-operates closely with local storekeeper.

General.—To partially illustrate the relation between output and shop capacity. A passenger car shop having capacity for 32 cars will have 32 x 25 or 800 track-days available, considering 25 working days in the month. If records at this shop show that heavy repairs require about 20 days, and medium repairs 12 days, it is evident that an output of 25 heavy and 25 medium repairs may be allocated for the month. If 40 heavy repairs are available for shopping, 800 track-days will be needed, and no medium repairs can be shopped. Any other combination of heavy and medium repairs may be figured on a total track-day basis as explained. The next step is to assign 20 and 12 day master schedules, assuming for simplicity than no light repairs will be shopped in this month.

In conclusion the committee repeats with emphasis the recommendation that

all passenger and freight car repair shops turning out heavy repairs adopt some systematic and workable plan which will first predetermine the expected output and then carefully adjust the working forces, by gangs or otherwise, to this output. Any plan should include careful consideration of switching and track facilities, with reference to regularity of service and segregation of cars by types and repair classes. When this is accomplished all details necessary for best conveying dates and instructions to foremen and gang leaders may be worked out to suit local conditions and the mutual interests of local shop officers.

Summarizing, an adequate scheduling and routing plan aims: To eliminate dead time in the shop. To prevent departmental delays, or one department delaying another, with resultant friction, in some cases. To plan the work and proportion the forces for maximum production with minimum cost. To enable supervision to work more effectively; making it unnecessary to hunt for material or cause for delays. To ensure prompt issue, transfer and delivery of material. To supply reliable data which will assist officers to intelligently rearrange or relocate buildings, tracks or facilities.

Nominating Committee's Report.

The committee on nominations, of which F. W. Brasier, Assistant to General Superintendent of Rolling Stock, New York Central Rd., was chairman, reported as follows: The terms of office of the chairman and seven members of the general committee expired June, 1921. As there was no annual meeting held in 1921 no election of officers was held, and the terms of these officers were continued to June, 1922, in accordance with the Rules of Order of the Mechanical Division, section 7 (a), which provides that officers of the division shall be elected at the regular meeting of the division held in June of each year. In order to avoid the necessity of electing an entire new set of officers and general committee, your committee recommends that the terms of those officers and members of the general committee expiring June, 1922, be extended to June, 1923; and that officers and members of the committee only be elected at this time to fill the vacancies created by those whose term of office expired in 1921, but who were continued in office until June of this year, and of those who have left railway service and are no longer eligible for office in the division.

In accordance with the above, your committee recommends that the term of office of the Vice Chairman and the following members of the general committee be extended to June, 1923: J. S. Lentz, Master Car Builder, Lehigh Valley Rd.; C. E. Fuller, Superintendent Motive Power and Machinery, Union Pacific System; H. L. Ingersoll, Assistant to President, New York Central Rd.; J. J. Tatum, Superintendent Car Department, Baltimore & Ohio Rd.; W. Kells, General Superintendent Motive Power, Atlantic Coast Line Rd. Your committee nominates W. J. Tollerton, General Mechanical Superintendent, Chicago, Rock Island & Pacific Ry., for member of the general committee, to serve for the unexpired term of J. Purcell which ends June, 1923; and H. C. Oviatt, General Mechanical Superintendent, New York, New Haven & Hartford Rd., to serve for the unexpired term of W. Schlafge, which ends June, 1923, as Mr. Schlafge has left railway service.

Your committee nominates the following to serve until June, 1924: For Chairman, J. Coleman, Assistant to General Superintendent Motive Power and Car Department, Grand Trunk Ry.; For members of general committee: C. F. Giles, Superintendent Machinery, Louisville & Nashville Ry.; T. H. Goodnow, Superintendent Car Department, Chicago & North Western Ry.; A. Kearney, Superintendent Motive Power, Norfolk & Western Rd.; J. T. Wallis, Chief of Motive Power, Pennsylvania System; W. H. Winterrowd, Chief Mechanical Engineer, Canadian Pacific Ry.; C. E. Chambers, Superintendent Motive Power and Equipment, Central Rd. of New Jersey; L. K. Sillcox, General Superintendent Motive Power, Chicago, Milwaukee & St. Paul Ry.; For Vice Chairman (to serve unexpired term of Mr. Coleman, which ends June, 1923): J. Purcell, Assistant to Vice President, Atchison, Topeka & Santa Fe Ry.

Train Brake and Signal Equipment Committee's Report.

The committee on train brake and signal equipment, of which T. L. Burton, Air Brake Engineer, New York Central Rd., was chairman, and of which W. J. Hatch, General Air Brake Inspector, C. P.R., was a member, reported as follows:

1. Automatic Hose Connectors for Freight and Passenger Equipment.—The subject of automatic hose connectors for freight and passenger equipment has been further considered by a sub-committee during the past year, which reports in substance as follows. One maker of automatic connectors reports having 15 locomotives, 12 passenger trains, 100 ore cars and 34 slag cars equipped with its automatic connector, and that tests are progressing favorably. Another maker claims to have 5 passenger trains in Canada and one in the United States equipped with its type of connector and is working with certain railway officials in the direction of developing a freight connector. Further than this, the reports are in the general direction of development only. It will be seen from the above that the trials in general now being made are in passenger service and, the progress of development in automatic train connectors is not such as to put your committee in possession of information at this time that will enable it to make any definite recommendations on an acceptable design for connector for both passenger and freight service.

2. Revision of Code of Air Brake and Train Signal Rules.—The present code is in need of revision, and a sub-committee has been appointed from the train brake and signal committee, to work in conjunction with a committee from the Operating Division on revising the code.

3. Stenciling Brake Cylinders.—Attention has been called to the fact that in many cases where the stenciling is above the transverse center line of auxiliary reservoir, it frequently becomes illegible through drippings from the car. Experiments have been made on at least one large railway by stenciling below the center line which indicates an improvement. We believe the practice of applying stenciling approximately 1 in. below the center line should be followed, which can be done without conflicting with the present requirements, from the fact that the location for the stencil is not specifically indicated.

4. Retaining Valves for Freight Equip-

ment Cars.—The committee recommends submitting to letter ballot, for advancement to standard, the present recommended practice, two pressure spring type retaining valve for freight equipment cars.

5. Brake Beams.—At the request of the car construction committee, the committees on train brake and signal equipment and brake shoe and brake beam equipment have held several joint meetings during the year in connection with the strength requirements of brake beams, and have submitted their recommendations to the car construction committee on the proposed status of number two and two plus beams.

Locomotive Headlights and Classification Lamps Committee's Report.

The committee on locomotive headlights and classification lamps, of which W. H. Flynn, Superintendent of Motive Power, Michigan Central Rd., was chairman, recommended the following for submission to letter ballot as recommended practice for future designs, and to be added to recommended practices previously adopted: Turbo generators to have 3 feet for support and attachment to base plate, thickness of feet at bolt hole to be $\frac{3}{4}$ in. and ribbed on sides to engage head of bolt to prevent turning, ribs to extend to body of generator to strengthen the feet, holes in feet to be $\frac{11}{16}$ in. diameter for $\frac{5}{8}$ in. bolts, bolts to enter from the top with nuts on underside of base plate. Bolt hole spacing to provide for 1 bolt at generator end on longitudinal center line of machine 5 in. from transverse center line and 2 holes at turbine end on opposite side $5\frac{1}{2}$ in. from longitudinal center line and 5 in. from transverse center line. Where clearance between foot and body of generator prevents entering bolt from top, foot may be slotted, but where it is necessary to slot all feet, slot in foot at generator end should be parallel with longitudinal center line and slot in feet at turbine end parallel with transverse center line.

Steam inlet of turbo generator to be for $\frac{1}{2}$ in. iron pipe, exhaust outlet to be for 2 in. iron pipe and drain to be for $\frac{1}{2}$ in. iron pipe.

The variation in location of steam inlet from longitudinal and transverse center lines of bolt spacing, and the distance above the base plate to be in increments of $\frac{1}{2}$ in. steam inlet to be on left side facing turbine end.

Ball bearings to be any of the following numbers which also designate the size: 306, 308, 406.

Brushes to be 1 in. wide, $\frac{1}{2}$ in. thick and not less than $1\frac{1}{2}$ in. long.

Brush holders to be equipped with springs so designed that no adjustment is necessary or possible during the full life of brush and commutator and to provide uniform pressure during 1 in. wear of brush. Brush holders to be machined inside, set $\frac{3}{32}$ in. from commutator and at an angle of 10 degrees.

Bolt spacing for base of headlight casings to be $12 \times 12\frac{1}{2}$ in., the center line of back holes to be not more than 5 in. ahead of rear of case, bolt holes to be $\frac{7}{16}$ in. diameter for $\frac{3}{8}$ in. bolts, general design of casing to permit bolts to be applied from top with nuts on under side of bracket.

Screw sizes smaller than no. 12-28 thread not to be used, heads to be either

fillister or flat and material to be brass or steel. For sizes larger than no. 12 use $\frac{1}{4}$ in., $\frac{5}{16}$ in., $\frac{3}{8}$ in., etc., bolt sizes, heads of $\frac{1}{4}$ in. and $\frac{5}{16}$ in. bolts to be slotted to permit use of screw driver.

Lubrication for turbo generators to be oil.

The committee also recommended the following for submission to letter ballot as recommended practice for maintenance of turbo generators: Oil for lubrication to be as light as possible consistent with the conditions of heat under which used, to be filtered before using

and kept in a covered receptacle. Oil reservoirs to be kept free from accumulations of grease and dirt. Extensive repairs and particularly repairs to rotating parts to be done only at shops or designated points where adequate facilities are available.

Design and Maintenance of Locomotive Boilers Committee's Report.

The committee on design and maintenance of locomotive boilers, of which G. H. Emerson, Chief of Motive Power & Equipment, Baltimore & Ohio Rd., was chairman, and of which R. J. Williams, Superintendent of Motive Power, Pere Marquette Ry., was a member, was given the following subjects for special consideration: 1. The desirability of more water and steam space above the crown sheet. 2. Locomotive boiler washout

ing necessary to support the crown sheet became excessive, increasing the difficulty in washing out and keeping the crown clear of sediment, due to the obstruction of crown bars. This type was superseded by the radial stay type. In the earlier style of radial type the crown sheets were so much arched that it was possible to apply only two center rows of radial stays with buttonheads to bear squarely against the under side of the

head crown stays for the support of the crown sheets, the committee feels that this type of stay as shown by fig. 3 should be adopted as recommended practice for other than oil-fired boilers.

Mud rings with drop corners are worthy of consideration, as they can be easily made, since it is the almost universal practice to use cast steel mud rings. This strengthens the corner of the mud ring and prevents it from breaking at this point, and provides for three rows of rivets, one row fitting into the thin sections of the mud ring which will

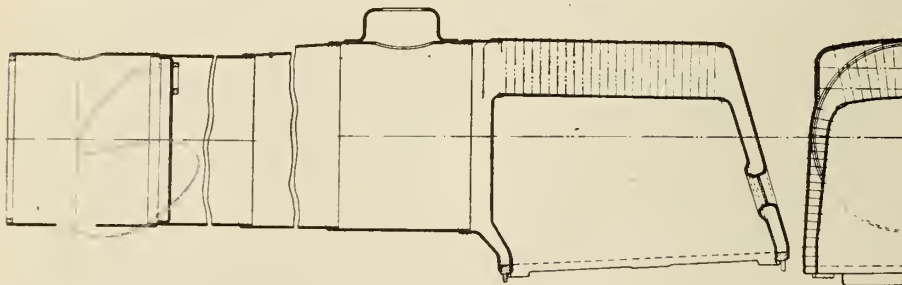


Fig. 1. Belpaire Type Boiler.

systems. 3. Dry pipe specifications. The committee's report is divided into three heads: 1, Design; 2, Maintenance; 3, Devices which reduce boiler maintenance, such as circulation, water treatment and washout systems.

On design, the committee reported as follows: Under this head will be considered desirability of more water and steam space above the crown sheet, as a matter of design. In the designing of boilers they should conform to the requirements

crown sheet, and the angle of the stays was such that the heads of the outer rows would not bear squarely against the under side of the crown; the end through the outer shell was at such an angle that it was impossible to get a continuous full thread fit within the thickness of the shell sheet, resulting in leaky staybolts. In the later designs of radial stay fireboxes the crown sheet was very much flattened, permitting the application of buttonhead stays to approximately the full width of the crown. In the first design of radial stay fireboxes, in order to get the number of flues to correspond with those used in equal size crown bar boilers, the crown was carried higher than in the crown bar boiler, resulting in restricted steam space. In flattening the crown sheet, the steam storage space was increased, but reduced the firebox heating surface as compared with the earlier designs.

In the Belpaire type, figs. 1 and 2, the outside and inside firebox sheets are arranged with the surfaces of sheets practically parallel, permitting the application of braces at right angles to plate supported, thus giving maximum fit for the threads of the stays or sleeves in the sheets and enabling the use of buttonhead stays through the full width of the crown, carrying out the use of buttonhead support for the crown sheets so successfully used in the crown bar boiler, and the application of stays of the upper shell sheets at right angles to the plates, fig. 2.

With the Belpaire type, a given diameter of the boiler shell gives: Greater steam storage space. Greater steam disengaging surface. Greater firebox heating surface. Greater number of tubes. All vertical stays of same length give less variation in expansion and contraction, less distortion of shell sheets, less breakage of bolts, and less number of staybolts to be kept in stock for repairs.

Since the history of boiler design shows that the firebox crowns have been shaped to provide for the application of button-

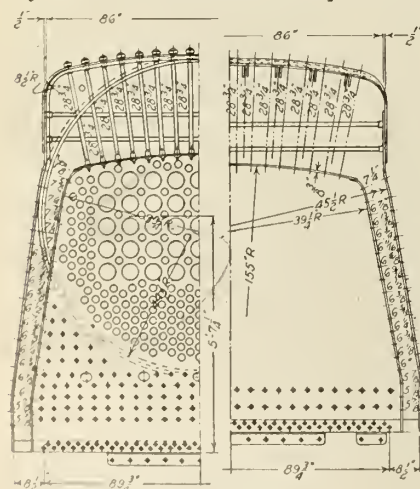


Fig. 2. Belpaire Type Boiler.

of the Locomotive Boiler Inspection Law, amended March 4, 1915, issued by the Interstate Commerce Commission, as covered by orders issued by the commission, on June 9, 1914, as to factor of safety and stresses allowed.

There are two general styles or designs of locomotive boilers at present being applied to locomotives constructed in this country, the Belpaire and the radial stay. The radial stay type was preceded in use by the crown bar type. As the demand for larger boilers and higher pressure took place, the weight of brace-

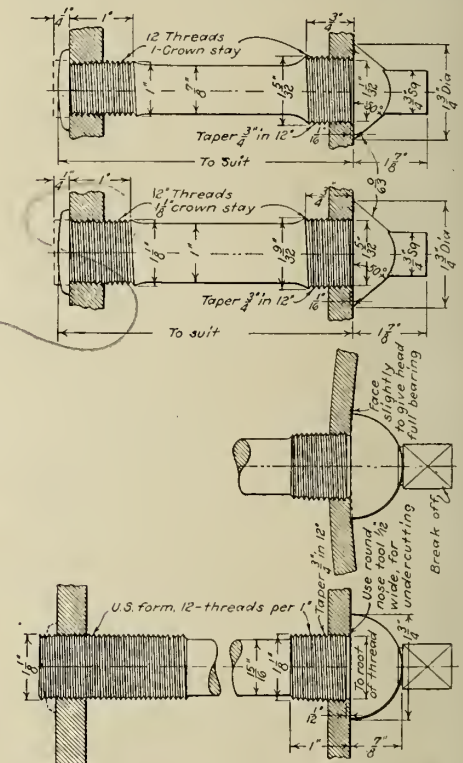


Fig. 3. Type of Stay Recommended.

draw the sheet tighter to the mud ring and give better backing up when caulking the edge of the sheet than is the case when patch bolts are used in the corner.

Consideration should be given to provide protection for return bends of superheater units. No design other than the ordinary damper appears to have been developed or at least are not within the committee's knowledge. In this connection protection to the superheater units could be obtained by locating throttle between the superheater and the engine, and developments along this line should be considered.

Improvement should be made in the usual form of tapered screw washout plugs, threaded directly in the shell of the boiler. It would be desirable to design a screw plug wherein the plug proper was not screwed directly into the shell of the boiler and the cap or plug should be so designed as to eliminate possibility of crossing threads in screwing to place.

Dry Pipe Specifications.—The committee reported that communication had been entered into with the National Tube Co. to determine on dry pipe dimensions which would eliminate special size now required to be rolled for locomotives, in accordance with dimensions now used and by the adoption of the sizes of pipe now used for other purposes, thereby enabling the manufacturer to fill orders from pipe in stock, which would facilitate making prompt shipments for both new work and repairs. The committee recommended that the sizes shown in the following table be used for dry pipe and that they be adopted as recommended practice:

PRESENT PIPE			PROPOSED PIPE		
Inside diameter, inches	Thickness, inches	Outside diameter, inches	Nominal inside diameter, inches	Actual inside diameter, inches	Outside diameter, inches
5	$\frac{1}{4}$	$5\frac{1}{2}$		No corresponding size.	
$5\frac{1}{2}$	$\frac{1}{4}$	6	5	5.047	5.563
6	$\frac{1}{4}$	$6\frac{1}{2}$	6	6.065	6.625
$6\frac{1}{2}$	$\frac{1}{4}$	7	7	7.023	7.625
$7\frac{1}{2}$	$\frac{1}{4}$	8	8	8.171	8.625
8	$5/16$	$8\frac{5}{8}$	9	8.941	9.625
9	$5/16$	$9\frac{5}{8}$		No corresponding size.	

Consideration should be given to the present usual practice.

Maintenance of locomotive boilers is one of the most expensive items of locomotive operation. The renewal of firebox sheets is the principal expense in boiler maintenance. There have come into use the last few years approved methods for making repairs; viz., the gas cutting torch for cutting out, for removing defective parts, and autogenous welding for uniting plates. For cutting out staybolts and defective sheets, the gas process is used by utilizing the flame of the cutting blow pipe. The autogenous welding of fireboxes is used for the following purposes: Application of patches to firebox inside sheets; application of half and full side sheets; application of crown sheets; application of whole and part back flue sheets; application of whole and part door sheets; application of door collars and door hole patches; application of mud ring corner patches; application of welded fireboxes complete; reinforcing mud ring corner; reinforcing of rivet seams; welding broken mud rings. Autogenous welding for other than fireboxes is used for the following purposes: Welding outside side sheets; electric welding of flues; welding cracks and holes; fastening of studs. The use of the autogenous system of welding brings with it so many advantages from the standpoint of decreased thickness of material and decreased cost of maintenance that it should be developed to the fullest extent possible, but at present the state of the art is not sufficiently developed to warrant the committee making definite detailed recommendations. Attention is called to the practices of the Baltimore & Ohio Rd., Chicago, Rock Island & Pacific Ry., Atchison, Topeka & Santa Fe Ry., Union Pacific System and other leading railways, all of which have established practices well worthy of consideration and doubtless will be further developed.

Carbon arc welding can be done only with welding generator sets of 600 ampere capacity or larger. Where 600 ampere capacity set is used for carbon work, only the operator doing this work can use the machine at one time. Welding circuits, panels, welding cables, electrode holders, etc., must also be of sufficient capacity and suitable for this character of work. In this connection sufficient capacity in the welding panels and permanent wiring can be secured by operating two panels and circuits in

parallel. Portable welding cable of the size specified for carbon arc welding, should be used, but where this is not available, two cables connected in parallel of the size used for metallic arc welding can be used.

In electric welding there are certain general rules which should be observed. For welding, the pieces are to be kept thoroughly clean, and free from grease, rust, scale and other foreign substances. Same must be made on bright, clean metal, and that condition must be preserved throughout the welding operation. Places that are not chipped clean in beveling should be cleaned at least $\frac{1}{2}$ in.

design of cast iron dry pipes, in view of

on each side of the bevel.

In all seams to be welded, the edges must be beveled at an angle of 45° , so that when parts are assembled for welding, a V opening will be formed, with bottom of opening not wider than $\frac{1}{4}$ " or less than $3/16$ " as shown by fig. 4. Never apply a weld to the barrel of the boiler. Never weld studs to the barrel of the boiler. Autogenous welding should not be permitted on any part of a locomotive boiler that is wholly in tension under working conditions; this to include arch and water bar tubes.

Devices for Economy in Fuel and Reduction of Boiler Maintenance; Water Treatment.—The committee's conclusions are summarized as follows: Boilers are designed and built for the purpose of producing steam by the evaporation of water, and they fulfil this function best when clean and free from scale, which condition can be maintained only by furnishing them with clean water, containing a minimum amount of scale-forming impurities, and these of such a nature that they will not form a hard and tenacious coating, but will be thrown down as a soft sludge that can be removed readily by blowing off or washing. The installation of treating plants in hard water districts offers an investment that will show a big return by reducing the cost, not only of boiler maintenance, but also of general operation. The committee strongly urges serious consideration by railway managements of the installation of water treating plants.

2, Circulation.—The committee urges the careful consideration of the design of boilers to the end of perfecting circulation of water.

3, Feed Water Heaters.—The committee is of the opinion that attention should be given to the further development of feed water heaters, in order to effect more economical operation of locomotives.

4, Boiler Washout and Fill Systems.—There are three general types of washout and fill systems in use. 1. The ejector type, in which washout water is slightly heated and placed under pressure by injecting steam into it through a suitably designed nozzle. This is the simplest and least expensive type, but appears to be the least desirable.

2. The pump and heater system, where

the water is heated in an open or closed heater, distributed through a pipe line in the locomotive house and forced under a pressure of about 130 lb. into the locomotive through a hose and nozzle. This type is fairly effective, and can be installed without violating any patent rights. For a medium sized terminal, such a system with two water tanks, one washout and one filling pump and two pipe lines into the locomotive house, will afford washout water at 150° and filling water at 200° F. at a small operating expense. Where exhaust steam is available for heating water, this type is an excellent one for a medium sized terminal.

3. The blow-back type, where the steam blown off the locomotive is utilized to heat the wash and filling water. Such systems, which also provide for the automatic tempering of the water used in washing out and the use of a circulating line to keep the water always hot in the locomotive house lines, are protected by patents. This system is the most effective one, and provides washout water at all times of the proper temperature, and reused water and steam blown off from the locomotive instead of wasting same.

The committee earnestly urges upon railway managements the importance of installing hot water washout and fill systems, thereby effecting economies and efficiency with little expenditure of capital.

Conclusions.—The committee recom-

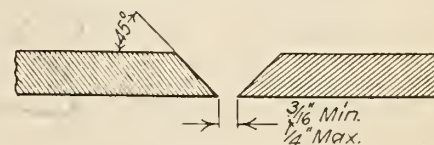


Fig. 4. Details of V Opening.

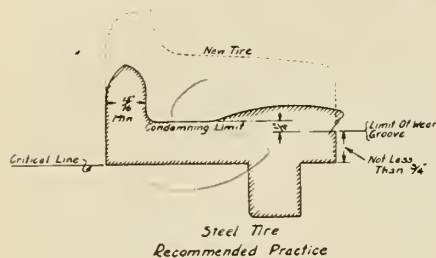
mends that: 1, Buttonhead staybolts, as shown on fig. 3, be adopted as recommended practice for crown sheets in other than oil-fired boilers. 2, Sizes of pipe as covered by the table given in an earlier portion of the report, proposed pipe, be adopted as recommended practice for dry pipe in designing new boilers. 3, The practice of autogenous cutting and welding be further developed. 4, Hot water washout systems be adopted as recommended practice in washing and testing of locomotive boilers. 5, The installation of water treating plants be generally adopted in the bad water districts. 6, Improvements be made in the usual form of tapered screw washout plugs.

Arbitration Committee's Report.

The arbitration committee, of which T. H. Goodnow, Superintendent Car Department, Chicago & Northwestern Ry., was chairman, and of which J. Coleman, Assistant to General Superintendent Motive Power and Car Department, G.T.R., was a member, reported that during the year cases 1184 to 1232 had been decided. Changes in the rules of interchange recommended by the committee include a change in rule 2 to eliminate conflict between the Car Service Rules and Interchange rule 2; a change in rule 3, adding a new paragraph to sec. 3 as follows: "After Jan. 1, 1924, cars equipped with couplers having riveted yoke without lugs will not be accepted in interchange," and other changes in rule 3; changes in rules 4, 9, 12, 17, 32, 33, 43, 58, 59, 60, 70, 86, 88, 91, 101 and 112, and in passenger car rule 18.

Car Wheels Committee's Report.

The committee on car wheels, of which W. C. A. Henry, General Superintendent of Motive Power, Pennsylvania System, was chairman, and of which W. H. Winterrowd, Chief Mechanical Engineer, C.P.R., and L. K. Silcox, General Superintendent of Motive Power, Chicago, Milwaukee & St. Paul Ry., and formerly of the Canadian Northern Ry., Mechanical Department, were members, reported as follows: In order to clarify the matter of condemning limits of steel and steel-tired wheels on account of wear, the com-



mittee recommends the insertion in the Code of Rules of the following rule as interchange rule 79, under the Freight Car Code and as a paragraph of rule 7 of the Passenger Car Code of Interchange Rules: "Thin tread: Steel and steel-tired wheels.—If tread is worn to within $\frac{1}{4}$ in. of the measuring line, which is the inside edge of the limit of wear groove."

Also on this same subject there is recommended the introduction of an additional drawing, fig. 1, in the Code of Rules to follow fig. 4, now shown on pg. 220 of the 1921 revised Code; also fig. 4, M.C.B., sheet 16-A.

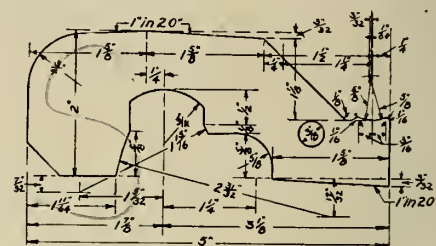
In 1920 the contour of the back of

flange of steel and steel-tired wheels adopted in 1912 was withdrawn from the standards and the 1909 contour readopted as standard. With the 1912 contour the back of the flange of steel and steel-tired wheels was identical with that of cast-iron wheels between the base line and the top of flange. The change to the 1909 contour reduced the width of the rim from $5 \frac{19}{32}$ in. to $5 \frac{1}{2}$ in., and the backs of the flanges of steel and steel-tired wheels are not identical with those of cast-iron wheels between the base line and a point approximately $\frac{1}{2}$ in. above same.

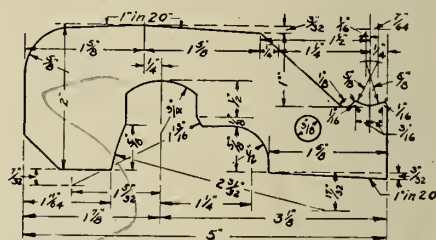
Due to the above change, we recommend that the drawing of the maximum and minimum flange thickness gauges for cast-iron, solid steel and steel-tired wheels be changed to show the height of the surface which comes in contact with the back of flange to be $\frac{5}{8}$ in., instead of $\frac{3}{4}$ in. With dimensions as at present, these gauges will not correctly indicate the condemning limits for maximum and minimum flanges of steel and steel-tired wheels. The proposed change will have no effect whatever as concerns cast-iron wheels. This recommended change is shown in fig. 2.

An important factor in increasing the life of wheels is to pair and mount on the same axle wheels of as nearly as possible similar physical characteristics. The committee considered the question of attempting to mate wheels of equal hardness, but it is their conclusion that the only practicable method of doing this is in the case of solid wrought carbon steel wheels, to mate them within a 0.05% carbon content range, and in the case of cast-iron wheels to mate by tape sizes as already provided for in the Recommended Practice for Mounting Wheels. It is

therefore recommended that the following section be added to paragraph 8 of the Recommended Practice: "In the case of new wrought steel wheels, those mounted on the same axle should not differ in the carbon content by more than 0.05%." The committee has under consideration certain revisions in the specifications for



Maximum Flange Thickness Gauge For Cast Iron Wheels and Maximum Flange Thickness, Height and Throat Radius Gauge For Solid Steel and Steel Tired Wheels.



Minimum Flange Thickness Gauge For Cast Iron Wheels and Minimum Flange Thickness, Height and Throat Radius Gauge For Solid Steel and Steel Tired Wheels.

wrought steel wheels and cast-iron wheels. However, the investigation has not yet progressed sufficiently that it is ready to submit recommendations.

Modernization of Stationary Boiler Plants Committee's Report.

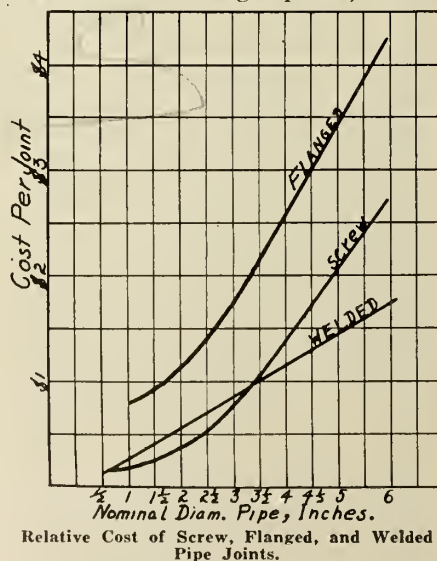
The committee on modernization of stationary boiler plants, of which L. A. Richardson, Mechanical Superintendent, Chicago, Rock Island & Pacific Ry., was chairman, continued its study of the subject from the basis of the report submitted in 1920, and reported in part as follows:

Crushed Coal Furnaces.—Some progress has been made in the development of the Schutz furnace, which uses a coal that has been finely crushed, but not pulverized. One of these was applied to a 500 h.p. boiler, in a commercial power generating station, and results obtained were very favorable. However, the experimenters are not ready to publish their findings and are waiting for additional development before recommending the furnace for a commercial proposition.

Chain Grate Stokers.—In districts where highly volatile coking coal is available, the chain grate stoker is a very popular form of coal-burning device. The coal is carried into the furnace, ignited, the combustible portion burned up, and the ash continuously dropped over the rear end of the stoker. Over 60% of all stokers west of Pittsburgh are of the chain grate type, with the exception of points where West Virginia coking coal is available.

Relative Cost of Steel, Concrete and Brick Stacks for Plants of 150 to 600

b.h.p.—Steel stacks increase in cost directly in proportion to the boiler h.p. of the plant, this being due to duplication of stacks for the larger plants, the cost



Relative Cost of Screw, Flanged, and Welded Pipe Joints.

being much lower for small plants, but gradually approaches the cost of concrete and brick as the size of plant increases. Concrete stacks decrease in cost per boiler as the size of the plant in-

creases, the cost of same being just slightly higher than the cost of brick for the same size of plant above 500 h.p. and less for plants below 500 h.p. Brick stacks decrease in cost per boiler h.p. as the size of the plant increases, the same as for concrete stacks, only not in the same proportion, the decrease being greater, the cost of same being slightly less than the cost of concrete for the same size plant above 500 h.p. and more when below 500 h.p.

For maintenance and depreciation, an annual allowance of $2\frac{1}{2}\%$ of total cost for concrete stacks, 3% for brick stacks and 16% for steel stacks, should be made. These figures may vary, depending upon local conditions, design and proper maintenance, but they appear to represent a basis of comparison which is comparatively accurate.

Welding of Pipe Lines in Railway Shop Power Plants.—Curves show the cost of fitting pipes, both with flange fittings, screw fittings and welded joints, based on the cost per joint, which includes cutting two threads, fitting two flanges and bolts in case of the flange fitting, or screwing and coupling in case of the screwed fittings.

No definite recommendations are made for the welding of pipes, but the possibility of saving by use of welded instead of flanged or screwed joints is very great.

A section of the report deals with

types of prime movers for stationary power plants, and shows that while in late years the choice of such prime movers has been in favor of the reciprocating steam engine or turbine, general rules governing selections are without purpose, since each particular installation is a problem in itself. Floor space, capacity, cost of fuel, water rate, steam pressure, water supply, load characteristics, exhaust steam requirements, size of foundation, vibration, first cost, attendance, maintenance, depreciation, taxes and interest on the investment, all govern the selection of type. The principal factor governing the size of units is the station load curves; where these curves are known, the problem is a comparatively simple one, but when they must be assumed, as is generally the case with a new project, it is largely a matter of experience.

The report contains numerous tables and curves, showing the steam consumption, water rate, etc., of various types of stationary engines.

The report also contains a section dealing with settings for stationary boilers of the horizontal return tubular type and says: It is of particular importance, when setting return tubular boilers, to make the boiler independent structurally from the brick work, and make stack independent from either boiler or brick work. This results in longer life of brick setting, better alignment of boilers and better opportunity for maintenance and repair work without undue expense and disturbing of such sections as are in good condition for the purpose of repairing sections in need of attention.

Tank Cars Committee's Report.

The tank cars committee, of which A. W. Gibbs, Chief Mechanical Engineer, Pennsylvania System, was chairman, reported that during the past year it had continued its efforts to secure improvement of the tank car features which reports from the Bureau of Explosives and others indicated the principle sources of trouble, viz., dome closing arrangements, heater coils, and the bottom outlets. Tests are being carried on at Altoona on three experimental tank car safety valves, and recommendations as to changes in the standard design cannot be made until these tests are completed. The tests so far have shown the importance of close adherence to the prescribed contour of valve and seat, and the committee's recommendations when made will include one that limit gauges be made with which the valves shall conform. The committee recommended that the class 4 specification tests of safety valves, sec. 24, paragraph 1 be amended to permit of the test period being extended from six months to a year.

A sub-committee which is investigating bottom outlet valves, said in part, "We believe that a valve will not be satisfactory or practical which requires two seats, the aid of gaskets, or a complication of levers and springs. The operating mechanism should be simple, strong, and positive in action. Troubles due to sticking appear to be characteristic of valves of the plug and piston type."

The committee recommended a change in the specifications for class 1 and 2 cars, in connection with the extension of the bottom outlet below sills. The committee also recommended the following:—In the case of steam jacketed

outlets, or where the construction of the outlet pipe is such as to make the breakage groove impracticable, it may be omitted." Recommendations were also made in connection with dome closing arrangements, heater pipes, compliance with building specifications in case of rebuilding cars or making extensive alterations, and tests of tanks of class 4 cars. Consideration was also given to the projection of pipes above dome heads, and to multiple unit container cars to be used for the transportation of materials usually carried in tank cars, but no recommendations were made on these subjects.

Couplers and Draft Gear Committee's Report.

The committee on couplers and draft gear, of which R. L. Kleine, Assistant Chief of Motive Power, Pennsylvania System, was chairman, and of which L. K. Silcox, General Superintendent of Motive Power, Chicago, Milwaukee & St. Paul Ry., and formerly of the Canadian Northern Ry.'s Mechanical Department, submitted a progress report, making the following recommendations:—

Standard D Coupler Specifications.—Paragraph (15-B).—It is proposed to revise this paragraph to require 10% of the complete couplers to be weighed rather than all the couplers. The revised paragraph follows: "15-B. When couplers are purchased complete and assembled, 10% of the couplers in each lot of 100 or less shall be individually weighed and shall come within the limits as shown on fig. 6. Upon the failure of a coupler to come within the limits as shown in fig. 6, the weighing shall be extended to the entire lot. Failure of any coupler to come within the limits shall be sufficient cause to reject the coupler unless the weight can be adjusted by the manufacturer. Detail parts shall come within the limits as shown on fig. 6, one coupler being dismantled in each 100 and weighed."

Actual experience in carrying out the D coupler specifications developed that weighing 10% of the complete couplers furnished sufficient check on the product.

Gauges for Standard D Coupler.—The following gauges are recommended for approval: 16529-1—Bottom lock lift lever gauge; 16529-2—Bottom lock lift toggle gauge; 16529-3—Bottom lock lift lever

gauge specifications. The weight table has been revised to conform with the weights obtained on a large number of couplers and a column has been added giving the normal weights.

Specifications and Tests for Materials Committee's Report.

The committee on specifications and tests for materials, of which F. M. Waring, Engineer of Tests, Pennsylvania System, was chairman, which, on account of its length and also that the majority of the specifications submitted are for paints and materials used in the composition of paints, which are not of much interest to the great majority of men in the railway industry, will only be dealt with briefly.

One of the most important questions referred to the committee by the general committee was: "Has the process of heat treatment decreased the number of failures to any appreciable extent?" Out of 77 replies received to circulars sent out by the committee, 52 reported no information. Of the remaining 25, four reported that they considered heat-treated axles and crank pins more satisfactory than untreated. Nine reported that they were using heat treated material, but were doubtful as to the value of the heat treatment. Five report that they prefer annealed steel rather than the heat treated. Six reported that their experience with heat treated material has been unsatisfactory. One road reported that it considered heat treated axles satisfactory, but that it was using annealed steel for piston rods. Some of the replies pointed out that a possible reason for some of the difficulties experienced with heat treated steel were due to an improper heat treatment and that it was possible that the same material, if properly heat treated, would have given satisfactory results. In some quarters there is a strong opinion that the best steel for locomotive forgings is that which has been given a proper annealing treatment, to thoroughly refine the grain and relieve all stresses.

The committee reported that it had representatives serving with representatives of the American Society for Testing Materials on a joint committee on specifications for steel castings for railways, which held a final meeting on Mar. 24 last, and approved proposed specifica-

Limiting Weights, Standard D Coupler.

Coupler shank	Weight	Top operation			Bottom Operation		
		Without fittings	Comp. with 9 in. knuckle	Comp. with 11 in. knuckle	Without fittings	Comp. with 9 in. knuckle	Comp. with 11 in. knuckle
6 in. by 8 in. shank—6 in. butt.....	Min.	266	385	389	267	389	393
	Nor.	274	397	401	275	401	405
	Max.	286	415	419	287	419	423
5 in. by 7 in. shank—6½ in. butt....	Min.	259	378	382	260	382	386
	Nor.	267	390	394	268	394	398
	Max.	279	408	412	280	412	416
5 in. by 7 in. shank—9½ in. butt....	Min.	267	386	390	268	390	394
	Nor.	275	398	402	276	402	406
	Max.	287	416	420	288	420	424

WEIGHT OF FITTINGS

Fittings	Top operation			Bottom Operation		
	Minimum	Normal	Maximum	Minimum	Normal	Maximum
9 in. cored knuckle.....	90	93	97	90	93	97
11 in. cored knuckle.....	94	97	101	94	97	101
Lock	13.5	14.5	15.5	13.5	14.5	15.5
Total weight of parts (with 9 in. knuckle)	119	123	129	122	126	132
Total weight of parts (with 11 in. knuckle)	123	127	133	126	130	136

gauge pin. These gauges have been developed by the manufacturers since adoption of the Standard D Coupler Specifications in 1918 and take care of the bottom operating mechanism for the coupler.

The Table of Weights for Standard D Coupler, published herewith, is recommended for approval to replace the table of weights now appearing in the D coup-

tions for submission by each of the representatives to their parent bodies.

The committee also presented specifications as recommended practice for: 1. Revisions: a. Turpentine; b. Oxide of iron paste; c. Black paint; d. Raw linseed oil; e. Boiled linseed oil; f. Red lead. 2. New: a. Mineral spirits; b. Red lead and oil; c. Extended red lead paste.

General Committee's Report

Following are extracts from the report of the general committee, among the members of which were W. J. Tollerton, General Mechanical Superintendent, Chicago, Rock Island & Pacific Ry., chairman; Jas. Coleman, Assistant to General Superintendent Motive Power & Car Department, Grand Trunk Ry., vice chairman; and W. H. Winterrowd, Chief Mechanical Engineer, Canadian Pacific Ry.

The Membership of the division includes 206 railways, representing 379 memberships in the American Railway Association, and in addition thereto, 100 railways, associate members of the American Railway Association. These railways, members and associate members of the American Railway Association, have appointed 788 representatives in the Mechanical Division. In addition there are 1,529 affiliated members and 126 life members in the division.

Manual.—The standard and recommended practice of the division has been brought up to date and compiled under the direction of the committee on manual. The Manual contains the standards and recommended practices adopted by the former Master Car Builders' and American Railway Master Mechanics' Associations, harmonized and brought up to date, and the standards and recommended practices since adopted by American Railway Association, Mechanical Division.

Maximum Load Markings on freight cars in lieu of nominal capacity. The letter ballot ordered taken on this subject in 1919, as result of report from the car trucks committee, resulted in the proposition being approved by more than the required two-thirds majority. Conferences have been held with representatives of the Traffic and Transportation Divisions to arrange for the necessary adjustment in tariffs. This subject has been considered also by your committee at practically every meeting, but due to difficulties that have been encountered the committee is not prepared to make any definite recommendations as to further action.

Change in Name.—As a result of revised articles of organization and bylaws of the American Railway Association adopted in 1920, and the following resolution adopted at your 1920 annual meeting, the name of your organization has been changed from Section 3, Mechanical, to Division 5, Mechanical, Master Car Builders and Master Mechanics, and is indicated on letterheads, circular headings, etc., as follows: "American Rail-

way Association, Mechanical Division, Master Car Builders, Master Mechanics."

Mechanical Inspection Department.—Your committee has approved recommendation for the establishment of a department to investigate repairs to foreign cars and billing therefor. This department at present consists of a Chief Inspector and five inspectors acting under the direction of the general committee.

Fuel Conservation.—At the request of the board of directors for the forming of an organization within the American Railway Association, to consider and make recommendations on fuel conservation, the general committee, in co-operation with the general committees of the Operating and Purchases and Stores Divisions, appointed members to represent the Mechanical Division on the joint committee on fuel conservation, which joint committee reports direct to the directors. In view of the organization of the joint committee on fuel conservation, the Mechanical Division's committee on fuel economy and smoke prevention has been discontinued.

Inspection of Standard Material.—A joint committee to study the subject of joint inspection of standard materials has been appointed by your general committee in co-operation with the General Committee of the Purchases and Stores Division's General Committee. Final report from this committee has not yet been received.

Inspection of Equipment.—The general committee, in co-operation with the Transportation Division's general committee and the Car Service Division, appointed a special committee on joint inspection. Recommendations from this committee have been approved by letter ballot of the railways as recommended practice.

Automatic Train Control.—Your committee has appointed representatives of the Mechanical Division to serve on the joint committee on automatic train control with representatives from the Operating and Engineering Divisions and Signal Section.

Power Brakes and Power Brake Systems.—Your committee, through the American Railway Association's president, arranged for the committee on safety appliances to handle matters for the association in connection with the investigation of power brakes and power brake systems before the Interstate Commerce Commission, and further arranged for the committee on train brake and

signal equipment to assist the committee on safety appliances in this matter.

Loading Rules Committee's Report.

The committee on loading rules, of which R. L. Keine, Assistant Chief of Motive Power, Pennsylvania Rd., was chairman, and of which E. J. Robertson, Superintendent Car Department, Minneapolis, St. Paul & Sault Ste. Marie Ry., was a member reported that it had considered all suggestions for modifications of and additions to the loading rules presented by members of the association, as well as by shippers, and had held joint conferences with the latter to the end that the loading rules may be kept up to date and take care of any new methods of loading that may be presented. As a result revisions in several rules were proposed by the committee. In concluding its report, the committee expressed its appreciation of the co-operation which had been extended by large shippers in working out the details of loading rules and in seeing that they were lived up to in the loading of merchandise of all kinds.

Prices for Labor and Materials Committee's Report.

The committee on prices for labor and materials, of which A. E. Calkins, District Master Car Builder, New York Central Rd., was chairman, and of which I. N. Clark, General Car Inspector, G.T. R., was a member, reported that during the past year it carried on investigations and studies, as a result of which it submitted data under freight car rules 101, 107, 111 and 112, and passenger car rules 21 and 22. The material prices recommended were based on the average purchase price as reported by seven large roads during Jan. and Feb. 1922, as well as current quotations of several large railway supply companies.

The committee recommended an additional allowance of \$100 for cars equipped with cast steel wheels, and \$125 for cars equipped with rolled steel wheels, under rule 112, which represents the difference in value over the cast iron wheels, due consideration having been given the lower scrap credits for these wheels. The committee stated in its opinion that if recommendations, as set forth in the rules above specified, were adopted, all roads will be able to repair foreign equipment and be fully reimbursed for all work performed.

Railway Supply Exhibits at the Atlantic City Mechanical Convention.

The railway supply exhibits at the American Railway Association, Mechanical Division convention at Atlantic City, June 14 to 21, were, as usual, arranged for by the Railway Supply Manufacturers' Association, the officers of which were: President, J. F. Schurch, President T. H. Symington Co.; Vice President, C. D. Jenks, Vice President Damascus Brake Beam Co.; Secretary-Treasurer, J. D. Conway. The exhibits, as a whole, were considered the best that have ever been shown at one of the conventions. They occupied 96,000 sq. ft. of space, there being 341 exhibitors, and it was impossible to provide space for 75 other applicants. Among the principal

exhibitors were the following:—

American Brake Shoe & Foundry Co., New York.—Standard patterns and types of locomotive and car brake shoes.

American Locomotive Co., New York.—Alco reverse gear; Alco reduced body and flexible staybolts with threaded and welded sleeves.

American Steel Foundries, Chicago.—Cast steel bolsters, side frames and couplers; Davis cast steel wheels; Simplex clasp brakes; Ajax and Hercules brake beams; coupler yokes; Economy cast steel draft arms and miscellaneous castings.

Association of Manufacturers of Chilled Car Wheels, Chicago.—Standard 33-

in. A. R. A. car wheels as follows: 650-lb. for 30-ton car; 700-lb. for 40-ton car; 750-lb. for 50-ton car; 850-lb. for 70-ton car.

Barrett Co., New York.—Roofing; waterproofing; paving; creosoting.

Boss Nut Co., Chicago.—Boss lock nuts.

Bowser & Co., S. F., Fort Wayne, Ind., and Toronto.—Complete equipment for oil and gasoline storage at central oil houses; underground outfit for installation along the right-of-way.

Brill Co., The J. G., Philadelphia, Pa.—One 42-ft. 6-in. combination passenger and baggage gasoline rail car; standard steam car seat.

Buffalo Brake Beam Co., New York.—Brake beams and brake beam parts.

Chase & Co., L. C. Boston, Mass.—Goat brand mohair upholstery plush; Chase renovator for cleaning upholstery; Chase Leatherwove.

Chicago Railway Equipment Co., Chicago.—Brake beams; brake beam supports; side bearings.

Davis Boring Tool Co., St. Louis, Mo.—Expansion car wheel and machine shop boring tools; expansion reamers; cutter grinding attachment; grinding arbors.

Dearborn Chemical Co., Chicago and Toronto.—Scientific water treating preparations; No-ox-id rust preventive.

Edison Storage Battery Co., Orange, N. J.—Storage battery cells cut away to show parts and construction; map showing railroads using Edison batteries; car lighting battery box with installation of Edison batteries; model of railway storage battery car; seven-cell battery for signal service; five-cell battery for portable lighting; three, four and five-cell batteries for car lighting.

Electric Service Supplies Co., Philadelphia, Pa.—Golden Glow locomotive headlights, reflectors and floodlights; Keystone turbo-generators, headlight switches, classification and marker lights, gauge lights, rear tender lights and roundhouse lighting fixtures.

Flannery Bolt Co., Pittsburg, Pa.—Tate flexible staybolts; F B C welded flexible staybolts; Realock nuts and grease cups; Flannery rigid stays, taper head crown stays and button head stays.

Franklin Railway Supply Co., New York.—Nos. 8 and 9 firedoors; driving box spreader; automatic wedge; Precision reverse gear; booster; lateral motion device; Ragonnet reverse gear; McLaughlin joint and ball joint models; Radial buffer and Unit safety bar; Unit safety bar.

Galena Signal Oil Co., Franklin, Pa., and Toronto.—Reception booth.

Garlock Packing Co., Palmyra, N.Y.—Packings for locomotive throttles, air pumps, power reverse gears, shop machinery, and slip, ball and expansions joints, boiler and pipe flange gaskets; rubber pump valves.

General Electric Co., Schenectady, N. Y.—Various applications of industrial control apparatus in operation; semi-automatic electric arc welding equipment in operation.

Gold Car Heating & Lighting Co., Brooklyn, N.Y.—Vapor and other systems of car heating; automatic temperature regulation for railway cars, buildings, etc.; pressure regulators; ventilators.

Grip Nut Co., Chicago.—Grip lock nuts; Grip locomotive nuts; Grip unit and holding nuts.

Hunt-Spiller Manufacturing Corporation, South Boston, Mass.—Locomotive parts made of Hunt-Spiller gun iron; cylinder bushings and packings; solid pistons; piston bull rings; piston valve bushings and packing; tee rings; cross-head shoes; knuckle pin bushings for freight service; air pump bushings, driving boxes; pedestal shoes and wedges; eccentrics and eccentric straps.

Independent Pneumatic Tool Co., Chicago, Ill.—Complete line of Thor pneumatic and electric tools for railway use, including latest developments.

Ingersoll-Rand Co., New York.—Air compressor; pneumatic riveting hammers; chipping hammers; close-quarter drills; staybolt tapping machines; motor hoists; grinders; wire brush cleaning machines and jam riveters.

Johns-Manville, Inc., New York.—

Roofing, building and waterproofing materials; asbestos shingles; J-M industrial floorings; Transite and ebony asbestos wood; Transite asbestos wood smoke jacks and ventilators; pipe coverings; high temperature and asbestos cements; locomotive boiler lagging; passenger refrigerator and tank car insulations; spiral locomotive pipe insulation; power reverse gear packing sets; J-M air brake cylinder expander rings; steam traps; brake band lining; asbestos-metallic friction brake blocks; friction tapes and splicing compounds; "Success" fire extinguishers; packings and gaskets.

Kerite Insulated Wire & Cable Co., New York.—Insulated wires and cables.

Keyoke Railway Equipment Co., Chicago.—Murray all cast steel friction draft gear and several designs of cast steel coupler yokes.

Locomotive Firebox Co., Chicago, Ill.—Full size firebox with two complete Nicholson thermic syphons.

Locomotive Stoker Co., Pittsburg, Pa.—Full size type D Duplex stoker and one-third size model; slope sheet coal pusher.

McConway & Torley Co., Pittsburg, Pa.—Car couplers; quadruple shear yokes; uncoupling arrangements for passenger couplers.

Metal & Thermit Corporation, New York and Toronto.—Materials, appliances and samples of Thermit welding, including a new application of Thermit welding to locomotive superheater tubes; specimen of a section cut through weld in a large crank shaft.

Milburn Co., The Alexander, Baltimore, Md.—Acetylene welding and cutting equipment, including acetylene welding generators; welding torches; cutting torches; combination welding and cutting torches; pre-heaters; portable carbide lights for railroad, repair and construction work.

Miner, W. H., Chicago.—Friction draft gears; side bearings; safety hand brakes; refrigerator car door fasteners; drawbar yokes.

Nathan Manufacturing Co., New York.—Injectors; sight feed lubricators; mechanical lubricators; water columns; boiler checks; balanced starting valves; coal sprinkler; water gauges; gauge cocks; locomotive fittings.

National Lock Washer Co., Newark, N. J.—Models of car curtains, curtain fixtures and rollers; car window fixtures, including sash locks, balances and anti-rattling devices; National rib lock washers.

Norton, Inc., A. O., Boston, Mass.—Improved self-lowering speed controlled jacks; ball-bearing bridge and wrecking jacks; ball-bearing journal jacks.

Pyle-National Co., Chicago.—Turbo-generators; cast aluminum cases, complete with reflectors and focusing device; Armco iron headlight cases; back-up lamps; steam turbine; 10-in. portable lamp; switch engine headlight case; adjustable flood and searchlights; fan; Nonglare and crystal glass reflectors; 10-in. floodlight.

Railway Materials Co., Chicago.—Railway brake shoes.

Safety Car Heating & Lighting Co., New York.—Car lighting equipment (electric and Pintsch); batteries and lighting fixtures; electric fans, water coolers and water heaters.

Stafford Roller Bearing Car Truck Corporation, Lawton, Mich.—Standard M. C. B. arch-bar type, 40,000 lb. capacity truck, equipped with Stafford roller bearings (shown in motion) and journal

boxes. Michigan Central 80,000 lb. capacity box car, with trucks equipped for the past 20 months with Stafford roller bearings and journal boxes.

Standard Car Truck Co., Chicago.—Barber lateral motion truck device; Barber roller side bearings; Barber universal coupler carrying iron.

Superheater Co., New York.—Stationary superheater; marine superheater; exhaust steam injector; pyrometer; closed type feedwater heater; cab heater coil; system of superheater unit repairs.

Symington Co., The T. H., New York.—Freight and passenger car journal boxes; wrought steel truck bolster; wrought steel side frame; swivel butt coupler; Farlow draft attachments.

Tuco Products Corporation, New York.—Flexolith plastic composition car flooring; National standard treated roofing canvas; National and Universal trap doors and locks; Resisto hair felt insulation; Tucork mineral insulation for car floors; Rockwul jacket insulation; Imperial car screens; Royal adjustable shoe car screens; Eclipse deck sash ratchets.

Union Draft Gear Co., Chicago.—Cardwell friction draft gear type G, classes 11-A, 25-A and 11A Duplex.

U. S. Light & Heat Corporation, Niagara Falls, N. Y.—USL car lighting equipment; car lighting generator with shaft drive; USL Planté type storage battery; USL regulator panel; USL 200 and 300-ampere portable arc welders.

Vanadium Corporation of America, New York.—Ferro-Vanadium; cold bent sections of normalized carbon vanadium steel locomotive forgings made by Erie Forge Co. and The United Alloy Steel Corporation.

Vapor Car Heating Co., Chicago and Montreal.—Vapor system of passenger car heating; locomotive specialties for train heating, including pressure reducing valves; vertical coils for baggage and mail car heating; flexible metallic steam conduits for passenger cars; steam hose couplers; end train pipe valves; steam traps; specialties for hot water heating systems; auxiliary heating stove; miscellaneous fittings.

Wagh Draft Gear Co., Chicago.—Models of draft gears; draft gears with auxiliary; platform buffers; Chaffee centering devices; freight car truck spring.

Westinghouse Air Brake Co., Pittsburg, Pa.—Motor driven air compressor of 300-500 cu. ft. capacity; Wabco brake cylinder packing cups; new automatic lubricator for air compressors; enameled main reservoirs; friction draft gear.

Westinghouse Electric & Manufacturing Co., East Pittsburg, Pa.—Portable arc welding outfit in operation; turntable equipment in operation; locomotive headlight generator and parts; overhead line material; drum controllers; automatic starting panels; motor starting switches; industrial lighting exhibit.

Wheel Truing Brake Shoe Co., Detroit, Mich.—Abrasive brake shoes.

Whiting Corporation, Harvey, Ill.—Model of locomotive hoist and crane trolley; photographs, drawings, etc.

The busiest railway station in the world is claimed to be the underground one at Earl's Court, London, Eng., where 120 trains an hour pass through during the rush hours. At Charing Cross, London, where three underground stations are close together, an average of three trains a minute are handled. Clapham Junction, which held the record for many years, handles a train a minute.

Steam Railway Operating Revenues, Expenses and other Statistics for March.

The following comparative table for March, 1922 and 1921, has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics, Transportation Branch. The figures in the column headed "All railways" include all steam railways with an annual operating revenue of \$500,000 and over. There is a slight increase in the number of roads included under this heading, so that the data for 1922 and 1921 is not directly comparable with previous reports.

As the Canadian Government, Canadian Northern and Grand Trunk Pacific Railways are under one management, and operated as one system, the monthly operating reports for 1922 contain a consolidated report for these railways, under the heading "Canadian National Rys.," which includes the old Canadian

Government Rys., viz., Intercolonial, Prince Edward Island, National Transcontinental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.; the lines operated as the Canadian Northern Ry. System, prior to its acquisition by the Dominion Government; and the Grand Trunk Pacific Ry.

The column headed "Canadian Pacific" includes also the Montreal and Atlantic and Esquimalt and Nanaimo Rys.

The column headed "Grand Trunk" includes all the company's lines, both in Canada and the United States.

Items 1 to 6 in the table include rail line revenues only. Previous to this year they included water line. Operating income items have been added. Freight

and passenger train miles contain a proportion of mixed train miles, divided on the basis of freight and passenger car miles in mixed train service. In former years the total mixed train miles was added to both freight and passenger train miles when computing averages. Total train miles include freight; passenger, with their proportions of mixed train miles; special train and non revenue train miles. The average freight revenue per freight train mile includes only rail line revenue. Average passenger train revenue per passenger train mile includes revenue from passenger, mail, express, excess baggage, parlor cars, etc., whereas previous reports gave an average per train mile of passenger receipts only. The number of employees is also a new feature of this year's reports.

	All railways.		Canadian National		Canadian Pacific		Grand Trunk	
	1922	1921	1922	1921	1922	1921	1922	1921
Operating revenues								
Freight	\$25,940,487	\$25,484,189	\$7,466,759	\$7,834,603	\$10,198,337	\$9,670,192	\$4,681,161	\$4,458,371
Passenger	5,185,680	7,543,868	1,204,252	1,708,743	2,317,250	3,514,627	967,153	1,377,463
Mail	625,435	635,812	175,909	188,281	297,455	297,717	105,000	109,670
Express	941,661	1,050,262	199,696	264,303	448,682	534,380	215,000	188,938
Other freight train	8,415	11,187	.....	157	8,234	7,893	.....	.....
Other passenger train	428,126	518,541	130,318	157,058	246,334	304,546	30,750	37,960
Water line	51,447	57,915	.....	.....	51,449	57,915	.....	.....
All other	952,426	1,060,732	241,163	301,103	481,246	531,173	119,250	117,372
Total railway operating revenues.....	\$34,133,681	\$36,362,508	\$9,418,100	\$10,454,250	\$14,048,991	\$14,918,445	\$6,118,314	\$6,289,777
Operating expenses								
Maintenance of way and structure.....	\$4,755,083	\$5,486,772	\$2,094,376	\$2,440,058	\$1,604,503	\$1,503,954	\$458,737	\$861,785
Maintenance of equipment	7,725,503	8,431,440	2,455,127	3,011,909	2,891,821	3,200,795	1,477,310	1,451,038
Traffic	979,579	810,972	199,449	171,099	561,126	437,452	145,825	136,520
Transportation	15,766,451	18,903,128	5,247,501	7,040,968	5,981,912	6,754,784	2,834,206	2,986,186
Miscellaneous operations	406,808	455,757	132,034	161,406	205,207	228,039	34,193	29,041
General	950,610	1,030,676	285,344	235,528	316,452	333,447	205,600	247,590
Trans. for investment	Cr. 19,153	Cr. 124,007	Cr. 16,288	123,761	.....	.....	2,845	Cr. 66
Total railway operating expenses.....	\$30,564,878	\$34,994,740	\$10,397,546	\$12,987,209	\$11,561,024	\$12,458,474	\$5,153,028	\$5,712,097
Operating income								
Net operating revenue	\$3,568,803	\$1,367,768	Dr. \$979,446	Dr. \$2,532,958	\$2,487,967	\$2,459,971	\$965,285	\$577,679
Railway tax accrued	456,209	519,879	19,600	111,609	251,615	235,251	110,850	106,669
Uncollectible revenues	9,697	641	9	.....	.....	.....	3,019	526
Hire of equipment	Cr. 355,114	Cr. 273,762	Cr. 179,207	Cr. 150,536	Cr. 241,499	Cr. 240,467	228,363	Cr. 148,170
Joint facilities rents	Dr. 37,160	Dr. 24,455	Dr. 40,609	Dr. 5,108	Cr. 3,859	Cr. 37,831	44,080	46,392
Operating income	3,370,850	1,096,553	Dr. 860,458	Dr. 2,499,050	2,481,711	2,503,019	1,123,859	665,047
Operating statistics								
Average miles of road operated.....	38,805.02	38,585.11	17,212.10	17,111.07	13,877.2	13,785.8	3,612	3,612
Tons carried (revenue)	8,611	8,486	1,849	2,192	2,487	2,208	Fr. 1,938	1,767
Tons carried one mile (revenue).....	2,436,148	2,122,114	869,103	761,952	932,459	776,731	353,318	321,840
Tons carried (all freight).....	10,289	10,099	2,492	2,963	3,053	2,684	2,301	2,051
Tons carried one mile (all freight).....	2,705,280	2,379,105	1,001,053	896,020	1,029,697	869,728	384,514	343,500
Revenue passengers carried	3,358	4,071	925	1,104	1,151	1,394	864	1,071
Revenue passengers carried one mile.....	175,777	233,032	44,523	57,015	77,831	107,849	32,713	42,895
Freight train miles*.....	4,974	4,693	1,753	1,888	1,797	1,514	856	780
Passenger train miles*.....	3,586	3,729	1,002	1,091	1,550	1,564	620	670
Total train miles (revenue and non-revenue).....	8,660	8,537	2,824	3,055	3,371	3,104	1,476	1,454
Freight car miles (loaded).....	108,120	91,433	36,646	32,764	39,327	32,908	18,064	14,346
Freight car miles (empty).....	49,480	47,266	15,538	20,132	16,554	11,731	9,781	8,346
Passenger train car miles.....	23,373	25,095	6,784	7,360	10,189	11,046	3,500	3,891
Total amount of pay roll.....	\$17,642,901	\$20,095,206	\$6,251,812	\$7,722,734	\$6,254,356	\$6,631,192	\$3,580,123	\$3,953,355
Number of employees	138,451	142,940	50,679	56,825	49,741	47,125	27,161	27,795
Averages per mile of road operated								
Operating revenue	\$879.62	\$946.40	\$547.18	\$610.96	\$1,012.38	\$1,082.16	\$1,693.88	\$1,741.36
Operating expenses	\$787.65	\$906.95	\$604.08	\$758.99	\$ 833.11	\$ 903.71	\$1,426.64	\$1,581.42
Tons moved one mile (revenue).....	62.779	54.998	50.494	44.530	67.194	56.343	97.818	89.103
Tons moved one mile (all freight).....	69.715	61.659	58.160	52.365	74.201	63.089	106.455	95.099
Averages per freight train mile								
Freight revenue	\$5.22	\$5.43	\$4.26	\$4.15	\$5.68	\$6.39	\$5.47	\$5.72
Tons of freight (revenue).....	489.7	452.1	495.5	403.4	518.8	512.9	412.7	412.6
Tons of freight (all freight).....	543.8	506.9	570.8	474.4	572.9	574.3	449.1	440.3
Loaded freight cars	21.7	19.5	20.9	17.3	22.2	21.7	21.1	18.4
Empty freight cars	9.9	10.1	8.9	10.7	9.2	7.7	11.4	10.7
Averages per passenger train mile								
Passenger train revenue	\$2.00	\$2.61	\$1.71	\$2.12	\$2.14	\$2.97	\$2.12	\$2.56
Passengers carried	49.0	62.5	44.4	52.3	50.2	68.9	52.7	63.9
Passenger cars	6.5	6.7	6.8	6.7	6.6	7.1	5.6	5.3
Average length of haul (revenue freight) miles.....	282.9	250.1	470.0	347.5	374.9	351.8	182.3	182.1
Average passenger journey, miles.....	52.3	57.2	48.1	51.6	67.6	77.3	37.8	40.0
Average tons per loaded freight car.....	25.0	26.0	27.3	27.3	25.9	26.4	21.3	23.9
Average freight receipts per revenue ton mile....	1.065c.	1.201c.	.859c.	1.028c.	1.094c.	1.245c.	1.325c.	1.385c.
Average passenger receipts per passenger mile....	2.950c.	3.237c.	2.705c.	2.996c.	2.977c.	3.259c.	2.956c.	3.211c.
Ratio of pay roll to operating revenues.....	51.7%	55.3%	66.4%	73.9%	44.5%	44.4%	58.5%	62.9%
Ratio of pay roll to operating expenses.....	57.7%	57.4%	60.1%	59.5%	54.1%	53.2%	69.5%	69.2%
Ratio of operating expenses to revenue.....	89.54%	96.24%	110.40%	124.23%	82.29%	83.51%	84.22%	90.82%

*Contains a proportion of mixed train miles.

The Railways' Operating Results For March.

Canadian railways as a whole had \$2,228,827 less gross operating revenue in March 1922 than in March 1921 but \$5,592,030 larger than in Feb. 1922. Freight earnings for the roads as a whole were greater for March 1922 than for March 1921, but the passenger earnings decreased much more than the freight earnings increased, with the result that the gross earnings were smaller for March 1922. Although the average freight receipts per revenue ton mile were considerably smaller than in March 1921, the additional tonnage carried enabled the railways to derive larger earnings from freight. In addition to the average rate per revenue passenger mile declining largely, the number of revenue passenger miles declined by 24%, resulting in a 31% decrease in passenger revenues. The increases in freight earnings for the month were on the C.P.R. and Grand Trunk, the Canadian National Rys. decreasing \$367,844, despite the increase in the revenue ton miles handled of 107,151,246.

Maintenance of way and structures expenses decreased 13%. Taking into consideration the decreases in wages and in material prices, it is probable that about the same amount of work was done on the properties as in March 1921. The expenditure for maintenance of equipment was a little more than 8% less than in March 1921, indicating that equipment was fully as well maintained as in the same month of 1921. The decrease in transportation expenses of 16% compared with March 1921 for the railways as a whole is particularly gratifying, in view of the fact that a large additional revenue freight tonnage was handled.

The operating ratio for the month, 89.54, represents a large improvement over that for March 1921, viz. 96.24, and an even greater improvement over that for Feb. 1922, viz., 100.49. The improvement in operating ratio is evident on all the roads, as compared with Mar. 1921, as shown by the table on the preceding page. Compared with February, the Canadian National and Canadian Pacific Rys. show great improvements in operating ratio, the Canadian National ratio for February being 131.05 and the C.P.R. 93.87. The Grand Trunk operating ratio was not quite so favorable as in February, when it was 82.95. As compared with March 1921, the more satisfactory operating ratio for the roads as a whole is reflected in the much larger operating income enjoyed in March 1922.

The operating statistics for the roads as a whole show that the increase in revenue ton mileage was derived, not only from the increase in the number of actual tons handled, but also from the greater haul enjoyed, the average haul increasing very substantially over that of March 1921. Opposed to this, the decrease in the number of revenue passenger miles did not originate alone in the smaller number of passengers carried, but was also due to the falling off in the length of the average passenger journey, the decrease being 4.9 miles. The showing made by the railways in the operation of freight train miles, in view of the greater number of revenue ton miles, was very satisfactory, and it is evident that the number of freight train miles run has been kept down to the minimum. The decrease in passenger train miles, however, was not nearly

so large proportionately as the decrease in passenger travel; but, it is axiomatic that it is impossible to curtail passenger service in the same degree as traffic falls off, whereas in freight service it is possible to cut down the freight train mileage more nearly in proportion to the decrease in traffic offering.

The train loading statistics show efficient operation during March, 1922. The figure of 489.7 tons of revenue freight per freight train mile represents an improvement of 37.6 tons over March 1921. Train make-up, or the proportion of loads and empties in freight trains, was also much more favorable for March 1922 than for March 1921, the average train containing 2.2 more loaded cars and 0.2 less empty cars than in March 1921. Car loading, however, fell off to the extent of one ton per car, this being reflected in the large increase in the total mileage of loaded freight cars. The increased efficiency in train loading and train make-up, however, more than compensated for the falling off in car loading.

On the basis of there having been 4,489 fewer employees in railway service in March 1922, than in March 1921, the decrease of \$2,452,305 in the pay roll about approximates the reduction which would be looked for on account of the wage reductions taking place during the year.

The improvement in the Canadian National Rys. operating ratio over February has already been mentioned and the improvement over that of March 1921 is evident in the table on the preceding page. While freight tonnage handled on the Canadian National Rys. increased 14%, the average receipt per ton mile decreased 16%, and freight earnings decreased 4.5%. Passenger revenues decreased 29%, passengers carried decreased 16% and revenue passenger mileage decreased 22%. The pay roll decreased 19%, and the number of employees 10%.

The C.P.R. showed an increase in revenue ton miles of 20%, but a decrease in revenue passenger mileage of 27%. Freight revenues increased 5% and total revenue declined 6%, but as operating expenses were reduced 7%, the small improvement noted in the operating ratio resulted. The increased freight traffic brought about an 18% increase in freight train mileage, and also an increase of 5% in the number of employees. The pay roll, however, decreased over 5%.

The Grand Trunk freight ton mileage increased 9% compared with March 1921 and freight revenue increased 5%. The G.T.R. average receipt per revenue ton mile declined but slightly from 1.385c to 1.325c. Loaded car miles increased 26% while average car loading decreased from 23.9 tons to 21.3, increasing the number of cars per train from 29.1 to 32.5. Maintenance of way and structures expenses decreased 46%. These expenses, however, on the G.T.R. averaged \$127 per mile of road operated, while on the Canadian National Rys. the average was \$122, on the C.P.R. \$115 and on class 1 roads, United States, \$226. The location of the road, density of traffic and advanced season of heavy track work in the U.S. affect these figures, however, and should be considered.

Broadly the railway results for March

offer some encouragement. A reduction in the operating ratio from 100.49 in February to 89.54 is not inconsequential, while the figures for freight tonnage, with preliminary figures for following months, indicate that traffic conditions are tending toward improvement. Passenger traffic returns for March are, however, disappointing, and certainly do not bear out the assertion that high passenger rates were discouraging travel. When the average passenger rate was 3.237c per passenger mile, the number of revenue passenger miles was 24% higher than when the average passenger rate was 2.950c. But it is as true now as it ever was, that it is the freight department of the railway's business that earns the money, and it is to the figures covering freight traffic that the greatest importance must be attached.

On the basis of the relationship as between traffic, wages, material prices and freight and passenger rates which obtained in March, it may be said that the railways can look forward to developing sufficient traffic, coincident with the restoration of good business conditions, to place the industry as a whole on a sound financial basis. The Canadian railway industry is not now on a sound financial basis, with an operating ratio of 89.54, but with an increased freight traffic, and with a passenger traffic approximating that of 1920, the operating ratio could be much reduced from the March figures, with the March relationship as between returns and expenses maintained. But if freight rates are reduced in response to the popular demand, without expenses being correspondingly reduced, the relationship which obtained in March would be changed adversely to the railways, so that the operating ratio could not be reduced even though traffic increased. Much stress has been laid on the theory that rate reductions would act immediately to bring about great increases in traffic, but it must be borne in mind that the greatest incentive for the origination of traffic is the demand by consumers for the products of industry, and it is probable that market and trade conditions generally are much more important than comparatively small differences in rate levels, in the determination of the amount of business offering to the railways. At all events, the proposition that the railways, as an industry, will never be on a sound financial basis in Canada if expenses are kept a step ahead of receipts, through rates being cut continually to balance benefits secured by traffic increases and cheaper labor and materials, is evidently correct. It is desirable that the railway industry be on a sound financial basis, as it is in the interest of the whole community that any properly conducted industry be successful, and for that reason it is desirable that any losses to the railways through the anticipated rate reductions be counterbalanced by reductions in expenses, so that the railways may be left with as good a chance to bring their operating ratio down to a reasonable level as they had prior to the rate reductions.

Railway Y.M.C.A.—Sunday, June 11, was the 50th anniversary of the foundation of the Railway Y.M.C.A. movement in North America. There are reported to be 269 associations, with a total membership of 125,000, in operation on Canadian and United States railways.

Orders by the Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

General order 362. April 19.—Rescinding general orders 3,245, 3,465, 8,903, 16,570 and 107, and and prescribing new regulations to be adopted by railway companies for the prevention of fires.

General order 363. May 10.—Approving proposed supplement 19 to Canadian Freight Classification 16, containing certain increased, reduced, and additional ratings, as finally revised and submitted for approval by Chairman, Canadian Freight Association, Eastern Lines, April 13, and amended May 1.

32,296. April 13.—Authorizing Canadian National Rys. to rebuild bridge over Indian River, Stafford Tp., Ont.

32,297. April 13.—Rescinding order 27,578 in so far as it relieves Canadian National Rys. from fencing between miles 22 and 25.1, 27.2 and 27.8, south side, 22.5 and 27.2 north side, and 29.8 and 31.5 north side, Kamloops Subdivision, and ordering that fencing at those points be completed within 30 days.

32,298. April 13.—Authorizing Canadian National Rys. to rebuild bridge over McCarthy Creek, mile 100.8 from Brent, Ont.

32,299. April 13.—Approving clearances at G.T.R. spur serving C. Beck Mfg. Co., Penetanguishene, Ont.

32,300. April 12.—Authorizing Quebec & Lake St. John Ry. to build second track across highway between Lots 47 and 48, Metabetchouan Tp., Que.

32,301. 32,302. April 13, 12.—Authorizing Canadian National Rys. to rebuild bridges over Kenogamis River, mile 111.7 from Hornepayne, and over Little Madawaska River, mile 147.4 from Rideau Jct., Ont.

32,303. April 10.—Approving clearances at Michigan Central Rd. coaling station at Windsor, Ont.

32,304. April 19.—Authorizing C.P.R. to rebuild bridge 100.2 over Riviere du Lievre, Lachute Subdivision, Que.

32,305. April 12.—Authorizing Canadian National Rys. to open for traffic, north connection with Grand Trunk Pacific Ry. at mile 196.80, Three Hills Subdivision, authorized under order 32,177.

32,306. April 19.—Approving plan showing layout for proposed automatic signals, derails and flagmen for protection, and steam and electric and street traffic at crossing of Grand Trunk Pacific Ry. and Winnipeg Electric Ry. at Pembina Highway Winnipeg, Man.

32,307. April 13.—Amending order 31,371, requiring Canadian National Rys., inter alia, to maintain caretaker agent at Elgin, Ont., to provide for appointment of caretaker.

32,308. April 12.—Authorizing C.P.R. to divert and close, within right of way limits, road allowance on south boundary of s.w. ¼ Sec. 21, Tp. 24, Range 2, west 2nd meridian, Sask.

32,309. April 13.—Rescinding order 30,623, Feb. 2, 1921, requiring C.P.R. to appoint station agent at Nevis, Alta., and directing it to appoint caretaker.

32,310. April 13.—Rescinding order 29,221, Jan. 2, 1920, in so far as it relieves Canadian National Rys. from fencing along its right of way on west side from mile 37.46 to 38.03, Sudbury Subdivision, Ont.

32,311. April 19.—Approving agreement between Bell Telephone Co. and Harwood Rural Telephone Co.

32,312, 32,313. April 13.—Approving clearances at G.T.R. sidings serving Canadian Explosives, Ltd., Beloeil Parish, Que., and Dominion Stove & Foundry Co., Penetanguishene, Ont.

32,314. April 19.—Relieving Canadian National Rys. from erecting fences, gates and cattle-guards at certain points on Rideau Subdivision.

32,315. March 31.—Authorizing G.T.R. to close its station at Napanee, Ont., and approving location of proposed joint station there; authorizing G.T.R. to connect with Canadian Northern Ontario Ry., and authorizing Canadian Northern Ontario Ry. to deviate its main line in Napanee, to cross road allowance east of Centre St., and build freight house track across Centre St.

32,316. April 19.—Relieving Canadian National Rys. from maintaining signalman at crossing of Canadian Northern Ry. and Grand Trunk Pacific Ry. at Empire Ave., Fort William, Ont., so long as present character of movements over continues.

32,317. April 19.—Approving location of C.P.R. station at Carbon, Alta.

32,318. April 20.—Approving revised location of Canadian National Rys. Meeting Lake branch, mile 0 to 23.01, Sask.

32,319. April 20.—Authorizing C.P.R. to build extension to passing track across road allow-

ance between Secs. 27 and 34, Tp. 17, Range 4, east principal meridian, St. Andrews, Man.

32,320. April 19.—Approving agreement between Bell Telephone Co. and Rochester Tp., Ont.

32,321. April 20.—Relieving Canadian National Rys. from erecting fences, gates and cattle guards from mile 9 to 9.5, Cordova Branch, Ottawa Division, Ontario District.

32,322. April 21.—Approving use by Pere Marquette Ry. of Michigan Central Rd. turntable in Montrose Yard, Ont.

32,323. April 20.—Relieving Canadian National Rys. from erecting fences, gates and cattle guards from mile 2.5 to 8.5, Bessemer Branch, Ottawa Division, Ont.

32,324, 32,325. April 19, 20.—Authorizing Ontario Lands & Forests Department to build highways across C.P.R. at crossing of Trunk Road from North Bay to Sudbury, one mile west of Stinson, Ont., and at crossing of deviation of Trunk Road from North Bay to Sudbury on Lot 8, Con. 11, Hagar Tp., between Warren and Markstay, Ont.

32,326. April 20.—Declaring that for the present, first public crossing of G.T.R. east of South Indian, Ont., is protected to Board's satisfaction.

32,327. April 20.—Relieving Canadian National Rys. from erecting fences, gates and cattle guards between certain points on its Maynooth Subdivision, Ottawa Division, Ont.

32,328. April 20.—Correcting error in book of reference approved under order 4,712, April 30, 1908, Michigan Central Rd. spur for Essex Canning Co., Essex, Ont.

32,329. April 24.—Declaring that for the present C.P.R. crossing at Union Road, near Ingersoll, Ont., is protected to Board's satisfaction.

32,330. April 24.—Authorizing G.T.R. to rebuild bridge 169 at milepost 122.12 west of London, Ont.

32,331. April 24.—Authorizing Saskatchewan Highways Department to carry highway across Canadian National Rys. on production of Main St., Debden townsite, Sask.

32,332. April 24.—Ordering C.P.R. to appoint station agent at Wrentham, Alta., by May 1.

32,333. April 24.—Approving Canadian Northern Pacific Ry. revised location from mile 213.74 to 214.75, through Savona Ferry townsite, and from mile 214.75 to 218.64 east from New Westminster, B.C.

32,334. April 26.—Relieving Grand River Ry. from maintaining speed limit of 15 miles an hour imposed by order 29,558, April 10, 1920, between Preston and Lot 9, Con. 2, Waterloo Tp., Ont.

32,335. April 24.—Ordering C.P.R. to remove earth from hills southeast and northeast of Raglan Road crossing, 1½ miles east of Myrtle station, Ont., to improve the view.

32,336. April 25.—Approving general plan of Hamilton Radial Ry. highway bascule bridge across channel at Burlington Beach, Ont.

32,337. April 25.—Approving agreement between Bell Telephone Co. and Victory Telephone Ltd., Chambly County, Que.

32,338. April 25.—Authorizing Canadian National Rys. to divert Union Lake Trail where it is crossed by its Jackfish Lake branch at milepost 1.36, Sask., and authorizing Saskatchewan Highways Department to carry highway across the railway there.

32,339. April 25.—Authorizing Canadian National Rys. to build spur for Eugene F. Phillips Electrical Works, at mile 0.2 Brockville Subdivision, Ont.

32,340. April 28.—Extending to June 1, time within which Canadian National Rys. may complete cattle guards and protection fences on its Brazeau Subdivision, required by order 31,941, Dec. 21, 1921.

32,341. April 28.—Approving location and details of Canadian National Rys. station building and platform at Dunshalt, Alta.

32,342. May 1.—Extending for six months, time within which C.P.R. may complete spur for J. G. Hargrave & Co., Winnipeg, authorized by order 31,663, Oct. 18, 1921.

32,343. May 1.—Authorizing C.P.R. to rebuild bridge 115.9 over the Gatineau River, Lachute Subdivision, Que.

32,344. April 28.—Approving location of Edmonton, Dunvegan & British Columbia Ry. at Belloy, Alta., on condition that it grade a driveway, 14 ft. wide from north and south highway at west end of station grounds, to station building, and plank to tie level, the station platform at least 12 ft. wide and 150 ft. long; also grade team track driveway on north side of commercial passing track, not less than 14 ft. wide and 200 ft. long, work to be done by Sept. 1.

32,345. May 2.—Ordering Canadian National Rys. to provide by May 15, portable loading chute at Fabyan, Alta., and to build a two-car cattle pen there by Sept. 1, 1923.

32,346. May 2.—Amending order 30,777, March 14, 1921, ordering Canadian National Rys. to build grain loading siding at mile 26, Sturgeon River Subdivision, Sask., to provide that it be extended at least 350 ft., and completed by Sept. 1.

32,347. May 1.—Approving agreement between Bell Telephone Co. and Scotch Line & Stanleyville Telephone Co., Lanark County, Ont.

32,348. May 2.—Declaring that for the present, first public crossing over G.T.R. south of Bradford station, Ont., is protected to Board's satisfaction.

32,349. May 2.—Authorizing C.P.R. to relocate and extend spur for Saskatchewan University, near Saskatoon.

32,350. May 2.—Authorizing Alberta Public Works Department to build highway crossing over Canadian National Rys. in s.w. ¼ Sec. 29, Tp. 41, Range 18, west 4th meridian.

32,351. May 2.—Authorizing G.T.R. to build spur for Miller Florists, Ltd., in Lot 7, Con. 3, Vaughan Tp., Ont.

32,352. May 3.—Authorizing C.P.R. to build spur from mile 3.25 Bedford Branch, Bedford Tp., Ont., for 0.82 mile.

32,353. May 3.—Extending to June 10, time within which Canadian National Rys. may complete fencing at 4 points on its Kamloops Subdivision, provided by order 32,297.

32,354. May 3.—Relieving C.P.R. and Canadian National Rys. from maintaining signalman at nights and on Sundays to operate crossing near Emerson station, Man., so long as present character of movements continues.

32,355. May 2.—Ordering Kitchener Light Commissioners to relocate, within 30 days, interlocker signal governing westbound trains at King St. crossing, of G.T.R. and Kitchener & Waterloo Ry., Waterloo, Ont.

32,356. May 2.—Ordering G.T.R. to pay A. Turner, Eganville, Ont., \$75, compensation for damage caused by cutting down trees and removing obstacles to view on his property at Perrottes crossing near Eganville, Ont.

32,357. May 6.—Ordering C.P.R. to erect 2-pen stock yard at Chin, Alta., by Sept. 1.

32,358. May 6.—Approving Canadian National Rys. plan showing improvements to approaches to G. W. Higginson's farm crossing on east part of Lot 23, Con. 1, Clarence Tp., Ont., work to be completed by May 31.

32,359. May 8.—Declaring that first crossing of C.P.R. north of Grindrod station, B.C., is protected to Board's satisfaction.

32,360. May 6.—Ordering C.P.R. to build standard A-3 station at Superb, Sask., by Oct. 1.

32,361. May 8.—Suspending order 32,282, Apr. 5, authorizing Grand Trunk Pacific Ry. to build spur for Fort Garry Lumber Co., at mile 1290.9 Cariboo District, B.C., pending arrangements by Fort Garry Lumber Co. for right of way.

32,362. May 8.—Extending to July 31, time within which Esquimalt & Nanaimo Ry. may complete spur for Dominion Public Works Department on Vancouver Island, B.C., authorized by order 32,068, Jan. 30.

32,363. May 5.—Authorizing G.T.R. to build spur for National Slag Products Co., Hamilton, Ont.

32,364. May 5.—Authorizing Grand Trunk Pacific to build spur for Canadian Oil Cos., Yorkton, Sask.

32,365. May 6.—Authorizing Canadian National Rys. to build spur for J. E. Taylor, in s.w. ¼ Sec. 33, Tp. 27, Range 20, west 4th meridian, Alta.

32,366. May 6.—Approving automatic signal protection to be installed at connection of G.T.R. with Canadian National Rys., in Brighton Tp., Ont.

32,367. May 11.—Ordering that cost of installing and maintaining signals and derails at crossing of Montcalm St., Hull, Que., by C.P.R. and Hull Electric Co. be paid by Hull Electric Co., maintenance of gates to be paid 80% by C.P.R. and 20% by the city, cost of operating signals, derails and gates to be paid 40% by C.P.R., 40% by Hull Electric Co., and 20% by the city.

32,368. May 10.—Ordering C.P.R. to erect, by Aug. 1, 1923, standard A-3 station building at Erickson, B.C.

32,369. May 11.—Amending order 12,758, Jan. 16, 1911, to provide that maintenance of Calgary & Edmonton Ry. crossing at Airdrie, Alta., be paid by Alberta Public Works Department.

32,370. May 11.—Ordering C.P.R. to appoint station agent at Dumas, Sask., by Sept. 1.

32,371. May 9.—Authorizing C.P.R. to build bridge 27.65 over the Kipawa River, on Interprovincial & James Bay Ry.

32,372. May 11.—Ordering C.P.R. to install by June 15, a 24 in. corrugated iron pipe under three tracks and through station grounds in line with south boundary of Talbot St., Duval, Sask.

32,373. May 10.—Authorizing C.P.R. to make highway crossing over its tracks near Dunlop station, Ont.

32,374. May 12.—Authorizing C.P.R. to rebuild bridge 81.1 over the Kettle River, Boundary Division, B.C.

32,375. May 12.—Authorizing Canadian National Rys. to rebuild bridge over Pichogan River, at mile 97.6 from Foley, Ont.

32,376 to 32,382. May 12.—Authorizing Canadian National Rys. to build bridge across Lake Sergeant, mile 27.14 from Quebec, Que.; rebuild bridges over Muskegogam River, mile 78.95 from Capreol, Ont.; and over Riviere des Envies, mile 33.25 from Riviere a Pierre, Que.; build bridge over Muskrat River, mile 87.1 from Hurdman, Ont.; build viaduct over Indian River (South Branch), mile 106.6 from Hurdman, Ont.; rebuild bridges over Groundhog River, mile 134.8 from Capreol, Ont., and across French River, mile 67.9 from Parry Sound, Ont.

32,383. May 16.—Ordering Canadian National Rys. to build 8-car siding, for handling grain only, on s.e. ¼ Sec. 12, Tp. 32, Range 7, west 2nd meridian, between Rama and Buchanan, Sask.

32,384. May 12.—Authorizing Canadian National Rys. to rebuild bridge over Osawin River, mile 36.9 from Hornepayne, Ont.

32,385. May 11.—Ordering Canadian National Rys. to build farm crossing for D. A. McBean, Kennedy, Sask.

32,386. May 16.—Authorizing use by Hamilton Radial Electric Ry. of bascule bridge across channel at Burlington Beach, Ont.

32,387. May 15.—Authorizing C.P.R. to divert, and close within right of way limits, road allowance on north boundary of Sec. 15, Tp. 12, Range 22, west principal meridian, Man., at mile 24.6 Lenore Subdivision.

32,388. May 16.—Amending order 32,344, Apr. 28, approving location of C.P.R. station at Belloy, Alta., by substituting Edmonton, Dunvegan & British Columbia Ry. for C.P.R.

32,389. May 16.—Authorizing G.T.R. to operate trains over three railway sidings to be built by Toronto Harbor Commissioners for Toronto Transportation Commission, Toronto.

32,390. May 16.—Ordering that, without in any way limiting Canadian National Rys. obligation to meet requirements of Sec. 274 of the Railway Act, the work of providing fences on both sides of the right of way from mile 171.5 to 174.5 Erwood Subdivision, Winnipeg to Prince Albert line, Sask., be completed by July 31.

32,391, 32,392. May 11, 16.—Authorizing Canadian National Rys. to remove station agent at Sellwood, Ont., caretaker to be appointed, and to close station at Solina, Ont.

32,393. May 17.—Approving location of Canadian National Rys. station at Telkwa, B.C.

32,394 to 32,396. May 17.—Authorizing C.P.R. to rebuild bridges 6.8, Orangeville Subdivision; 8.6, Teeswater Subdivision, Ontario District; and 62.8, Sirdar Subdivision, British Columbia District.

32,397. May 16.—Approving plans for rebuilding bridge carrying C.P.R. over subway at Ontario St., Montreal.

32,398. May 16.—Authorizing Canadian Northern Ontario Ry. to close station at Oshawa, Ont.

32,399. May 17.—Approving location of Canadian National Rys. station at Rowley, Alta.

32,400. May 17.—Authorizing C.P.R. to rebuild bridge 117.02, Moosehead Subdivision, New Brunswick District.

32,401. May 5.—Amending order 10,506, Apr. 28, 1910, requiring G.T.R., inter alia, to provide gates at St. James St. crossing, St. Johns, Que., by ordering that gates be operated daily between 6.30 a.m. and 10.30 p.m., instead of between 7 a.m. and 7 p.m.

32,402. May 5.—Ordering C.P.R. to stop train 353 at crossing of Park Ave., Outremont, Que., temporarily, to allow passengers with hand baggage only, to alight.

32,403. May 17.—Relieving Canadian National Rys. from maintaining fences, gates and cattle-guards on right of way from mile 7 to 87.3, Hudson Bay Subdivision, Dauphin Division, Prairie District, until any portion of land on either side of right of way in vicinity becomes settled or improved.

32,404. May 17.—Approving agreement between Bell Telephone Co. and McKillop Municipal Telephone System, Huron County, Ont.

32,405, 32,406. May 17.—Relieving Canadian National Rys. from fencing right of way from mile 33.5 to 35.5 and 60.5 to 70, Swan River Subdivision; mile 118 to 133; 135 to 138; 140 to 142; 143 to 171; and 175 to 199.7, Erwood Subdivision, Dauphin Division, Prairie District, until any land in vicinity becomes settled or improved.

32,407. May 5.—Ordering that not exceeding \$2,292.75 be paid out of Railway Grade Crossing Fund to Ontario Highways Department, in part payment of work done in flattening curve at southern end of bridge on Kingston Road, Brighton and Murrays Tps.

32,408. May 17.—Authorizing City of Hamilton, Ont., to lay storm sewer under G.T.R. on Wellington St.

32,409. May 18.—Authorizing G.T.R. to rebuild bridge 329¼ at mile 100.69 from Toronto, on Lot 115, Con. 2, west of Penetanguishene Road, Tiny Tp., Ont.

32,410. May 18.—Authorizing C.P.R. to rebuild bridge 41.8, Chalk River Subdivision, near Arnprior, Ont.

32,411. May 18.—Authorizing Central Ontario Ry. to build spur for Dominion Wool Combing Mills, Ltd., Trenton, Ont.

32,412. May 18.—Authorizing C.P.R. to rebuild bridge 58.5 over Cobb's Creek, Montreal and Ottawa Subdivision, Quebec District.

32,413. May 18.—Authorizing C.P.R. to build

spur for Scotstown Granite Corporation, Scotstown, Que.

32,414. May 18.—Approving plan showing alterations to full interlocker at crossing of Canadian Northern Ry. by Grand Trunk Pacific Ry., at Dana, Sask.

32,415. May 18.—Authorizing St. Jean Baptiste de Belisle Municipality, Que., to make highway crossing over C.P.R. in Lot 31, Range 11, Morin Tp., Que.

32,416. May 18.—Authorizing Town of Aylmer, Que., to make highway crossing over C.P.R. on Helen St. (not open) at intersection of Metcalf St.

32,418, 32,419. May 19, 18.—Authorizing Canadian Northern Ry. to rebuild bridges over Chicoutimi River, mile 226 from Quebec; over Rouge River, mile 5.73, and over Blanche River, mile 5.17, from Joliette, Que.

32,420. May 22.—Authorizing Canadian Northern Ontario Ry. to open for traffic connection with G.T.R. at Washago, Ont.

32,421. May 26.—Authorizing C.P.R. to rebuild bridge 81.1 over Kettle River, on Boundary Division, British Columbia District, and rescinding order 32,374, May 12.

32,422. May 23.—Approving agreement between Bell Telephone Co. and Ivy-Thornton Telephone Co., Simcoe County, Ont.

32,423. May 23.—Relieving C.P.R. and Michigan Central Rd. from maintaining signalman between 6 a.m. and 10 p.m., Sundays, at crossing at Appin, Ont., so long as present character of movements exists.

32,424. May 26.—Ordering that the crossings and diversion of highway between Secs. 35 and 36, Tp. 44, Range 23, west 3rd meridian, at mile 43.7, Hillsdale rural municipality 440, Sask., over Grand Trunk Pacific Ry., by completed by June 30.

32,425, 32,426. May 19.—Authorizing Brantford Municipal Ry. to operate one man cars over G.T.R. and Toronto, Hamilton & Buffalo Ry. on South Market St., Brantford, Ont.

32,427. May 22.—Authorizing G.T.R. to build spur for Sun Co. of Canada, Montreal.

32,428, 32,429. May 22.—Authorizing G.T.R. to build spurs for Franco-Canadian Dyers, Ltd., and Canadian Potteries, Ltd., St. Johns, Que.

32,430. May 22.—Amending order 22,957, Dec. 5, 1914, authorizing subway carrying Hamilton St. Ry. across G.T.R. on Kenilworth Ave., Barton Tp., Ont., by providing that 25% and not exceeding \$15,000, instead of 20% and \$5,000, be paid out of Railway Grade Crossing Fund; also apportioning \$8,772.60 payable out of Railway Grade Crossing Fund between parties interested.

32,431. May 23.—Rescinding order 15,253, Oct. 31, 1911, authorizing Vancouver, Victoria & Eastern Ry. and Navigation Co. (G.N.R.) to build spur for British Columbia Portland Cement Co., Vancouver, B.C.

32,432. May 23.—Extending to Oct. 1, the time within which work on overhead crossing at Douglas Ave., required by order 32,111, Feb. 2, St. John, N.B., may be commenced.

32,433 to 32,439. May 23, 22.—Authorizing Canadian Northern Ry. to rebuild bridges over Iroquois River, Lake St. John County, Que.; over Trout River, mile 32, from Foley, Ont.; over Joseph Louis River, mile 142.2 from Quebec; over Riviere a l'Ours, mile 27.2 from Chambord Junction, Que.; over Eusebe Boivin River, mile 30.2 from Chambord Jct.; over Riviere des Meres, mile 7.0 Batiscan Subdivision, Que., and over Riviere a Pierre, mile 60.2 from Quebec.

32,440. May 26.—Approving location and details of Canadian Northern Ry. station at Morin Heights, Que.; station to be completed by June 30.

32,441, 32,442. May 29.—Approving Bell Telephone Co. agreements with Hay Tp, Huron County, Ont.; and Ernestown Rural Telephone Co., Lennox & Addington, and Frontenac Counties, Ont.

32,443. May 29.—Authorizing G.T.R. to enter upon Mrs. Daniel Hanley's land and remove trees obstructing view at crossing immediately south-east of Cainsville station, Ont.

32,444. May 22.—Authorizing Brantford Municipal Ry. to operate one-man cars over G.T.R. on East Colborne St., Brantford, Ont.

32,445 to 32,447. May 27, 22.—Authorizing Dominion Interior Department to make highway crossings over C.P.R. on Laggan-Farm motor road; on Field-Ottetail Road; Yoho Park, B. C., and on Banff-Windermere Road, one mile west of Castle Mountain, B.C.

32,448. May 31.—Suspending until further order, American Railway Express Co.'s tariffs C.R.C. 1,333, 1,341, 1,344 and item 1 in Express Traffic Association's tariff C.R.C. no E.T. 732, as applicable to rates on fruit and vegetables moving from Ontario points, and ordering that American Railway Ex. Co. tariff C.R.C. 1,193 be continued in effect.

32,449. May 31.—Authorizing Canadian Northern Ontario Ry. to build its G.T.R. connection across Orillia St., Washago, Ont.

32,450. May 31.—Authorizing C.P.R. to build branch across certain streets in LaSalle, Que.

32,451. May 31.—Ordering Canadian National Rys. to maintain white lights on bridges over Red River, at Winnipeg.

32,452. May 31.—Ordering C.P.R. to maintain white lights on bridges over the Red River, at Winnipeg.

32,453. May 23.—Ordering that Canadian Na-

tional Rys. station at Ste. Dorothee, Que., be removed to mile 15.21.

32,454. May 31.—Approving City of Medicine Hat, Alta., bylaw 625, in so far as it prohibits the blowing or sounding of locomotive whistles approaching a highway crossing at rail level within the city.

32,455. May 31.—Authorizing Alberta Public Works Department to make highway crossing over Canadian National Rys. in s.e. ¼ Sec. 30, Tp. 39, Range 8, west 5th meridian, Alta.

32,456. May 31.—Authorizing Canadian Northern Ry. to build viaduct over East Burrill Creek, St. Boniface Parish, Que., mile 89.7 from Quebec.

32,457. June 1.—Authorizing Canadian National Rys. to build transfer track with C.P.R. at Moose Jaw, Sask., and to build a portion of east extension thereof on Maple St.

32,458. May 31.—Authorizing Windsor, Essex & Lake Shore Rapid Ry. to make a crossing over its tracks at corner of Gravel and Grand Marais Roads, Windsor, Ont.

32,459. June 1.—Relieving G.T.R. and C.P.R. from maintaining a signalman on Sundays at Vankleek diamond, mile 33.2, Montreal-Ottawa Subdivision, so long as present character of movements exists.

32,460. May 30.—Authorizing British Columbia Railways Department to extend its narrow gauge construction track under Esquimalt & Nanaimo Ry. trestle (John St. Subway), Victoria, B.C.

32,461. May 31.—Approving crossing of C.P.R. spur for Canada Cement Co., over Banff motor road, mile 62.5, Laggan Subdivision, Alta.

32,462. June 2.—Authorizing Kettle Valley Ry. to rebuild bridge 8.2 over Nicola River, Nicola Branch, B.C.

General order 364. May 23.—Ordering railways to file tariffs, effective by June 15, showing a certain mileage scale to apply on agricultural limestone, or stone dust, east of Port Arthur, Fort William and Armstrong, Ont., in lieu of specific commodity rates or mileage scale now in effect.

Railway Finance, Meetings, Etc.

Canada Southern Ry. — The annual shareholders' meeting was held at St. Thomas, Ont., June 7. The business conducted was purely routine, and the directors were re-elected as follows:—W. K. Vanderbilt, F. W. Vanderbilt, C. M. Depew, H. S. Vanderbilt, W. Rockefeller (since deceased), R. S. Lovett, A. H. Smith, A. H. Harris, and E. D. Bronner, New York.

Niagara River Bridge Co.—The annual meeting of shareholders was held at St. Thomas, Ont., June 7. The directors were re-elected as follows:—F. W. Vanderbilt, C. M. Depew, A. H. Smith, H. S. Vanderbilt, A. H. Harris, I. A. Place, W. K. Vanderbilt, E. D. Bronner, and P. E. Crowley.

Temiscouata Ry.—Gross earnings for April, \$34,348; expenses, \$29,344; net earnings, \$5,004.

Aerial Transportation Notes.

Five hydroplanes will, it is reported, be employed during the summer in Northern Manitoba for forest patrol purposes, and for paying treaty money to the wandering bands of Indians. The planes will have their headquarters at Victoria Beach, on Lake Winnipeg.

The Canadian Aerial Service Co. is reported to have made a proposition to the Prince Edward Island Government for the establishment of an aerial mail service between the Island and Moncton, N.B. Provincial aid is asked, and it is also proposed to ask the Dominion Government to contribute \$30,000 a year.

A freight rate war is reported to be in progress amongst the aerial transportation lines between London, Eng., and Paris, France. One of the companies announced a cut in rates for large parcels of approximately 50% recently, reducing it from 5d. to 3d. a pound. This was in response to a reduction from 5d. to 4½d. a pound. A French company operating over the same route is reported to have arranged a new schedule of freight charges on a scale which is even lower than the land rates.

Railway Labor Organizations' Requests for Dominion Legislation Etc.

Prime Minister King was waited on at Ottawa during the recent session of Dominion Parliament, by a deputation from railway labor organizations, consisting of Byron Baker, Secretary and Treasurer, Brotherhood of Locomotive Engineers; W. L. Best, Chairman, Legislative Board, Brotherhood of Locomotive Firemen and Engineers; L. L. Peltier, Dominion Legislative Representative, Order of Railway Conductors; and T. J. Coughlin, Brotherhood of Railway Trainmen, who made a number of requests as follows:

Criminal Code.—It is suggested that secs. 97A and 97B as enacted in 1919, be repealed. These sections declare that certain associations, organizations, etc., whose professed purpose is to bring about any governmental, industrial or economic change within Canada, by use of force, violence or physical injury of person or property, or by threats of such injury, or which teaches, advocates, advises, or defends the use of force, violence, terrorism, or physical injury to person or property, or threats of such injury in order to accomplish such change, or for any other purpose, or which shall by any means prosecute or pursue such purpose or professed purpose, or shall so teach, advocate, advise or defend, shall be an unlawful association, that its property shall be liable to seizure and its members to imprisonment, and also provides punishment for the issuing of seditious literature. The brotherhood representatives contend that this legislation is unjustifiable and unduly drastic, and is capable of being interpreted to the curtailment and abridgment of British liberty. They submit that Canada got along very well without such sumptuary legislation, and that although the Government may have believed itself justified, because of alleged conditions existing in enacting such legislation, it seems that prevailing conditions in Canada do not warrant such legislation remaining in the statutes.

The Immigration Act, sec. 41, as enacted in 1919, provides as follows:

"41. (1) Every person who by word or act in Canada seeks to overthrow by force or violence the government of, or constituted law and authority in, the United Kingdom of Great Britain and Ireland, or Canada, or any of the provinces of Canada, or the government of any other of His Majesty's dominions, colonies, possessions or dependencies, or advocates the assassination of any official of any of the said governments, or of any foreign government, or who in Canada defends or suggests the unlawful destruction of property, or by word or act creates or attempts to create any riot or public disorder in Canada, or who without lawful authority assumes any powers of government in Canada or in any part thereof, or who by common repute belongs to, or is suspected of belonging to any secret society or organization which extorts money from or in any way attempts to control any resident of Canada by force or by threat of bodily harm, or by blackmail, or who is a member of or affiliated with any organization entertaining or teaching disbelief in or opposition to organized government, shall, for the purpose of this act, be deemed to belong to the prohibited or undesirable classes, and shall be liable to deportation in the manner provided by this act, and it shall be the

duty of any officer becoming cognizant thereof and of the clerk, secretary or other official of any municipality in Canada, wherein any such person may be, forthwith to send a written complaint to the Minister, giving full particulars; provided, that this section shall not apply to any person who is a British subject, either by reason of birth in Canada, or by reason of naturalization in Canada.

"(2) Proof that any person belonged to or was within the description of any of the prohibited or undesirable classes within the meaning of this section at any time since May 4, 1910, shall, for all the purposes of this act, be deemed to establish prima facie that he still belongs to such prohibited or undesirable class or classes."

It is submitted that this is an attack upon British subjects' liberty, and an uncalled curtailment of the rights to due process of law, as practiced hitherto in Canada and the British Empire.

The further restriction of Asiatic immigration is also suggested.

Dominion's Election Act, 1920.—Sec. 10, sub-sec. (1) provides that no unincorporated company or association or no incorporated company or association other than one incorporated for political purposes alone, shall contribute funds for election purposes. It is suggested that this be amended so as not to prohibit a labor organization, as such, from contributing to an election fund, or collecting from its membership voluntary subscriptions for such purposes, and for defraying legitimate election expenses.

Sec. 40, sub-sec. (8) paragraph (b) provides that no nomination paper shall be valid or acted upon by a returning officer unless it is accompanied by a deposit of \$200. It is suggested that this paragraph be eliminated, or so amended that the deposits shall be returned to all candidates within 10 days after the successful candidates have been declared elected, regardless of the number of votes cast for the candidates, and that sub-sec. (9), which requires the returning officer at the close of the nomination proceedings to forward to the Auditor-General the deposits, be amended to conform with the other amendment proposed.

Sec. 100 provides for advance polls for railway employes, etc., the returning officer being empowered to establish as many special polling stations as may be necessary, and empowers the Chief Electoral Officer to amend the schedule of places by striking therefrom the name of any place where less than 50 votes were polled at the election immediately preceding. It is suggested that 25 be substituted for 50. The purpose of this proposed amendment is to ensure advance polls being established wherever it seems probable that 25 votes of the persons within the scope of the section will be polled, and also that no name be struck from the schedule unless less than 25 votes are polled at the preceding general election.

The Income War Tax Act, 1917, sec. 3, sub-sec. (b), as amended, provides an exemption for the purposes of the normal tax only, of \$200 for each child under 18 years of age, who is dependent on the taxpayer for support. It is suggested that this exemption be increased to \$400.

That the act be amended to provide that the balance of income, after deducting personal expenses away from usual place of residence, shall be considered as the net income for the purpose of the act, the returns for such expenses to be made on oath.

That sec. 4, sub-sec. (1), paragraph (a), providing for payment of normal tax, be amended to read as follows: "Four per centum upon all income exceeding \$1500, but not exceeding \$6000, in the case of unmarried persons, and widows or widowers without dependent children, and persons who are not supporting dependent brothers or sisters under the age of 18 years, or a dependent parent or parents, grandparent or grandparents, and such persons are not householders and assessed by the municipality as such, and exceeding \$2500, but not exceeding \$6000, in the case of all other persons." This would provide that the normal tax would be levied in the case of unmarried persons, widows or widowers without dependent children, etc., and certain other persons without dependents, on all incomes exceeding \$1500, instead of \$1000 as at present, and in the case of all other persons on incomes exceeding \$2500 instead of \$2,000, as at present.

The words in the section as proposed to be amended, and which are printed above in bold face type, viz:—"and such persons are not householders and assessed by the municipality as such" are not in the act now, and would be an addition.

Duplication of Income Taxation.—With a view to preventing a duplication of taxation upon incomes from personal earnings by dominion, provincial and municipal governments we suggest the calling of an inter-provincial conference of representatives of the various provinces with the Dominion Government in order that the necessary adjustments may be made in existing legislation.

Industrial Disputes Investigation Act, 1917.—Amend to ensure a more equitable application of the act, particularly in the matter of employers arbitrarily changing wages and conditions of employment.

Protection At Highway Crossings of Railways at Rail Level.—That, with a view to greater protection and safety to the public and the employes in respect of highway crossings the work of eliminating such crossings under the provisions of the Railway Act, 1919, sec. 262 be undertaken with due expediency. This proposal, if carried out, will undoubtedly reduce the number of accidents at highway crossings, and the work undertaken would provide employment for numbers of citizens and materially relieve the present acute unemployment situation.

Canadian National Railways to be under Board of Railway Commissioners.—That the necessary action be taken, under the provisions of the Canadian National Railway Act, 1919, to bring all lines of railway owned, controlled and operated by the Dominion Government under the Board of Railway Commissioners' jurisdiction, in respect to operation and equipment.

Consolidation and Co-ordination of Government Owned Railways.—We urge the desirability of the consolidation and co-ordination of all government owned

or controlled railways, under one board of directors, in order that government ownership and operation may be given a fair and impartial trial. In the reorganization of the board of directors of the Canadian National Railways it is requested that the employes be given representation thereon.

Uniform Pension Plan for Canadian National Rys. Employees.—That prior to the adoption by the Government of any pension plan for Canadian National Rys. employes, the legislative representatives of such employes be given an opportunity of familiarizing themselves with the proposed plan and refer same to the employes concerned for approval.

Unemployment Insurance.—With a view to the enactment of unemployment insurance legislation as early as expedient, we respectfully suggest that an investigation be undertaken into the entire question and a report of such investigation be made to the Second Session of the present Parliament.

Tariff Revision.—That the customs tariff on foodstuffs coming into Canada be removed. This item has been included in former legislative proposals to the Government.

Signing of Letters by Railway Chief Clerks.

A Montreal reader of Canadian Railway and Marine World writes: "I am much interested in the paper 'The railway chief clerk, his problems, duties and required qualifications,' published in your May issue, and in your Editor's note in which he says that in some offices the practice is for the chief clerk to simply sign the head's name, without anything to show that it is not a personal signature; that in other offices the clerk's initials are added, but frequently very indistinctly, and that in your Editor's opinion the name of the head should be typed, or written, followed by 'per,' and the chief clerk's signature. I wish to express my hearty concurrence in your Editor's opinion as quoted above. Letters of criticism of subordinates, those making recommendations to superior officers, and those outlining policy for future guidance, should, no doubt, be signed personally by the head of the department, as far as possible. General correspondence which is signed by the chief clerk should have something about it to indicate the individual responsible. This practice is already quite general in commercial houses, and I believe it tends to a feeling of responsibility on the part of the man who signs the letter. Some officers make a practice of signing all their mail personally. It obviously has not had very much of their personal attention, and the effect of the personal signature is somewhat weakened. On the other hand, the man who signs another man's name, with merely an initial or cabalistic mark to indicate the individuality of the signer, assumes thereby only a very small portion of the responsibility for the letter. After an experience on various railways and in different offices, covering a period of some years, I am confident that if those who sign letters on behalf of the heads of their departments were required to sign their own names, it would have a very good effect, both on the writer and upon those who receive the letter."

F. F. W. Lowle, Local Freight Agent, C.P.R., Edmonton, Alta., writes: "Referring to your Editor's note, appended to H.

A. Balkwill's paper in your May issue. My opinion is that any letter or document sent from office or sheds, and not actually signed by the agent, should have his name typed at the same time as the letter, with 'per' and initial of party signing. Letters addressed to transportation men, officers or otherwise, should omit 'Yours truly' and have agent's name typed with 'per' and the clear initials in ink of the party responsible, but communications to the public might have 'Yours truly' inserted. One cannot help feeling, when reading a part of Mr. Balkwill's paper, which refers to the selection a chief clerk is called upon to make in recommending certain members of the staff for various positions, that the selection under present conditions is extremely narrow, owing to the schedule regulations insisted upon and agreed to with the various organizations."

Editor's note.—Mr. Lowle's suggestion for the omission of "Yours truly" in letters, etc., to transportation men is certainly practicable, and is practiced in many cases. Why not go further in such correspondence, and omit "Dear Sir"? It might also be considered whether the name of the official addressed might not be omitted and simply the title and headquarters address be used.

Vancouver Island Transportation Problems.—C. P. W. Schwengers, in addressing the Victoria, B.C., Chamber of Commerce, recently, on transportation problems, stated that Victoria's future prosperity is wrapped up entirely in her transportation problems. He advocated the building of a mosquito fleet for water transportation; criticised the Canadian National Rys' management for being absolutely indifferent to Vancouver Island and Victoria interests, and recommended that the C.P.R. should be asked to create an Island District separate from the British Columbia District, with a complete staff in Victoria. He contended that the present staff, being located in Vancouver, naturally looked at matters through Vancouver spectacles, and as a consequence Victoria does not get full justice. The Canadian National Rys. have 89.9 miles in operation on Vancouver Island, and the C.P.R., through its subsidiary, the Esquimalt and Nanaimo Ry., has 196.7 miles. It is needless to say that such mileages would not justify the establishment of separate districts.

Canadian High Commissioner's Offices in London.—In reference to recent press reports that the Canadian High Commissioner's offices in London, Eng., would probably be removed to the Grand Trunk Ry. building, 17 Cockspur St., now occupied by the Canadian National-Grand Trunk Rys' European Manager and staff, we are advised that while consideration has been given to the taking over by the High Commissioner of the upstairs office accommodation in that building, it has been decided not to make the change.

Railway Lands Patented.—Letters patent were issued during May, for Dominion railway lands in Manitoba, Saskatchewan, Alberta, and British Columbia, as follows:—

	Acres
Canadian Northern Ry.....	478.60
Canadian Pacific Ry.....	1.62
Manitoba & Northwestern Ry.....	3.05
Total.....	483.27

E. F. L. Sturdee, General Agent, Passenger Department, C.P.R., Seattle, Wash., in remitting his renewal subscription, writes: "I could not do without Canadian Railway and Marine World."

Gaspe Peninsula Railway Service.

The train service in the Gaspé Peninsula of Quebec, which is served by the Quebec Oriental Ry. and the Atlantic, Quebec & Western Ry., extending from Matapédia, on the Intercolonial Ry., to Gaspé, 202.5 miles, has been under consideration by the Dominion Government, upon the appeal of the people of the district. We were officially advised, June 5, that the joint management of the two railways had a conference with the Minister of Railways and the members of the House of Commons for Gaspé and Bonaventure Counties, the principal object being to impress upon the Government how valuable these branch railways are as feeders to the Canadian National Rys., and the desirability of the Government doing something to help them to further develop the traffic which has been steadily increasing for several years past. As a result, arrangements were made for the Canadian National Rys. to lend some passenger cars for use on the Matapédia-Gaspé lines.

An Ottawa press dispatch of June 16, stated that following the conference referred to above, R. H. Fraser, of the Railways Department's engineering staff, had made an inspection of the two railways and presented a report. The result is stated to be that it has been decided to treat these railways as forming parts de facto of the Canadian Rys., without change of ownership or management. In order to bring the lines up to the regular branch line standard a quantity of rails will be supplied for the construction of additional sidings, and rolling stock, consisting of sleeping cars, first-class passenger cars, freight, coal and platform cars, will be leased to the two companies at a nominal rental. The companies will lay the tracks, and will supply ballast for the lines, so as to bring them up to the standard desired. The Canadian National Rys. will, it is stated, treat the two railways in the matter of rates in such a way as will develop traffic.

Division of Wheat Transportation Between the Railways.

Geo. Stephen, Freight Traffic Manager, Canadian National Rys., has issued the following statement as to the handling of the prairie provinces' grain crops of 1920 and 1921, by the Canadian National, Canadian Pacific and Great Northern Rys., from Sept. 1 to May 31, each year:

	1920 crop		1921 crop	
	Cars	%	Cars	%
C. N. R.	84,003	46.5	106,252	51
C. P. R.	96,321	53.4	101,171	48.6
G. N. R.	175	.1	892	.4
Totals.....	180,499		208,314	

The C.N.R. and C.P.R. shipments were both to Fort William and Port Arthur, Ont., and to Vancouver, B.C. The G.N. R. shipments were to Duluth, Minn.

Railway Accidents Throughout Canada.

—The total number of railway accidents reported to the Board of Railway Commissioners during May, was 156, resulting in 5 employes and 21 others being killed, and 15 passengers, 119 employes and 17 others being injured, a total of 26 killed and 151 injured. Under "others" are included 6 persons killed, and 6 injured in 7 highway crossing accidents. In each of these accidents, the crossings were unprotected, and in 3 cases, automobiles were concerned, in 2, other vehicles, and in 1, a pedestrian.

Newfoundland Railway Affairs Settled to Nov. 15.

Owing to the fact that the Reid Newfoundland Co. had not funds to meet their April payroll, the Newfoundland Ry., with the associated steamship lines, ceased operating May 16. The company stated that the shortage of funds was due to the Government not having paid over an amount provided by the Legislature to reimburse it for the deficiency of the year's revenue to June 30, while the Government asserted that the company owed it \$517,000, against which the company put forward a counterclaim. Owing to the disruption of business caused by the stoppage of traffic, an arrangement was made for its resumption, and trains and steamships were again put in operation May 23, the arrangement made being up to June 18, and subsequently continued. Negotiations followed as to the future, the company having offered to sell the whole of its interests in the railway and steamships to the Government for \$2,500,000, a number of claims on either side to be abandoned. As a result of the negotiations, the Premier submitted to the House of Assembly, June 17, an agreement proposed to be executed between the Government and the Reid Newfoundland Co., respecting the operation of the railway, express, and steamship services.

The agreement, dated June 15, consists of 16 sections, the first three of which deal with the extraordinary situation created by the ceasing of operations in May, and the remainder with the operations of the three services from July 1 to Nov. 15, inclusive. These sections provide that the Government shall supply the funds necessary to meet the company's employees payrolls for May and June, and in addition \$70,000 to assist the company to meet present liabilities other than the Bank of Montreal, on account of railway, steamship and express business. The company assigns to the Government as security for any excess of the amounts paid by it over the \$1,500,000 provided by the agreement of 1921, for losses in operation for the year ended June 15, all its book debts, etc., receivable on account of railway, express and steamship operations, and bank balances up to June 30. The sections also provide for the manner of paying the money over to the company, and for the keeping of special accounts with respect to the security. New accounts are to be opened in the company's books and at the Bank of Montreal, on July 1, to cover the operation of the railways, express and steamship service from that date to Nov. 15. The Government is to provide all funds necessary to operate the three services; is to keep in force all insurances at present maintained by the company, but shall not be responsible for losses not covered by insurance, except such loss or damage as is properly chargeable to ordinary maintenance. Any profits in the operation of the services during the period are to be applied towards meeting the losses in operation incurred between July 1, 1921, and June 14, 1922, both inclusive. Inventories of coal and other supplies, etc., are to be made at June 30, to be credited to the accounts under the 1921 agreement, and debited to accounts of the new period. The Government shall be entitled to all money received for the operation of the services during the currency of the agreement, and shall pay all debts contracted during the agreement and not discharged at Nov. 15.

Up to Nov. 15 the three services shall be operated under the management of R. C. Morgan, who shall have the title and powers of General Manager, and R. G. Reid, the company's Vice President, but no change in operating policy shall be made without the consent of both. No change is to be made by the Reid Newfoundland Co., by way of rent or otherwise in respect of property used by the three services, or for depreciation. No salary is to be paid to R. G. Reid, or any other director of the company, in respect of services rendered in connection with the railway, express or steamship services. The agreement is made without prejudice to the rights of either party, or to any other disputes or claims out of any other dealings between the parties, their respective positions in relation thereto to be the same as if the present agreement had not been made.

The House, in committee, passed a vote of \$250,000 out of the last loan raised to finance railway operations from July 1 to Nov. 15.

On the House reassembling June 20, the Premier stated that the final draft had been drawn up and assented to, and the signatures would be affixed in due course. He then moved the adjournment until Oct. 31, to which an amendment was moved that the House do not adjourn until the agreement had been signed. Subsequently the Premier stated that the agreement would be signed within half an hour thereafter, and the amendment was withdrawn. The Legislature then adjourned to Oct. 31, when it is expected that an announcement will be made respecting the railway's future, and the plans decided on between now and then will be submitted for discussion.

Train Dispatching by Radiotelegraph.

—A recent Winnipeg press dispatch said:—"Canadian National Rys. officials are considering the idea of dispatching trains by radio. This plan, if adopted, will be in operation more at night than by day. Those considering the plan point out that it will obviate the necessity of keeping night operators at many obscure stations, thereby reducing costs. They claim that with trains equipped with radio, running orders could be sent direct to the train crews, this they also claim would have a tendency to prevent head-on collisions, between stations." We are officially advised that there was absolutely no truth in the report, that the information was not given to the press by any responsible officer, and that the matter has not been considered at all.

The Terminal Warehousing Co. has been incorporated under the Dominion Companies Act with authorized capital of \$1,000,000 and office at Montreal, to carry on the business of warehousing and cold and dry storage; to construct, hire or purchase any conveyance for cold storage by land or water; to act as customs brokers or agents, to carry on the business of general cartage, transfer and transport agents, expressmen, and other business incidental thereto.

Point Edward Grain Elevator.—We are officially advised that the G.T.R. is not contemplating the erection of a grain elevator at Point Edward, Ont., as stated in recent press reports. Certain private interests have been considering such a project, but no definite decision has been announced.

United States Railways' Financial Results.

In April, the U.S. Class 1 roads' total operating revenues were \$416,868,620, and total operating expenses, \$336,178,422, leaving a net railway operating revenue of \$80,690,198. Deducting from this \$24,604,143 for railway tax accruals, and \$112,910 for uncollectible revenue, the railway operating income was \$55,973,145. Deducting from this equipment rents debit balance of \$4,344,331, and joint facility rents debit balance of \$1,356,949, the net railway operating income for the month was \$50,271,865. The operating ratio for the month was 80.64. For the first four months of 1922, the net railway operating income was \$211,293,393, compared with \$57,408,932 for the first four months of 1921, and the operating ratio for the first four months of 1922 was 80.50, compared with 90.56 for the first four months of 1921. A large improvement in the first four months of 1922 over the corresponding period of 1921 is therefore evident. The net operating income for April of \$50,271,865 represents an annual return of 3.93% on the railways' tentative valuation.

Car loading in the U.S. during the past few weeks has been showing large increases over that for corresponding weeks in 1921, and it is stated that if it were not for the miners' strike, resulting in largely restricted movements of bituminous and anthracite coal, the increases in car loading would have been even more pronounced.

Transportation Contributions to Montreal Hospital Fund.—Among those associated with transportation interests who have contributed to the fund being raised in Montreal for its hospitals, are the following: R. B. Angus, director, C.P.R., and the C.P.R. Co., each \$50,000; Jas. Carruthers, \$25,000; Sir Herbert Holt and C. R. Hosmer, director, C.P.R., each, \$15,000; Senator L. C. Webster, President, Webster Steamship Co., \$10,000; E. W. Beatty, K.C., President, C.P.R., \$5,000; Farquhar Robertson, a former Montreal Harbor commissioner, \$3,000; Dominion Transport Co., \$2,000; Lt. Col. G. S. Cantlie, formerly General Superintendent of Car Service, C.P.R., and Lt. Col. G. R. Starke, President, Dominion Transport Co., each, \$1,000; A. D. MacTier, Vice President, Eastern Lines, C.P.R., and Mrs. MacTier, jointly, \$1,000; White Star-Dominion Line, and W. G. Ross, ex President, Montreal Harbor commissioners, each, \$200; and Fraser, Brace & Co., shipbuilders, \$100.

Taxation of Grain Elevators.—The Alberta Corporations Taxation Act has been amended by providing that every company which stores or distributes grain shall pay \$50 for each elevator used by it in its business. An elevator is described as an elevator or warehouse, or flat warehouse which receives grain for storage before the grain has been inspected under the Canada Grain Act, and which is situated on a railway right of way, siding or spur track connected therewith, or on station grounds, or on any lands acquired or reserved by any railway company to be used in connection with the railway at any station or siding.

Rails for Pere Marquette Ry.—The Algoma Steel Corporation, Sault Ste. Marie, Ont., is completing an old contract for 2,500 tons 85-lb., C.P.R. section, steel rails for the P.M.R.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Board of Railway Commissioners.—W. E. CAMPBELL, heretofore Chairman, Canadian Freight Association, Western Lines, Winnipeg, who, on March 21, was appointed by Dominion order in council as a rate expert to assist the Board in an advisory capacity, has been appointed the Board's Chief Traffic Officer, at Ottawa, succeeding the late Jas. Hardwell. The appointment was made by the Civil Service Commission, in accordance with the notice inviting applications, which was published in Canadian Railway and Marine World for May on pg. 241. The salary is \$6,500 a year.

Canada Steamships Lines.—See under "Canada Steamships Lines Appointments," on pg. 379 of this issue.

Canadian Railway Board of Adjustment, No. 1.—GEO. HODGE, Assistant to Vice President, Eastern Lines, C.P.R., who has been a member of the Board since its inception, and Vice Chairman for over three years, has been elected Chairman, succeeding the late G. K. Wark.

ASH KENNEDY, Assistant Grand Chief, Brotherhood of Locomotive Engineers, has been elected Vice Chairman.

Canadian Freight Association.—We were advised from Winnipeg, June 12, that no appointment had then been made of a Chairman for the Canadian Freight Association, Western Lines, to succeed W. E. Campbell, appointed Chief Traffic Officer, Board of Railway Commissioners.

Canadian National Rys.—G. CLARKE, heretofore Car Foreman, Edmonton, Alta., has been appointed Car Foreman, Paddington, Man., vice N. C. Hooper, transferred to Mission, B.C.

N. C. FERGUSON has resumed duty as Road Foreman of Locomotives, Dauphin Division, Dauphin, Man., and P. Henze, acting Road Foreman of Locomotives, has been transferred to Prince Albert, Sask.

W. H. HENDERSON has been appointed Roadmaster, Ottawa, Ont., vice O. Ogden, deceased.

N. C. HOOPER, heretofore Car Foreman, Paddington, Man., has been appointed Car Foreman, Mission, B.C., vice J. K. Nesbitt, transferred to Edmonton, Alta.

J. K. NESBITT, heretofore Car Foreman, Mission, B.C., has been appointed Car Foreman, Edmonton, Alta., vice G. Clarke, transferred to Paddington, Man.

ROBT. WM. SIMPSON, Assistant to General Superintendent, Maritime District, Moncton, N.B., is carrying on the duties of that position, which is vacant consequent on J. C. O'Donnell's recent death.

S. B. WASS, heretofore Construction Engineer, Moncton, N.B., has been appointed Construction Engineer to supervise the construction of the Mount Terminal Yard, near Fort William, Ont.

Canadian Pacific Ry.—A. ANDERSON has been appointed Roadmaster, Expanse Subdivision, and Shaunavon Subdivision from Assiniboia to mile 21, Moose Jaw Division, Saskatchewan District, vice P. Tapsay, appointed section foreman at Assiniboia. Office, Assiniboia, Sask.

R. DOUGLAS, heretofore Chief Dispatcher, Nelson, B.C., has been appointed Chief Dispatcher, Moose Jaw Division, Saskatchewan District, Moose Jaw, vice E. G. Trump, transferred to Winnipeg.

J. F. GILDEA, formerly Division Master Mechanic, Pennsylvania Division, Delaware & Hudson Co., Carbondale, Pa., and at one time District Master Mechanic, District 2, Eastern Division, C.P.R., Montreal, has been appointed Assistant Foreman, Smiths Falls, Ont., vice F. G. Perkins, promoted.

GEORGE HODGE, heretofore Assistant to Vice President, Eastern Lines, Montreal, has been appointed Assistant General Manager, Eastern Lines. Office, Montreal.

D. L. HOWARD, Superintendent of Telegraphs, Alberta District, Calgary, is reported to have been appointed Superintendent of Telegraphs, British Columbia District, vice R. N. Young, transferred to Calgary, Alta., Office, Vancouver, B.C.

H. J. HUMPHREY, heretofore Superintendent, Trenton Division, Ontario District, Toronto, has been appointed Assistant General Superintendent, Ontario District, vice W. M. Neal, appointed General Superintendent, Algoma District. Office, Toronto.

H. J. MAIN, heretofore Car Service Agent, Quebec District, Montreal, has been appointed Superintendent, Trenton Division, Ontario District, vice H. J. Humphrey, appointed Assistant General Superintendent, Ontario District. Office, Toronto.

C. E. MANSFIELD, heretofore at Regina, Sask., has been appointed Chief Dispatcher, Nelson Division, British Columbia District, Nelson, vice R. Douglas, transferred to Moose Jaw, Sask.

W. M. NEAL, heretofore Assistant General Superintendent, Ontario District, Toronto, has been appointed General Superintendent, Algoma District, vice J. J. Scully, appointed General Manager, Eastern Lines. Office, North Bay, Ont.

F. G. PERKINS, heretofore Assistant Foreman, Smiths Falls, Ont., has been appointed Locomotive Foreman, Schreiber, Ont., vice S. W. Gardiner, who has left the service.

A. PRICE, General Manager, Eastern Lines, Montreal, after over 40 years of faithful and most efficient service, upon the advice of his physicians, and to the great regret of all, finds it necessary to relinquish his duties for an indefinite period, and has therefore been granted extended leave of absence.

J. J. SCULLY, heretofore General Superintendent, Algoma District, North Bay, Ont., has been appointed General Manager, Eastern Lines, vice Alfred Price, granted leave of absence on account of ill health. Office, Montreal.

J. W. SLATER has been appointed Roadmaster, Outlook Subdivision, Moose Jaw Division, Saskatchewan District Office, Outlook, Sask.

H. M. TAIT, heretofore Assistant General Agent, Steamship Department, Calgary, Alta., has been appointed General Agent, Passenger Department, Rail and Ocean Traffic, Minneapolis, Minn., succeeding A. G. Albertson, who has resigned on his appointment as Manager, Royal Mail Steam Packet Co. and Pacific Steam Navigation Co., San Francisco, Cal. Office, 611 Second Ave. South.

W. N. TILLEY, K.C., Toronto, has been elected a director, succeeding the late Sir John C. Eaton.

E. G. TRUMP, heretofore Chief Dispatcher, Moose Jaw Division, Saskatchewan District, Moose Jaw, has been appointed Chief Dispatcher, Portage Division, Manitoba District, Winnipeg.

R. N. YOUNG, Superintendent of Telegraphs, British Columbia District, Vancouver, is reported to have been appointed Superintendent of Telegraphs, Alberta District, vice D. L. Howard, transferred to Vancouver. Office, Calgary, Alta.

Grand Trunk Ry.—J. J. KILLINGSWORTH, heretofore Supervisor of Signals, St. Thomas, Ont., has been appointed Electrical Supervisor, Ontario Lines, vice F. J. Coleman, deceased. Office, London, Ont.

W. STEELS, heretofore signal foreman, Toronto, has been appointed Supervisor of Signals, St. Thomas, Ont., vice J. J. Killingsworth, promoted.

Lacombe & Northwestern Ry.—H. W. TYE, heretofore Construction Engineer, Acme-Drumheller extension, C.P.R., Acme, Alta., has been appointed Resident Engineer, in charge of operations and construction, L. & N.W.R., vice H. G. Dimsdale, appointed Highway Commissioner for Alberta. Office, Lacombe, Alta.

Michigan Central Rd.—B. W. GRIFFITH has been appointed General Storekeeper, vice G. T. Dunn, resigned. Office, Detroit, Mich.

G. T. R. Co's Shareholders' Appeal Against Arbitration Award.

The G.T.R. shareholders' appeal against the award of the arbitration board, which was appointed to fix the Dominion Government's liability for certain of the company's shares, will, a press dispatch states, come before the Imperial Privy Council, in London, Eng., on July 10.

In connection with this matter there has been a good deal of controversy in London recently as to the position of holders of certain G.T.R. securities. A letter from the Dominion Railways Department was made public in London, June 1, in which the following reference was made to a statement of Sir Alfred Smithers, chairman of the board, G.T.R., made in 1920, to the effect that the payment of interest on the junior securities was the Government's own proposal and was the only concession offered: "It is understood that the reason for paying interest on the junior securities was that in making the bargain the London management of the G.T.R. insisted that the Government give a guarantee of dividends to holders of the guaranteed stock, as their votes were necessary to constitute the majority voting power required to authorize the acquisition arrangement. Any criticism therefore would lie against the G.T.R.'s English board."

Replying to an enquiry from England in reference to the matter, Major Graham A. Bell, Deputy Minister of Railways, wrote a lengthy letter, which was given out in Ottawa on June 1, for publication. In it he said: "The position of the holders of G. T. Pacific Ry. Co's 4% debenture shares is appreciated, but the Canadian Government is scarcely in a position to make good unfortunate business investments of that nature." He added that up to the end of 1921, the Dominion Government had advanced to the G.T.R. Co. \$73,702,154.42, and to the G.T.P.R. Co., \$82,480,303.66.

Mainly About Railway People Throughout Canada.

R. B. Angus, director, C.P.R. Co., since its inception, has recovered from his recent indisposition, and celebrated his 91st birthday at his country home, Sonnevile, Que. May 28.

W. A. Booth, Engineer of Locomotive Construction, G.T.R., Montreal, and Secretary, Canadian Railway Club, was elected Chairman of the Society of Railway Club Secretaries, at the annual meeting in Atlantic City, June 16.

Sir George MacLaren Brown, European General Manager, C.P.R., presided at the Canadian Club's luncheon, in London, Eng., on Empire Day.

W. E. Campbell, who has been appointed Chief Traffic Officer, Board of Railway Commissioners, Ottawa, was born at Mount Vernon, Ont., Dec. 19, 1882, and entered railway service in 1901, since when he has been, to Aug., 1902, stenographer, General Freight Office, G.T.R., Montreal; Aug., 1902, to Apr., 1906, secretary to Division Freight Agent, G.T.R., Hamilton, Ont.; Apr., 1906, to Dec. 31, 1907, chief clerk, Eastern Lines, Canadian Freight Association, Toronto; Jan. 1, 1908, to July 31, 1910, Secretary, Advisory Committee, Eastern Lines, Canadian Freight Association, Montreal; Aug. 1, 1910, to Sept. 18, 1921, Secretary-Treasurer, Western Lines, Canadian Freight Association, Winnipeg; Sept. 19, 1921, to March 31, 1922, Chairman, Western Lines, Canadian Freight Association, Winnipeg; Apr. 1 to May 31, 1922, rate expert in an advisory capacity, Board of Railway Commissioners, Ottawa, Ont.

F. J. Coleman, of the G.T.R. Electrical Department, London, Ont., died at Detroit, Mich., May 26, aged 55.

James Coleman, who has been elected chairman of the American Railway Association Mechanical Division's general committee, to serve until, 1924, was born at Port Huron, Mich., and started work with the G.T.R. as a car department apprentice in 1873. He worked at Port Huron until 1889, when he was appointed foreman at Chicago, remaining in that position until 1899, when he was appointed Master Car Builder, Central Vermont Ry., at St. Albans, Vt. In 1905 he entered the Canada Car Co.'s service at Montreal, taking charge of the manufacturing department, and in 1906 returned to his former position with the Central Vermont Ry. In Jan., 1908, he was appointed Superintendent, Car Department, G.T.R., at Montreal, and on May 1, 1920, was appointed assistant to General Superintendent, Motive Power and Car Department, G.T.R., Montreal, which position he still holds. He was second Vice President of the Master Car Builders' Association for the year 1916-17, and in 1920 was elected Vice Chairman, American Railway Association, Section 3, Mechanical.

G. S. Donaldson, General Agent, and W. W. Creighton, Travelling Agent, Chicago & Northwestern Ry., Toronto, were injured, the former somewhat seriously, and their companion was killed, when their motor car overturned in a ditch near Oakville, Ont., as they were proceeding to attend the Toronto Transportation Club's annual picnic near Hamilton, on June 23. At the time of writing, June 27, Mr. Donaldson is reported to be progressing satisfactorily, but it is not expected that he will be able to leave the hospital for a week or two. Mr. Creighton returned to duty June 26.

Nathaniel Stewart Dunlop, who died at the General Hospital, Montreal, June 2, was born near Almonte, Ont., Jan. 17, 1861. For seven years he was a public school teacher, and in 1886 entered a law office in Toronto, and was subsequently Secretary, and later, President, of the Canadian Shorthand Society. He entered C.P.R. service in Sept., 1888, as clerk in the Legal Department, Toronto, and was, from July 1, 1893, to Sept. 21, 1901, chief clerk, Legal Department, Toronto; Sept. 21, 1901, to July 1, 1904, Tax Commissioner, Montreal; July 1, 1904, to Feb. 1, 1910, Tax Commissioner and Claims Adjuster, Montreal; Feb. 1, 1910, to Sept. 30, 1916, when he retired from the service, Tax and Insurance Commissioner, Montreal. He was the creator of the C. P. R. Floral Department, which is responsible for the floral decoration of the company's stations throughout the Dominion.



W. E. Campbell,
Chief Traffic Officer, Board of Railway Commissioners.

Sir John Eaton, President, The T. Eaton Co., Ltd., who died in Toronto, March 30, and who was a C.P.R. director, left an estate valued at \$13,098,622.82, including 250 C.P.R. shares, valued at \$36,000.

James Frederick Gildea, who has been appointed Assistant Foreman, C.P.R., Smiths Falls, Ont., was born at Strood Park, near Horsham, Sussex, Eng., and entered railway service in June, 1900, as an engineering apprentice, Nine Elm Works, London & South Western Ry., and on the conclusion of his apprenticeship, in June, 1904, he was presented by the directors with a special prize for the highest place in the apprentices' examinations; June, 1904, to June, 1905, fireman, all classes of service, L. & S.W.R., Salisbury, Eng.; June, 1905, to Jan., 1906, on engineering staff, Southampton Docks and R.M.S. Alberta, L. & S.W.R., Southampton, Eng.; Jan. to June, 1906, locomotive draftsman, Nine Elm Works, L. &

S.W.R., London, Eng.; June, 1906, to Jan., 1907, supervising locomotive statistics and operation, same company; Feb., 1907, to Mar., 1909, fitter, Angus Shops, C.P.R., Montreal; Mar. to Oct., 1907, in tests department, Angus Shops, C.P.R., Montreal; Oct., 1908, to July, 1909, Assistant Locomotive Foreman, C.P.R., North Bay, Ont.; Aug., 1909, Assistant Locomotive Foreman, C.P.R., Chapleau, Ont.; Sept., 1909, to Sept., 1912, Locomotive Foreman, C.P.R., Schreiber, Ont.; Sept., 1912, to July, 1914, Locomotive Foreman, C.P.R., Hochelaga, Que.; July, 1914, to Mar., 1918, Master Mechanic, Montreal Terminals Division, Quebec District, C.P.R., Montreal. In March, 1918, he was appointed Division Master Mechanic, Pennsylvania Division, Delaware & Hudson Co., Carbondale, Pa., but had been out of the service for some time.

A. E. Griggs, Bridge and Building Master, C.P.R., Brownville Jct., Me., was found dead in bed in an hotel at Frederickton, N.B., June 14. He was born in 1861, and had been in C.P.R. service for 39 years.

George Hodge, Assistant to Vice President, Eastern Lines, C.P.R., Montreal, who has been elected Chairman of Canadian Railway Board of Adjustment No. 1, vice the late George K. Wark, was born at Montreal, Oct. 2, 1874, and entered C. P. R. service Mar. 24, 1890, since when he has been, to Aug., 1890, junior clerk, Passenger Department; Aug., 1890, to Apr., 1892, clerk, Vice President's office; Apr., 1892, to June, 1896, secretary to Vice President; June, 1896, to Jan., 1907, chief clerk to Vice President; Jan., 1907, to July, 1908, Superintendent, Montreal Terminals; July, 1908, to Feb., 1911, Superintendent, District 3, Eastern Division, all at Montreal; Feb., 1911, to Mar., 1912, Superintendent, District 2, Ontario Division, London, Ont.; Mar., 1912, to May, 1915, General Superintendent, Eastern Division, Montreal; May, 1915, to Oct., 1918, Assistant to General Manager, Eastern Lines, Montreal; and from Oct., 1918, Assistant to Vice President, Eastern Lines, C.P.R., Montreal.

C. R. Hosmer, director, C.P.R., Montreal, has been elected a trustee of the Mackay Companies, in place of the late G. W. Wark.

Miss Marion Beryl Hungerford, youngest daughter of S. J. Hungerford, Vice President, Operating & Maintenance, Canadian National Rys., Toronto, was married there, June 7, to Alex. Romeril.

S. J. Hungerford, Vice President, Operation & Maintenance, Canadian National Rys., made an inspection trip over the system's principal eastern lines, leaving Toronto, June 8, and returning June 23, during which he went as far as Sydney, N.S., and St. John, N.B. He was accompanied by C. B. Brown, Engineering Assistant, and Alistair Fraser, General Solicitor.

J. W. N. Johnstone, General Agent, Canadian National Rys. and Canadian Government Merchant Marine, St. John's, Nfld., made a trip to the Canadian Pacific coast recently.

Mrs. McAvity, wife of Thomas McAvity, President, T. McAvity & Sons, Ltd., railway and marine supplies manufacturers, etc., St. John, N.B., died there, June 2, after a long illness.

Samuel McIlwain, whose appointment as Division Engineer, Ottawa Division, Canadian National Rys., Ottawa, Ont.,

was announced in our last issue, was born at Goderich, Ont., May 24, 1885, and entered railway service in Dec., 1906, since when he has been, to Feb. 1907, chairman, Canadian Northern Ontario Ry., Parry Sound, Ont.; Feb., 1907, to Dec., 1908, rodman, Canadian Northern Quebec Ry., Garneau cutoff; Jan. to Mar., 1909, rodman on location, Gowganda Branch, Canadian Northern Ontario Ry.; Apr., 1909, to Apr., 1910, rodman, Rawdon Branch, Canadian Northern Quebec Ry.; May, 1910, to May, 1911, rodman, Toronto-Ottawa line, Canadian Northern Ontario Ry.; May to Dec., 1911, instrument man, same line; Jan. to Apr., 1912, instrument man on location, Ottawa to Pembroke, same road; May, 1912, to Sept., 1913, Resident Engineer, same road, Beachburg, Ont.; Oct., 1913, to Jan., 1914, Resident Engineer, same road, Brockville, Ont.; Jan., 1914, to Apr., 1915, not in railway service; May, 1915, to Oct., 1916, instrument man, Toronto-Hamilton Highway Commission, Burlington, Ont.; Sept., 1916, to May, 1918, Assistant Engineer, Canadian Northern Ry., Capreol Ont.; June, 1918, to Apr., 1922, Division Engineer, Nipissing Division, same road, latterly Canadian National Rys., Capreol, Ont.

W. R. MacInnes, Vice President in charge of traffic, C.P.R., returned to Montreal, at the end of May, after a short trip to Europe.

Sir William Mackenzie, President, Toronto Ry. Co., and formerly President, Canadian Northern Ry., has retired from the Hudson's Bay Co.'s directorate.

William Nicholson, General Foreman, Blacksmith Shop, Angus Shops, C.P.R., Montreal, died there, May 31, aged 66. He was born at Kingston, Ont., and was for several years in Canadian Locomotive Co.'s service, entering C.P.R. service in 1906.

P. S. O'Hagan, Assistant Station Master, Bonaventure Station, G.T.R., Montreal, died at the end of May, following a paralytic seizure in his office. He had been in G.T.R. service for about 35 years.

Alfred Price, General Manager, Eastern Lines, C.P.R., who had not been well for some two or three weeks, entered the Ross Memorial Hospital, at Montreal, on June 8, for examination and observation. We were advised, June 21, that it was expected he would be able to leave the hospital in a few days thereafter, but that he might not be able to return to his office for a little while.

R. Ritchot, Assistant Claims Agent, G.T.R., Montreal, has retired on superannuation, after 51 years service with the company.

J. G. Rutherford, C.M.G., a member of the Board of Railway Commissioners, was elected a corresponding member of the Central Society of Veterinary Medicine, of France, at its annual meeting in Paris, recently.

Lord Shaughnessy, Chairman of the Board, C.P.R. Co., has offered to give \$500 a year for five years towards the granting of a number of scholarships at Loyola College, Montreal.

Lewis Ketcham Sillcox, who has been elected a member of the American Railway Association, Mechanical Division's general committee, was born at Germantown, Pa., April 30, 1886, and was educated at Trinity School, New York, and the Institution of Mechanical and Electrical Engineering, Brussels, Belgium. He entered railway service in 1903, and has been to 1906, apprentice, New York Central & Hudson Rd., Highbridge, N.Y.;

1906 to 1909, machinist and Assistant Superintendent, in charge of foundries and machine shops, McSherry Manufacturing Co., Middletown, Ohio; 1909 to 1911, shop engineer, Canadian Car & Foundry Co., Montreal; 1911 to April 1, 1916, Mechanical Engineer, Canadian Northern Ry., Toronto; April 1, 1916, to April, 1921, Mechanical Engineer, Illinois Central Rd., Chicago, Ill.; from 1921, General Superintendent of Motive Power, Chicago, Milwaukee & St. Paul Ry., Chicago, Ill. He was not able to attend the recent Atlantic City convention, owing to having a number of important matters to attend to at Chicago. The C., M. & St. P. Ry. has recently ordered a number of locomotives and cars, and has taken over the Chicago, Terre Haute & South-eastern Ry., which serves the Illinois coal fields, and he is getting the equipment on that line ready to handle the heavy business that will develop when the coal strike is ended.



William Woollatt,
Vice President and General Manager, Essex
Terminal Railway.

Robert. Wm. Simpson, Assistant to General Superintendent, Maritime District, Canadian National Rys., Moncton, N.B., who is carrying on the duties of that position, which is vacant consequent on J. C. O'Donnell's recent death, entered the Intercolonial Ry.'s service as clerk in the Engineering Department, July 22, 1899, since when his other appointments have been as follows: May, 1896, engineer; July, 1899, assistant engineer; Nov. 7, 1912, Advisory Engineer; Sept. 1, 1913, General Fuel, Oil & Tie Agent; June 11, 1917, Assistant to General Manager; Dec. 1, 1918, Assistant to General Superintendent, all at Moncton.

Hugh Sutherland, ex General Executive Agent, Canadian Northern Ry., Winnipeg, and Mrs. Sutherland have returned there, from England.

W. N. Tilley, K.C., who has been elected a director, C.P.R., studied law at Osgoode Hall, Toronto, and was called to the bar in 1894, and appointed a K.C. in 1913. He has been engaged in a number of important legal cases, and was assist-

ant counsel for the Dominion Government in an insurance investigation, and also in the Newfoundland Fisheries arbitration at The Hague, Holland. Latterly, he has been chief counsel in a number of important railway rate cases, and also acted as chief counsel for the Dominion Government in the arbitration respecting the valuation of Canadian Northern Ry. common stock, when that company's lines were taken over by the Dominion Government. He was also chief counsel for the Dominion Government in a similar arbitration respecting the value of G.T.R. stocks; and counsel for the City of Toronto in connection with the valuation of the Toronto Ry. Co.'s assets on their acquisition by the city. He has been for some years General Consulting Counsel for the C.P.R. In addition to general railway legal work, he has argued several important cases before the Privy Council in England, and also before the International Waterways Commission. He is the head of the legal firm of Tilley, Johnson, Thompson & Parmenter, Toronto.

Walter Vaughan, formerly Secretary and Bursar of McGill University, Montreal, and author of "The Life and Work of Sir William Van Horne," died at the Royal Victoria Hospital, June 15, aged 56, after several months illness.

Herbert L. Wallis, a former Chief Mechanical Superintendent, G.T.R., Montreal, died there, at the end of May. He was born at Derby, Eng., March 10, 1844, and was educated at the Commercial College, Halifax, Eng., after which he entered Midland Ry. service as a pupil of the Locomotive Superintendent, and served in the drafting offices and workshops at Derby, until Aug., 1866, when he was appointed Foreman, Locomotive Carriage Department, Midland Ry., Bradford. In March, 1817, he was appointed Assistant Mechanical Superintendent, G.T.R., Montreal, and in Jan., 1873, Chief Mechanical Superintendent, which position he held until his resignation, April 30, 1896. He was a member of the Institute of Civil Engineers, and of the Institute of Mechanical Engineers (England), and also of several engineering associations in the U.S., and in 1896 was President of the Canadian Society of Civil Engineers. His father was engaged in coaching before the advent of railways, and later became a cartage agent for the Midland Ry.

G. K. Wark, Canadian Vice President, Brotherhood of Locomotive Foremen and Enginemen, and Chairman, Canadian Railway Board of Adjustment No. 1, who died in Toronto, April 24, left an estate valued at \$33,624.

Silas B. Wass, who has been appointed Construction Engineer to supervise the construction of the Mount Terminal Yard, Canadian National Rys., near Fort William, Ont., was born in Perth County, Ont., July 11, 1880, and entered railway service, July 1906, since when he has been, to Jan. 1908, Resident Engineer, C.P.R., Walkerton, Ont.; Jan., 1908, to Jan., 1909, Assistant Engineer, C.P.R., Durham, Ont.; May, 1909, to Sept., 1910, Chief Engineer, Aroostook Valley Rd., Presque Isle, Me.; Sept., 1910, to Jan., 1912, Assistant Engineer, C.P.R., Montreal; Jan., 1912, to Apr., 1914, Assistant Chief Engineer, St. John and Quebec Ry., Fredericton, N.B.; Apr. to Dec., 1914, Chief Engineer, same road; Jan., 1915, to Apr., 1918, Assistant Superintendent, Intercolonial Ry., Fredericton, N.B.; Apr., 1918, to May, 1922, in Engineering Department, Canadian Government Rys.

and Canadian National Rys., latterly as Construction Engineer at Moncton, N.B.

G. W. Webster, who has been appointed Vice President, Minneapolis, St. Paul & Sault Ste. Marie Ry., Minneapolis, Minn., was born at Oshkosh, Wis., Dec. 1, 1870, and entered railway service Sept. 1, 1886, as a clerk on the Milwaukee, Lake Shore & Western Rd., and was employed in various capacities until Sept. 27, 1893, and has been, to July 1, 1899, secretary to Receiver, Wisconsin Central Ry.; July 1, 1899, to Oct., 1906, chief clerk to President, same road; Oct., 1906, to Sept. 21, 1909, Secretary, same road; Sept. 21, 1909, to March 1, 1920, also Secretary, Minneapolis, St. Paul & Sault Ste. Marie Ry., which acquired control of the Wisconsin Central Ry.; and from March 1, 1920, he has been Secretary, Minneapolis, St. Paul & Sault Ste. Marie Ry., Duluth, South Shore & Atlantic Ry., and subsidiary companies.

H. Wheeler, General Manager, White Pass & Yukon route, was recalled from Skagway, Alaska, to Victoria, B.C., in May, owing to his father's death. He returned to Skagway, early in June.

W. H. Winterrowd, who has been elected a member of the American Railway Association Mechanical Division's general committee, was born at Hope, Ind., Apr. 2, 1884, and educated at Shelbyville, Ind., and Purdue University, whence he graduated with the degree of B.S. in 1907. He entered railway service in 1905, since when he has been, to 1906, blacksmith's helper, Lake Erie & Western Ry., Lima, Ohio; 1906 to 1907, air brake and car repair man, Western Lines, Pennsylvania Rd., Dennison, Ohio; 1907 to 1908, special apprentice, Lake Shore & Michigan Southern Ry., Elkhart, Ind.; 1908 to 1909, Roundhouse Foreman, Lake Erie, Alliance & Wheeling Ry., Alliance, Ohio; 1909 to 1910, Night Roundhouse Foreman, Lake Shore & Michigan Southern Ry., Youngstown, Ohio; 1910, Roundhouse Foreman, same road, Cleveland, Ohio; 1910 to Sept., 1912, Assistant to Mechanical Engineer, same road, Cleveland, Ohio; Sept., 1912, to May, 1915, Mechanical Engineer, Angus locomotive shops, C.P.R., Montreal; May, 1915, to Apr. 1, 1918, Assistant to Chief Mechanical Engineer, C.P.R., Montreal; from Apr. 1, 1918, Chief Mechanical Engineer, Montreal.

Wm. Woollatt, Vice President and General Manager, Essex Terminal Ry., Walkerville, Ont., whose portrait is published herewith, and who has recently completed 50 years continuous transportation service, was born at Weeden, England, April 2, 1885. His service record is as follows: May 13, 1872, to April, 1877, office boy and assistant time-keeper, Mechanical Department, Northern Ry., Toronto; April, 1877, to June, 1879, stenographer, Traffic Department, Northern Ry., Toronto; June, 1879, to Aug., 1881, chief clerk, Passenger Department, Northern & Northwestern Rys., Toronto; Aug., 1881, to May, 1884, chief clerk, Audit Department, Northern & Northwestern Rys., Toronto; May, 1884, to June, 1888, chief clerk, passenger Department, Northern & Northwestern Rys., Toronto; June, 1888, to Dec., 1888, in charge of passenger business west of Toronto, in General Passenger Department, G.T.R., Montreal; Jan., 1899, to Jan., 1894, Traffic Manager, Lake Erie & Detroit River Ry., Walkerville, Ont.; Jan., 1894, to Jan., 1903; General Manager, Lake Erie & Detroit River Ry., Walkerville; Jan., 1903, to Nov., 1904, in charge of Buffalo Division, Pere Mar-

quette Rd., which company took over the Lake Erie & Detroit River Rd., Walkerville; Nov., 1904, to Nov., 1915, General Manager, Essex Terminal Ry., Walkerville; Nov., 1915, to date, a director and Vice President and General Manager, Essex Terminal Ry., Walkerville. He has been Mayor of Ojibway, Ont., since its inception in 1913. Among other positions held were chairman of Essex County Council's highway committee for several years; member of the Border Chamber of Commerce executive; member, Essex Border Utilities Commission; President, Essex Conservative Association. He has been Superintendent of the Lincoln Road Methodist Sunday School, Walkerville, since 1892.

Traffic Orders by Board of Railway Commissioners.

General order 364, May 23.—Re application of Canada Cement Co. for rates on agricultural limestone from Belleville, Ont., on the same basis as those in effect from Beachville and Kirkfield, Ont. Upon hearing the application at Ottawa, May 18, 1920, the applicant, the Canadian Freight Association, the Grand Trunk, Canadian Pacific, and Canadian National Railways being represented at the hearing, and what was alleged; and upon reading the further submissions filed, and the report of its Assistant Chief Traffic Officer, the Board orders that all railway companies subject to its jurisdiction file tariffs, to become effective not later than June 15, 1922, showing the following mileage scale, to apply on agricultural limestone or stone dust east of Port Arthur, Fort William, and Armstrong, in lieu of the specific commodity rates or mileage scale now in effect, viz.:

Miles	Rates in cents per 100 lb.
Not over 10.....	5
Over 10, not over 20.....	5½
Over 20, not over 30.....	6
Over 30, not over 40.....	6½
Over 40, not over 50.....	7
Over 50, not over 60.....	7½
Over 60, not over 70.....	8
Over 70, not over 80.....	8½
Over 80, not over 90.....	9
Over 90, not over 100.....	9½

Over 100 miles to 300 miles, the rates to be increased one-half cent per 100 lb. for each group of 25 miles. Over 300 miles, the rates to be increased 1c per 100 lb. for each group of 50 miles.

Application for Refund of Demurrage on Coal.

May 8.—Re application by E. L. Hedstrom, Buffalo, N.Y., for an order authorizing the G.T.R. to refund to him \$1,000 demurrage paid by him to the Canadian Car Demurrage Bureau. The applicant alleged that, during the summer of 1920, H. B. Johnstone, coal jobber, Toronto, ordered 10 cars of slack coal to be shipped to him from East Palestine, Ohio, to Toronto, via G.T.R.; that due to lack of facilities at the shipping point for making out export declarations and other documents necessary to Canadian shipments, the applicant had the coal shipped to himself at Buffalo, N.Y., and re-consigned it from there to Johnstone at Toronto; that when the coal began to arrive in Toronto, Johnstone cancelled the balance of his order, but that in the meantime it had been shipped; that Johnstone accepted four of the cars, and the applicant succeeded in diverting one car, but upon the arrival of the last five cars, Johnstone refused them and allowed them to stand on the tracks in Toron-

to until \$1,000 car service accrued. The applicant further alleged that the G.T.R., after a considerable length of time, unloaded the coal and sold it to a local Toronto concern for \$1 a ton; that, as the applicant's name appeared on the freight bills as the shipper from Buffalo, the G.T.R. demanded payment of the Canadian freight charges as well as the demurrage; that he paid the freight charges from Buffalo to Toronto, as well as the car service charges; that he had been unable to effect any settlement with Johnstone; and that his loss in the transaction is some \$2,700, including the price of the coal, freight charges to Buffalo, as well as the charges paid to the G.T.R. The Canadian Car Demurrage Bureau admitted that the applicant had not received fair treatment at the hands of Johnstone, but it could not, under the Car Demurrage Rules which were approved by an order of the Board, authorize refund of any portion of the amount.

Assistant Chief Commissioner McLean gave the following ruling, which was concurred in by the Chief Commissioner, and Commissioners Boyce and Rutherford: The applicant does not raise any question as to the demurrage tolls having been improperly or illegally charged. The accrual of demurrage, as set out in his letter, arises from the fact that in the case of five cars the consignee refused to accept them. On the facts as set out, this is a situation for which the railway company is not in any way responsible. The applicant's remedy, if any, would appear to be by way of action against the consignee. The demurrage charges, on what is before the Board, were properly charged, and, therefore, the Board is not able to assist the applicant by way of directing a refund.

Special Passenger Tariffs for Holidays, Exhibitions, Etc.

The bill introduced in the House of Commons, May 5, by T. L. Church, North Toronto, for the restoration of special passenger tariffs for holidays, exhibitions, etc., and which was read a second time on May 11, and published in full in Canadian Railway and Marine World for June, pg. 305, was rejected by the railway committee on May 30. The Canadian National Exhibition directors, Toronto, sent a delegation to support it, but it was opposed by the railways. Gerard Ruel, K.C., General Counsel, Canadian National Rys., favored the principle of the bill and expressed a readiness to have special rates restored where practicable, but pointed out that the bill was unworkable. If railways were required by Act of Parliament to give excursion rates, they would have to provide for excursions in every direction, and to provide equipment to a greater extent than at present.

Another bill affecting passenger traffic, which was introduced April 10, by S. W. Jacobs, George Etienne Cartier, Montreal, proposed to make a return ticket issued by a railway company between any two points in Canada available on any other railway running between the same termini, was read a second time, May 3, and was referred to the railway committee, which rejected it on May 30. The railway committee, in reporting to the House on these bills, stated that they should not be proceeded with as their passage at the present time would not be in the public interest.

Enquiry and Report on Railway Freight Rates By Parliamentary Committee.

The evidence submitted to the House of Commons committee appointed to enquire into railway rates and transportation costs, particularly with reference to the Crowsnest Pass agreement up to May 23, was dealt with in Canadian Railway and Marine World for June. The committee's next session was held on May 26, at which, before the first witness was heard, the chairman, Hon. A. K. Maclean, read a telegram from the British Columbia Salmon Cannery Association, asking consideration of rate reduction on B.C. fish.

Premier Greenfield, of Alberta, appeared on May 26, and spoke strongly in favor of the reinstatement of the Crowsnest agreement. He said: "The Alberta farmer and Alberta business interests are of the opinion, the Legislature is on record as being of the opinion, and the Government of the province is of the opinion that the Crowsnest agreement should not be further suspended, but that it should remain as a statutory maximum basis for the freight rate structure of Western Canada." He gave a thorough account of economic difficulties facing western farmers, and, by way of presenting the importance of freight rates in the west, filed a statement showing that the Alberta crop of 1921, which was valued at \$82,000,000, would have been worth \$171,000,000 if grown in the Province of Quebec. He was asked if he would be satisfied with a reduction in grain rates if such were brought about otherwise than by the restoration of the Crowsnest agreement, and replied that he and all the people of his province considered the agreement a statutory maximum basis for freight rates and were of the opinion that it should stand. He emphasized that the rate on grain is the important thing, and contended that a reduction in rates would bring about a large increase in traffic. He concluded by stating: "Which is the best thing to do, to stand a deficit for a few years and fix your freight rates at a point where they will carry the industry, or kill that industry? Will it pay this country to carry deficits on the National and other railways for a few years until this country gets established, or will you kill the business right now?"

Premier Oliver, of British Columbia, also appeared before the committee on May 26, and made a preliminary statement in which he pointed out that if the Crowsnest agreement grain rates, providing for eastbound movement only, was restored, there would be no westward movement of grain to the Pacific coast. He appeared again on May 29, armed with a large number of rate statements, designed to show that B. C. is being discriminated against in the matter of rates, and that the Crowsnest agreement, if brought back into operation, would serve to increase the discrimination very materially. His testimony soon developed into a long and detailed statement of what he termed gross discriminations that B. C. is suffering on account of high railway rates. He said the provincial authorities had been appealing to the Board of Railway Commissioners for redress ever since 1906, and he characterized the committee's proceedings as an example of "placing the cart before the horse." He said: "The Board of Railway Commissioners has been enquiring into this matter for over a year, and I say the Board's report on the evi-

dence adduced before it should have been placed before this committee, and that the findings of the Board should be known not only to Parliament, but to the public, so that this hearing might show whether or not any improvement could be made on the Board's recommendations." He then told how much land British Columbia had given to the C.P.R.; claimed that Canadian National Ry. operating costs were not higher in B. C. than on the prairies, and pointed out that the C.P.R. should have chosen the grades over the mountains which the C.N.R. had, and should not use the fact of having chosen unfavorable grades as a reason for charging B. C. higher rates. He presented the committee members with copies of a communication addressed to Prime Minister King, in which the removal of the discrimination claimed is asked for, and in which the existing scales of freight rates are blamed for all the troubles and misfortunes which ever befell the B. C. people, individually and collectively, since Confederation. Finally, the committee's chairman reminded Mr. Oliver that the committee wanted his views as to what should be done with the Crowsnest agreement, to which he replied that he would suggest that it be suspended for a year while legislation is passed "to remove this power of discrimination which exists and which we complain of so bitterly," and further that the Board of Railway Commissioners be instructed to "construct a new rate structure, based on principles of equity and applicable to all parts of the country." Mr. Oliver told the committee that at one time B. C. had been forced to appeal to the British Government to force the Dominion of Canada to observe the terms of union, and added, "I just want you to bear in mind that we are fast approaching the time when another appeal to the Imperial Government may be necessary in connection with transportation rates." A little later he said, "The man, or the community, or the province, that will submit to a wrong, a known wrong, a grievous wrong, when every other legitimate means of trying to remove that grievance fails, then I say, and I say it advisedly, that that man or the people of that province have the right to resort to the last argument, and that is the argument of brute force."

Norman Lambert, of the Canadian Council of Agriculture, on May 30, urged the restoration of the agreement. He claimed that present freight rates are hurting the west, first, by cutting too drastically into the direct monetary return which the farmer receives for grain, and, second, by adding too heavy a charge to the price of commodities which the farmer has to bring from the east. When asked as to whether he would not be willing to let the agreement go and trust the Board of Railway Commissioners to adjust the rates downward, he stated that the western people preferred to keep their statutory agreement. He claimed that the railways would not lose by reinstating the agreement, as there would be more traffic and better earnings.

Geo. Langley, President, Saskatchewan Co-operative Elevator Co., on May 30, advocated the agreement's restoration. He said, in order to have railway wages reduced, railway rates must first be reduced, and described at length the conditions obtaining in Western Canada, all tending to make rate reductions impera-

tive. He also said: "If we do not get the Crowsnest agreement reinstated, we are immediately thrown into the Board of Railway Commissioners' hands, and I want to say this just as emphatically as I can say it, that the farmers of the west have lost all confidence in that body. The impression is abroad among our farmers, and I am a representative farmer, that the Board has ceased to be a board of railway commissioners, and has become a board of railway company commissioners." Asked for some information on this point, he claimed that the Board had practically ignored representations made by him and others at a western hearing, but the fact developed that the hearing was in connection with the rates equalization case, on which no judgment has been delivered. At the conclusion of his testimony, he was asked whether, if a new agreement would give the west as favorable rates on grain as the Crowsnest agreement, he would consider it preferable. He replied that if he were promised a reduction in grain rates equal to the reduction which the Crowsnest agreement would make possible, he would be willing to consider anything else in a spirit of concern for the interests of other portions of the Dominion. He emphasized that grain rates are the important thing.

J. F. Reid, representing the Canadian Council of Agriculture, also appeared on May 30, and argued strongly for the return of lower freight rates on western grain. He stated emphatically that it is wrong to try to encourage immigration to Western Canada under present conditions, and contended that a decrease in freight rates would serve to better these conditions. He endorsed Mr. Langley's statement that the western people have no confidence in the Board of Railway Commissioners. When asked as to whether he would not consider a general reduction of rates advisable, he said the western people consider they have a definite covenant in the Crowsnest agreement and do not want to give it up.

H. J. Symington, representing the Manitoba, Saskatchewan and Alberta Governments, appeared on May 31, and began by stating that he wished to dissociate himself most emphatically from criticisms made concerning the Board of Railway Commissioners. He argued for the reinstatement of the Crowsnest agreement, and based his argument on the contention that it would not create a disparity against the east, but to some extent would remove the disparity which has existed for years in favor of the east as against the prairie west. He severely criticized the figures presented to the committee by President Beatty, of the C.P.R., and while he agreed with Mr. Beatty that the loss on grain traffic for the C.P.R. would be \$7,000,000, he was certain that all the rest of the loss occasioned by the agreement's reinstatement would not total more than \$1,000,000. He argued that the maximum enforced by water and U.S. rail competition in Eastern Canada had been of service in keeping down eastern rates, while the Crowsnest agreement had been of no use to the west for many years. The only time the Crowsnest agreement would be of any good to the west, he said, is in abnormal times like the present, and, therefore, he argued, the west should be allowed to derive some protection from the agreement when it has

the chance. He claimed that the west never got any protection from the agreement till 1917. As justification for his statement that the reinstatement of the Crowsnest agreement would but serve to remove some of the disparity in favor of the east as against the west, he said that in 1921 the C.P.R. Eastern Lines operating revenues were \$85,500,000, and Western Lines \$101,900,000; operating ratio, Eastern Lines, 77.21, and Western Lines, 70.54; net earnings, Eastern Lines, \$11,000,000, Western Lines, \$30,000,000. He disputed the contention that the Crowsnest agreement would apply only to the C.P.R. lines built at the time it was made, and quoted decisions by the Board of Railway Commissioners to the effect that all lines would be affected in order to prevent the making of discriminations. Then, by an examination into the C.P.R. earnings on grain, he contended that the company was deriving too large a proportion of its revenue from grain traffic. He stated that the greatest thing to benefit eastern lines earnings is increased purchasing in the west, and that therefore every aid possible should be given the producers in Western Canada. In a summary of his evidence, he stated that the grain rates provided for by the Crowsnest agreement would pay reasonable profits to the railways and are from 7 to 40% higher than the rates in 1917, and for many years previous. When asked as to what he thought about the offer made by Messrs. Beatty and Hanna to effect reductions on basic commodities, he said he had presented his argument for the retention of the Crowsnest agreement, and desired just that, but if, in the committee's wisdom, this could not be recommended to Parliament, he would ask that lower rates given should be incorporated as statutory rates. He explained his request by saying that the whole matter of rate determination should not be left to the Board, as that body is not untrammelled in the east, on account of natural conditions, and it would be only fair that a statutory maximum should exist in the west.

Hon. R. E. Finn, K.C., representing the Nova Scotia and New Brunswick Governments, appeared on June 5 and told the committee that he did not want the Crowsnest agreement reinstated, for the reason that, if it were, the railways' revenue would be reduced to such an extent that no rate reductions could be made in territory not covered by the agreement. He would prefer to have the railways make general rate reductions on basic commodities, so that the benefits of such reductions would be distributed over the whole country. He presented many statements to show that industry in the Maritime Provinces is peculiarly sensitive to fluctuations in transportation costs, and placed great stress on the increase in differentials over Montreal which the Maritime interests have faced in late years. He said: "To-day the Maritime Provinces are not only up against a high tariff wall, but a railway freight wall. We submit first that the conditions which warranted the suspension of the Crowsnest agreement in the first instance, and the subsequent continuance of the suspension of the Railway Act (sic) have not passed away, and that there remains a clear justification for the further continuance of the suspension. In the next place, the economic conditions of the Maritime Provinces are such as to demand an immediate relief from the transportation charges which are at present effective in that district, and, as between the east and

the west, it cannot be said that the conditions of the one are any worse than those of the other. We submit emphatically that now is the time, not for the settlement of old and doubtful contentions, but for the extension to all parts of the country of measures of relief." In concluding, he said he did not want to have the Maritime Provinces thought of as selfish, because they did not want the agreement reinstated, and pointed out that if general reductions on basic commodities were made, the west would receive the benefit of them to the same extent as the east.

G. G. Porter, representing New Brunswick potato producers, appeared before the Committee on June 5, and made a strong plea for lower rates on potatoes. He detailed a very unfortunate situation in the industry, caused by its overdevelopment in the war years, the erection of the U.S. tariff wall, extremely low prices caused by market restriction, and high local and export freight rates. While he did not say anything directly about the Crowsnest agreement, his testimony was directed to showing that there are producing interests in Canada outside of the Prairie Provinces which need all the assistance they can get in the way of reduced freight rates. It was pointed out to him by a committee member that the great trouble with the potato industry is lack of market rather than high rates, and he stated frankly that he was seeking as low rates as possible in order to make up for losses occasioned by market restriction.

Angus Maclean, President, Bathurst Lumber Co., Bathurst, N.B., representing eastern pulp and lumber interests, appeared before the committee on June 5, and stated that nothing less than the removal of the balance of the 40% increase made in rates in Eastern Canada in 1920 would appreciably help the industry. He was certain that such action would give the railways a big revenue they are not getting because of small traffic, and he cited numerous instances of pulp and lumber companies receiving raw materials and shipping their products by water to avoid the high rail rate, whereas these shipments had always been made by rail previously, and would be again if the rate were reasonable. His argument was distinctly against the reinstatement of the Crowsnest agreement, in that it showed that the lumber and pulp industries are greatly in need of rate reductions which they presumably would not receive if the agreement were reinstated.

L. H. Martell, M.P. for Hants, N.S., addressed the committee on June 5, on behalf of Nova Scotia fruit growers, and made a strong plea for the reduction of N. S. apple rates.

A. E. Clark, president, Canadian Lumbermen's Association, on June 6, submitted that, if the railways' representatives were correct in stating that if the Crowsnest agreement were reinstated no other reductions could be made, he would be unalterably opposed to its restoration. He recommended a further suspension of the agreement, reductions on basic commodities, and orders to the Board of Railway Commissioners to conduct a thorough investigation into the whole Canadian rate structure, to the end that before the period of suspension ends, a basis of rates which would do away with all the discriminations complained of could be recommended. In reply to a question, he stated that his association would be satisfied to leave the whole question of freight rates in the Board of Railway Commissioners' hands,

untrammelled by any agreements.

Thomas Marshall, Manager, Toronto Board of Trade's Traffic Department, on June 6, presented a statement to the effect that if the reinstatement of the Crowsnest agreement would prevent the railways from making rate reductions in other parts of the country, it would be better if the agreement were further suspended, so that full effect could be given to the Board of Railway Commissioners' general order 308, whereby rates in effect prior to Sept. 13, 1920, could be restored throughout the country. He said that certain interests had for many years been able to derive large savings from the operation of the Crowsnest agreement, and as this conflicted strongly with Mr. Symington's argument, a lot of questioning by committee members resulted.

F. J. Watson, General Freight Agent, G.T.R., appeared before the committee again on June 6, and was examined as to what commodities would be affected by the reductions proposed by the railways. In connection with the theory that lowered rates would mean increased traffic, he said: "I am quite certain that if the railways could be assured of materially increased tonnage, and that their equipment would be kept fully employed for the greater part of the year by means of a reasonable reduction in rates, they would be the first to adopt that means of increasing their revenues. As far as the G.T.R. is concerned, the reinstatement of the Crowsnest agreement would mean perhaps a \$100,000 loss to it, but as it is throwing in its lot with its big brother, the Canadian National, it is prepared to lose more." He figured that the concessions that the G.T.R. was prepared to make would mean a decrease in revenue of \$1,000,000 yearly.

W. B. Lanigan, Freight Traffic Manager, C.P.R., appeared again on June 7, and in a carefully prepared statement, contended that the Crowsnest agreement, if reinstated, would be a creator of gross discrimination. He explained thoroughly how it was determined that the reinstatement of the agreement would mean a loss to the C.P.R. on grain traffic of \$7,159,537 in 1922, and also showed how he estimated that rate reductions on other commodities caused by the application of the agreement would mean an additional loss to the C.P.R. of \$5,831,291. In an analysis of operating revenues and expenses, he claimed that Mr. Symington had placed erroneous interpretations on various figures, and, more particularly, by demonstrating that but 14.5% of the total C.P.R. earnings came from the western grain traffic, and he questioned Mr. Symington's assertion that such traffic has been contributing in too great a measure to the C.P.R. earnings. In an examination of the expenses of operation incidental to the moving of the western crop, he claimed that the revenue derived from the movement of that crop was based on expenses made months before in the way of repairing equipment, and that the crop movement involved much westbound empty car movement and the loss of a large number of car days. An able argument adopted by him was to the effect that a lot of the division of railway earnings on the basis of different parts of the line is most misleading, and he pointed out that the railway must be considered as a whole, and that the rates prevailing for the transportation of grain east of Fort William are as much an advantage to the western farmer as anyone else. He showed clearly why the C.P.R. had to carry grain to the

Atlantic seaboard at what may be said to be a loss, on account of competition, and he made evident to the committee that if such rates were not in effect, the crop would move via the U.S. route, to the detriment of Canadian railway labor, Canadian ports and Canadian business generally.

In a statement presented to the committee, Mr. Symington had summarized his evidence under 11 headings, and these Mr. Lanigan answered one by one. In reply to Mr. Symington's contention that Canada had entered into the Crowsnest agreement with the C.P.R., and that benefits which accrue to Canada cannot be taken away, Mr. Lanigan stated that Canada made the contract all right, but if it is found to be in Canada's interests to suspend or abrogate it, that discretion rests with Parliament. Mr. Symington had contended that the east has maximum protection through the operation of water and U.S. rail competition, while the west has no protection except what was bought and paid for under statutory agreement, Mr. Lanigan answered that the east has no monopoly of the advantages of waterways or U.S. rail routes; that the west benefits by both, and that the west has the protection afforded by the Railway Act and the Court instituted to interpret it. In answer to Mr. Symington's argument that the maximum protection in the west is effective only when rates are higher than the traffic can bear, he said that the Railway Act is a continuing protection both east and west, and that as a matter of fact, the west pays no more proportionately than the east. Mr. Symington had contended that grain rates under the Crowsnest agreement will pay reasonable profits to the railways, and are from 7 to 40% higher than the grain rates in 1917. Mr. Lanigan replied that grain rates in Western Canada have not been shown to pay even a fair profit to the carriers on the present basis, and, in fact, pay a lower return per ton mile than any other traffic carried. In reply to the contention that the return of the agreement would not create disparity in favor of the west, but would remove some of the disparity against the west, Mr. Lanigan stated that the present disparity has been shown to favor the west. In reply to Mr. Symington's point that eastern rates will automatically come down as the result of U.S. reductions, Mr. Lanigan replied that U.S. reductions are merely those which the Board of Railway Commissioners ordered on Jan. 1, 1921, and Dec. 1, 1921. In reply to the argument that the Crowsnest rates will only be a protecting maximum until normal times return, he replied that it was the Board of Railway Commissioners, who, in 1914, reduced the general level of rates below the Crowsnest basis; these rates and those of the Crowsnest agreement would be subnormal. In reply to Mr. Symington's statement that rates above the Crowsnest maximum had been tried with disastrous effects, Mr. Lanigan replied that lower grain rates would benefit only one section of the west, while a reduction on basic commodities would benefit the whole country. In reply to Mr. Symington's statement to the effect that "rates without traffic are useless," Mr. Lanigan stated that that is a "mere platitude," and he could cap it with another platitude, to the effect that traffic at non-paying rates creates deficits. In reply to Mr. Symington's statement that grain rates have borne more than their fair fare of railway financing, he said that had not been shown and is not

the case. In reply to Mr. Symington's statement that the abolition of the maximum provided by the agreement would completely change the whole theory and structure of the Railway Act, Mr. Lanigan replied that the Act certainly does not provide that in the present condition of Canadian business an obsolete act should be revived to provide for the special difficulties of one section to the detriment of other equally important sections of the Dominion.

In conclusion, Mr. Lanigan said: "I am suggesting, 1. That the Crowsnest Act is out of touch with today's necessities, out of gear with today's sources of supply, out of line with the trend of traffic. It is discriminatory in its application and fails to provide for a Dominion-wide economic problem. 2. The placing of all control of rates should be unrestrictedly in the hands of the special tribunal created and equipped for that purpose. 3. An immediate reduction be made on basic commodities that constitute the rough products of the field, the mine, the forest and the sea." He then outlined what he would include in the list of basic commodities. Asked by Sir Henry Drayton as to what he thought about the advantage the U.S. farmer has in his average shorter grain haul to the lake head, he said that the U.S. farmer undoubtedly has some geographical advantage, and added that if a man could grow wheat on the dock at Montreal he would have "a wonderful advantage."

Mr. Lanigan appeared again on June 12, and was questioned by committee members as to how much the Crowsnest agreement suspension had added to C.P.R. earnings. While admitting that the suspension had added to revenues, he quoted Board of Railway Commissioners' decisions to show that the C.P.R. is entitled to its dividends and a surplus, the inference being that if the agreement had not been suspended, higher rates would have been necessary on commodities not covered by the agreement. Further questioning in connection with figures submitted drew from Mr. Lanigan an explanation of the impossibility of segregating railway operating revenues and expenses by divisions.

D. B. Hanna, President, Canadian National Rys., appeared before the committee on June 12, and explained at length the impossibility of determining whether any individual shipment, or any one commodity, is carried at so much profit or so much loss, and of determining how profitable any branch line may be. He was questioned at length by A. J. Hudson, Winnipeg South, in an effort to show that the Canadian Northern was a profitable venture when its lines were confined to the west and that deficits began when it secured its eastern connections, but he pointed out that operating expenses began to increase largely just about the time when operation on the eastern lines was commenced. He said that the scientific way of cutting rates would be to start the decreases on basic commodities. Speaking of the extent of proposed reductions, he pointed out that the disparity between increased wages and material prices and the rate increases granted had always been very wide, so that too large reductions should not be expected. In connection with wages, he stated that the salaries of executive and general officers would not represent 1% of operating expenses, and that such salaries are no higher than on other roads. In connection with the National Railways' physical condition, he showed conclusively how the maintenance

expenditures made in 1919 and 1920 were justified. The remainder of the time on June 12 was spent in a discussion of what commodities the railways were proposing to reduce rates on, and in a recapitulation of the loss in revenue which would accrue to the National Railways on account of those reductions.

G. G. McGeer, representing the British Columbia Government, appeared again on June 14, and in addition to renewing his demands that the Crowsnest agreement be not reinstated, made several lengthy statements dealing with alleged rate discriminations against B. C.

W. B. Lanigan also testified again on June 14, in connection with statements filed, and was afforded an opportunity to explain them, and incidentally to inform the committee as to the difference between the functions of a railway accounting department and statistical department, and the varying nature of the work of each. At the close of the June 14 session it was decided that the committee would proceed to the preparation of its report.

The committee held private sessions on June 16, 18 and 19, when consideration was given to a proposition submitted by the railways, providing for the following reductions: 1. On grain, from the northwest to the head of the Great Lakes, and to Vancouver, for export, 20%. 2. Forest products, Western Canada, 16.66%; Eastern Canada, 20%. 3. Coal, bituminous, except westbound coal from head of lakes, 10, 15 or 20c a ton, according to haul. 4. Building material, cement, lime, brick and plaster, 16.66% west of Great Lakes, and 20% east. 5. Fertilizers, other than chemical, 16.66% west of Great Lakes, 20% east. 6. Pig iron, billets, blooms, wire rods and scrap iron, 16.66% west of Great Lakes, 20% east. 7. Ores, 16.66% west of Great Lakes, 20% east.

On June 20, the committee examined W. B. Lanigan and C. A. Hayes on the proposed reductions. Mr. Lanigan stated they would bring about reductions in C.P.R. revenues as follows: On grain traffic, \$5,354,139; on other traffic specified, \$3,084,330; total, \$8,338,469. Adding to this the reduction in C.P.R. revenue which will be brought about by the reduction in rates on international traffic, viz., \$2,220,000, the total reduction in C.P.R. revenue on the basis of the proposition submitted would be \$10,558,469. Mr. Hayes stated the reduction in Canadian National Rys. revenue on grain would be \$4,844,115, and on other traffic specified, \$2,127,285; adding a reduction on revenue on international traffic of \$1,250,000, the total reduction in revenue would be \$8,221,400. A statement was sent by F. J. Watson that the loss on Canadian traffic to the G.T.R. would be \$1,053,789, which, added to the loss of \$2,275,000 on international traffic, would mean a total reduction in G.T.R. revenue of \$3,328,789.

Following the railways officials' examination, the committee again went into private session on June 20, and it was reported that after long discussion, Mr. Crerar, Progressive leader, made a motion which is reported to have been substantially as follows: "That the Crowsnest agreement be suspended for one year, except in so far as it is related to grain and grain products, and that it is the committee's opinion that reductions in the rates on basic commodities should be in accordance with the suggestion made by the railway interests." This resolution was defeated by the casting vote of the chairman, 13 to 12. A resolution introduced by W. A. Boys, Con-

servative, South Simcoe, Ont., is reported to have been substantially as follows: "That the Crowsnest agreement be suspended for one year, and that the Government be given power, by order in council, to suspend it for a further period of one year, if deemed necessary, and we also recommend a general reduction in freight rates throughout Canada and special reductions in basic commodities." This resolution carried by 13 to 9, three Liberal members abstaining from voting.

The committee's report was not made on the basis of this majority vote, however, and additional private meetings were held by the committee on June 21 and 22. Practically all the Progressive members at Ottawa expressed a determination to wage a big fight in the House, with the object of having the Crowsnest rates on grain and grain products restored. On June 22 rumors were current to the effect that the railways had offered to restore the Crowsnest rates on grain and grain products, and on June 23 these rumors were confirmed by people in close touch with the situation. On June 24 a report was submitted to the committee, proposing to reinstate the Crowsnest rates on grain and grain products. When the committee met in the morning, Sir Henry Drayton asked the chairman if it were true that members of the Government had interviewed the railways' representatives and determined upon a policy. While this was at first denied, it was admitted afterwards that the Minister of Railways and others had been in consultation with C.P.R. executive officers who were in Ottawa, and on the strength of this the Conservative committee members took the position that the committee was being used as a sort of rubber stamp for endorsing the Government's policy in the matter, and left before the vote was taken, the members who left being Sir Henry Drayton and Messrs. Boys, Dickie, Jones and Manion. The resolution providing for the adoption of the report was moved by Wm. Duff, Liberal, Lunenburg, N.S., and was carried by 16 to 1. W. M. German, Liberal, Welland, Ont., voted against it. Of those voting for it, 8 were Liberals, 7 Progressives, and one Independent Liberal, A. B. Hudson, Winnipeg South.

The Committee's Report.

Following is the full text of the report, which was presented to the House late on June 24 (Saturday): "Your committee, appointed pursuant to resolutions of Parliament passed on May 8, has had altogether 29 sessions or meetings and has heard and considered the evidence of many witnesses and as well received many written representations from interested sources. Witnesses were heard on behalf of the Canadian railways, several of the provincial government, industrial organizations, and particular industries and interests. The proceedings of the committee have been from time to time, as printed, circulated among members of the House of Commons, and of the Senate, and have been as well widely circulated outside of Parliament.

"Your committee was charged with duty of inquiring into the question of transportation costs with particular regard to the effect of rates established by the Crowsnest Pass agreement on Canadian National and other railways and upon agricultural development and Canadian industries generally. The Crowsnest Pass agreement was an undertaking entered into in 1897 between the Government of Canada and the Canadian Pacific Ry., whereby in consideration of a sub-

sidy to be earned by the construction of the Crowsnest Pass railway, which amounted to \$3,404,720, a reduction should be made in the rates upon the classes of merchandise below stated, westbound from, and including Fort William and all points east of Fort William on the company's railway, to all points west of Fort William on the company's main line or on any line of railway throughout Canada, owned or leased by, or operated on account of the company. The commodities, the classes of merchandise to be effected, are as follows: Upon all green and fresh fruit, 33½%; coal oil, 20%; cordage and binder twine, 10%; agricultural implements of all kinds, set up in parts, 10%; iron, including bar, band, Canada plates, galvanized, sheets, pipe, pipe-fittings, nails, spikes and horse shoes, 10%; all kinds of wire, 10%; window glass, 10%; paper for building and roofing purposes, 10%; roofing felt, box and packing, 10%; paints of all kinds and oils, 10%; livestock, 10%; woodenware, 10%; household furniture, 10%. The agreement also provided for a reduction in the rates on grain and flour from all points on the main line, branches or connections of the C.P.R. west of Fort William to Fort William and Port Arthur. The decrease was fixed at 3c per 100 lb., to be reached in two annual reductions of 1½c.

"The Crowsnest rate on grain and grain products remained in entirety from Sept. 1, 1899, until Oct. 7, 1903, when it was modified by a lower rate resulting from an agreement made between the Province of Manitoba and the Canadian Northern Ry. Lower rates continued until March 15, 1918, when an increase of 15% on rates generally was made by order of the Board of Railway Commissioners. This increase was granted because of representations by the railways that they could not successfully maintain their services unless granted rates that would enable them to meet the increased operating costs due to substantial increases in cost of fuel, coal, materials, supplies, equipment of all kinds and wages. This increase was subject to the Crowsnest Pass agreement, but it brought western grain rates up to Crowsnest maximum rates from most points in Saskatchewan and Alberta, though not in Manitoba. Shortly afterwards, the first of the so-called McAdoo series of wages awards was adopted in the United States and in view of the continued increase in the cost of living, Canadian railway employees organizations claimed wages in Canadian territory should be similarly advanced. Order in council 1768, of July 16, 1918, authorized the wage increase on Government owned railways and recommended that similar increases be adopted on other lines. The same order authorized a general rate increase to meet the increased operating costs. It thus became necessary to exceed the Crowsnest maximum rates, and to accomplish this a further order 1863, of July 27, 1918, authorized the Board of Railway Commissioners to disregard any existing rate-controlling agreements. This prepared the way for the rate increase of Aug. 12, 1918, which was 25% in the east, but less in the west, because there the 15% increase which came into effect on March 15, 1918, was included in the 25% increase. The several orders in council referred to were passed under the authority and power vested in the Governor in council under the War Measures Act. Upon the end of the war it was deemed desirable to continue in statutory form the authority of the Board of Rail-

way Commissioners to disregard rate-controlling agreements and in due course subsec. 5, of sec. 325, of the Railway Act was enacted, enabling the Board to disregard rate-controlling agreements for three years from July 6, 1919. Thus, the Board's power to disregard special agreements, and in particular the Crowsnest agreements, will terminate on July 6 next, unless Parliament shall, in the meantime, otherwise enact.

"Subsequent to the enactment of subsec. 5 of sec. 325 of the Railway Act, the upward trend in railway operating costs in Canada continued, largely owing to what is known as the Chicago labor award, and on Sept. 13, 1920, the Board of Railway Commissioners, under general order 308, ordered a further advance of 35% in Western territory and 40% in Eastern territory. With that order, the peak of the rate increases over Crowsnest rates was reached. The order provided for a decrease of 5% on Jan. 1, 1921; a further decrease amounting to 10% was made effective under general order 350. The duration of the remainder of the increase directed by general order 308 is limited to July 1, 1922, owing doubtless to the fact that on July 6, the Crowsnest agreement would come into operation if the suspension were not further continued by statute, and which would doubtless necessitate a reconsideration of the whole freight rate structure.

"Your committee has heard the representations of the railways: Messrs. Beatty and Langan on behalf of the C.P.R.; Messrs. Hanna and Hayes on behalf of the Canadian National Ry., and Mr. Watson on behalf of the G.T.R. In addition to hearing evidence as to the effect of Crowsnest Pass rates on Canadian railways, certain other aspects of the railways situation were impressed upon your committee. Representatives of the Province of British Columbia argued for the equalization of the Mountain scale of rates with the Prairie scale, and for the placing of the Port of Vancouver in a position of relative equality with the head of the lakes. It was contended that equal consideration with the rest of Canada in the matter of railway rates was implied in the railway arrangement made with British Columbia at the time of Confederation. The case for the Prairie Provinces was also presented. Stress was laid on the fact that the earnings from prairie lines are greatly in excess of the earnings in the east. It was stated that the rates in the east, being controlled and limited by water and U.S. rail competition result in deficiencies in revenue which prairie rates were designed to make up and it was urged that the Crowsnest Pass agreement was the only controlling factor at the disposal of the people of the Prairie Provinces. Therefore, they objected strongly to its further suspension. It was their 'sheet anchor,' as one witness put it. Representatives of the Maritime Provinces urged that their situation was one of special character, because of the conditions under which the Intercolonial Ry. has been constructed as a result of the Confederation agreement. They contended that there was an implied obligation necessarily attaching to these terms which guaranteed to them special consideration in regard to railway freight rates, on account of their distance from the central and western provinces. It was claimed that the increases in rates of the Intercolonial Ry. since 1916 were in excess of rates allowed by the Board of Railway Commissioners on many of their products, which

excessive rates greatly interfered with interprovincial trade, and are contrary to the obligation accepted by the Government of Canada at Confederation. The Government was, therefore, asked to take cognizance of the situation and endeavor to arrange such reductions of rates as will, having regard to the actual cost of operation of these railways, remove as far as possible the difficulties complained of, and that the Board of Railway Commissioners should, for the same reasons, and in so far as their jurisdiction extends, restore the differential rate formerly applicable to traffic to and from the Maritime Provinces, and we recommend that the Minister of Railways and Board of Management take steps to meet the situation in these provinces by a substantial reduction in rates. While your Committee was impressed by the arguments put forward on behalf of the Maritime Provinces and British Columbia, they are possibly without the scope of the reference to us, and, in any event, are too intricate and involved, and would require more time than is at the disposal of your committee, to form a proper judgment regarding them. Moreover, these matters have been before the Board of Railway Commissioners during the past 12 months; the Board has heard voluminous evidence, much expert testimony and lengthy arguments; it has had to call men trained in railway rate matters, and the committee feel that it would be inadvisable and generally unsatisfactory to even appear to invade the Board's jurisdiction, or to anticipate its judgment. The claim of the Maritime Provinces with regard to local rates is a matter for the consideration of the Minister of Railways and the management of the Intercolonial Ry.

"Whether the Crowsnest Pass agreement should come into effect on July 6 next, or whether it should be further suspended to enable the Board of Railway Commissioners to regulate freight rates for a fixed period, regardless of rate-controlling agreements, upon a consideration of all the abnormal economic conditions still prevailing and upon other considerations, was the important matter referred to your committee. The question is not without its difficulties. The problem is largely one of approximating the net financial results upon the operations of Canadian railways with the Crowsnest Pass agreement scale of rates again operative, and the resultant effect upon the ability of the railways to sustain further reduction on basic commodities outside of those mentioned in the agreement, and the probable results as to railway revenues if such additional reductions were made. It was from these points of view that your committee considered the matter. There are many unknown factors which enter into a consideration of this matter, some of which are as follows: 1. The precise general effect of rate reductions upon railway traffic and its influence in stimulating business and producing railway revenue. 2. The probable future wage reduction in connection with our railways and when they shall become effective. 3. The probable degree of deflation in the costs of materials used by railways. 4. The action to be taken by the Board of Railway Commissioners, upon the applications of the Province of British Columbia, and the Prairie Provinces, or the action of the Board, or of the Government on the application of the Maritime Provinces for rate reductions, etc., and upon which matter judgment is shortly to be rendered, the action to be taken by the Board

of Railway Commissioners in respect of special applications for rate reductions and the probable action of the board in the way of general rate reductions upon basic commodities or upon class rates. Without a determination of some or of all of these matters, it is difficult for your committee intelligently to approximate the effect of the Crowsnest Pass agreement if put into operation, or its effect upon the future action of the Board of Railway Commissioners, in respect of future rates upon other commodities. Further, conditions relative to a consideration of this question are changing, or are likely to change, so rapidly that conclusions presently made will soon be found unreliable. Again, the Crowsnest agreement was suspended first by order in council and later in effect by act of Parliament. Such action was based upon inflated railway operating costs, and increased value of commodities, as well as the general economic conditions resulting from the war. It was chiefly for these reasons, we believe, that the Board of Railway Commissioners was empowered to disregard rate controlling agreements, if it saw fit.

"Fixing rates by legislation is no doubt generally a bad principle, because it hampers the free action of the Board of Railway Commissioners and may create a discrimination in favor of the commodities covered by statutory rates. The Crowsnest Pass agreement was enacted before the institution of the Board. This Board, created in 1903, has been charged by Parliament with the duty of regulating railway rates and of establishing just and reasonable rates. It is the only body in Canada equipped for the determination of the intricate matters relative to railway rate making. The matter of the Crowsnest agreement becoming effective or being suspended is related to other concrete railway rate issues either pending or imminent. The one reacts upon the other, and both upon the whole freight rate structure, which must, within a short period of time, undergo many substantial changes. The question would seem to be largely one that can best be treated by one body, the Board of Railway Commissioners. But it has been represented to your committee that three important provinces of Canada are mainly devoted to the basic industry of grain growing. The prosperity of that basic industry is a factor vitally affecting the economic welfare of the nation at large. The grain grown in the prairie provinces is mostly for export purposes and the price of that commodity is settled by competition on the grain markets of the world. During the war, due to reduced production and increased consumption and the large stocks that had to be accumulated by the governments of warring countries, grain prices were greatly inflated. Since the termination of the war, a rapid deflation of grain prices took place, due to increased production, and reduced consumption, and also due to the fact that so many nations with a depreciated currency have largely lost their purchasing power. These factors have forced down grain prices towards pre-war levels much more rapidly than what has been the case in respect of other commodities that grain growers are obliged to buy. On the other hand, some of the reasons advanced in 1918 as justifying the suspension of the Crowsnest Pass agreement have disappeared, and your committee has reached the conclusion that an immediate reduction of freight rates on grain and flour is in the national interest.

"Your committee, therefore, recommends a suspension of the Crowsnest Pass agreement, except in respect of grain and flour, for one year from July 6, 1922, with power to the Governor in council to suspend for a further period of one year, if in its judgment the then existing conditions justify the same, and your committee recommends that suitable legislation be enacted to make effective this recommendation. The recommendation of the committee for the further suspension of the Crowsnest agreement in accordance with the foregoing sentence, is made in view of the great necessity of a general reduction in freight rates on basic commodities as a whole and in what is considered to be the general public interest. It is intended that the period for which a further suspension of the Crowsnest Pass agreement is recommended shall not necessarily preclude the adoption of Crowsnest rates prior to the expiration of the period of suspension. Basic commodities which may be afforded reductions should have the earliest possible consideration by the Board of Railway Commissioners.

"The evidence given to your committee and the various representations made to it, in one form or another, inevitably lead to the conclusion that a general reduction in railway rates is essential to the economic life of the country. To this end should be directed the best efforts of the managers of our railways, and the attention of the Board of Railway Commissioners. It is impossible to predicate the precise effect of rate reduction upon commodities in stimulating business or railway traffic. Doubtless, however, high freight rates are a discouragement to trade, and even the fact that rate reductions are in anticipation tends to retard business and railway traffic. Further, your committee is of the opinion and wishes to declare in the most emphatic manner, that railway operating costs should be decreased, and towards the achievement of that end we recommend the closest co-operation between the management of the different Canadian railways, and between the management of the railways and their employees."

On June 26 (Monday) a bill embodying the recommendations contained in the committee's report, was given all three readings and passed. An amendment proposed by Sir Henry Drayton, to give the Board of Railway Commissioners power to suspend the Crowsnest agreement and adjust rates as it might find necessary and desirable, was defeated by 169 to 43, being opposed by all the Progressives, all the Liberals, except W. M. German, Welland, Ont., and two Conservatives, T. L. Church, North Toronto., and W. F. Maclean, South York, Ont. Mr. Meighen, opposition leader, in supporting the amendment, stated that the committee's report did not intend to embody the evidence submitted to the committee during its sittings. It was subsequently passed by the Senate.

The result of the action taken means that the C.P.R. revenue on grain traffic will be approximately \$7,159,543 a year less than at present rates. On the basis of the proposed 20% reduction it would have been \$5,354,139 less, so that the reinstatement of the Crowsnest rates means an added decrease of \$1,805,404. It is estimated that the Canadian National Rys. revenue on grain traffic will be reduced \$8,606,453. On the basis of the proposed 20% reduction the decrease would have been \$4,844,115, a difference of \$3,762,338. According to the statement filed, the C.P.R. was prepared to

suffer a reduction of \$8,338,469, exclusive of that suffered on account of reduced rates on international traffic, so that the reduction in revenue on grain traffic of \$7,159,543 leaves \$1,178,926 applicable for reductions on other traffic. The Canadian National Rys. were prepared to suffer a reduction of \$6,971,400, exclusive of that on international traffic, but the reinstatement of the Crowsnest rates on grain and grain products is a much more serious matter.

Grain in Store at Elevators.

Reports to the Dominion Bureau of Statistics, Internal Trade Branch, for the week ended June 16, show decreases in the bushels of grain in store at the different elevators throughs Canada, as follows: Wheat, 1,960,546; oats, 264,661; barley, 286,227; flax, 122,494; rye, 26,714; a total net decrease of 2,660,642.

In the western country elevators the decreases were: Wheat, 253,112 bush.; oats, 286,259; barley, 70,196; flax, 2,463; rye, 4,258; a total of 616,268. The receipts of all grains were 2,295,982 bush., and the shipments were 2,911,845.

The interior terminal elevators showed decreases, as follows: Wheat, 142,291 bush.; oats, 49,143; flax, 180; while there was an increase of 404 in barley. The receipts of wheat at Vancouver were 65,490 bush., and the shipments were, by ship, 103,675, and by rail, 10,417.

The public and private terminal elevators at Fort William and Port Arthur showed decreases as follows: Wheat, 671,869 bush.; oats, 145,819; barley, 85,743; flax, 130,124, while there was an increase in rye of 26,896. The total receipts were 2,457,299, and the shipments by ship, 3,102,689, and by rail, 361,260.

Private terminal elevators at Winnipeg showed increases as follows: Wheat, 2,358 bush.; oats, 7,025; barley, 1,777.

In the eastern public elevators increases were shown as follows: Oats, 308,879 bush., and flax, 10,273. The decreases were: Wheat, 32,398 bush.; barley, 177; rye, 51,878. The total receipts were 2,836,505 bush., by ship, and 782,357 by rail; the shipments being, by ship, 2,298,233 bush., and by rail, 1,125,837.

The U.S. grain in store at eastern public elevators was 7,282,190 bush., compared with 3,284,040 for the same period last year, the bulk of the former being corn, 3,319,213, and wheat, 1,701,655.

U.S. lake ports showed decreases in wheat, 841,582 bush.; oats, 39,662; barley, 40,257, and U.S. Atlantic seaboard ports showed decreases in wheat, 21,652 bush.; oats, 59,691; barley, 53,035; while there was an increase in rye of 2,435.

Canadian Night at Atlantic City.—The mechanical convention's entertainment committee arranged a Canadian night for June 16, in honor of the Canadian members and others from Canada attending the convention, which was held in the ballroom on the pier, at which British flags were displayed with the U.S. ones. There was a dancing programme, interspersed with vaudeville sketches given by performers from Montreal, including Jack Hunter, who impersonated Sir Harry Lauder; Jean Thompson and James Robertson, juvenile dancers; and five members of the Royal Highlanders. Rhys Morgan, of New York, also sang. The committee in charge comprised W. J. Carrigan, chairman; Webb G. Krauser, assistant chairman; O. C. Hayward, A. R. Miller and W. A. McWhorter.

J. C. O'Donnell's Death.

J. C. O'Donnell, General Superintendent, Maritime District, Canadian National Rys., died in the city hospital, Moncton, N.B., on June 5. He had not been in very good health for over a year, had been more or less under medical care, and had been treated in Montreal for internal trouble, but he was able to attend to his work until towards the end of May, when he suffered considerable pain, and on May 25 it became necessary to operate on him for ulcer of the duodenum. He was considered to be progressing favorably until June 4, when pneumonia developed, and he sank rapidly, dying on June 5 about 6.30 p.m.

The funeral arrangements in Moncton were made by the Knights of Columbus, who accompanied the body from his house to St. Bernard's Church, where a service was held on the evening of June 6. The pall bearers were: S. L. Shannon, Comptroller and Treasurer, Canadian



J. C. O'Donnell,
General Superintendent, Canadian National Rys.,
Maritime Division, who died at Moncton,
N.B., June 5.

Government Rys.; F. O. Condon, Division Engineer, C.N.R.; B. A. Bourgeois, Assistant to Comptroller and Treasurer, C.G.R.; J. T. Hallisey, Superintendent, Halifax Division, C.N.R., Truro, N.S.; Reid McManus, M.L.A.; and G. Stone, General Organizer, Brotherhood of Railroad Trainmen. The body was taken from the church to the C.N.R. station and placed on his official car no 54, which conveyed it to Winnipeg, accompanied by his widow and their two young daughters. A. F. Stewart, Chief Engineer, Canadian Government Rys., and W. U. Appleton, General Superintendent of Rolling Stock, Eastern Lines, C.N.R., Moncton, N.B., and A. H. Eager, General Superintendent of Rolling Stock, Western Lines, C.N.R., who was in Moncton when Mr. O'Donnell died, also went along; and R. W. Simpson, Assistant to General Superintendent, Moncton, went as far as Montreal. On arrival at Winnipeg, on June 9, the train was met by A. E. Warren, General Manager, Western Lines; H. H. Brewer, Assistant General Manager, Western Lines; A. Wilcox, General Superintendent, Manitoba District; B. T. Chappell, General Superintendent, Saskatchewan District; W. A. Brown, General Superintendent, Alberta District; and a number of other C.N.R. officials.

The body was taken to his father's house, and on the morning of June 10 was removed to St. Mary's Cathedral, where high mass was celebrated. The burial took place in St. Mary's cemetery, Winnipeg, the pall bearers being W. I. Munro, Superintendent, Portage Division; T. J. Brown, Superintendent, Dauphin Division; H. G. Hubbell, Assistant Superintendent, Portage Division; A. V. Redmond, representing the General Superintendent's office; W. J. Quinlan, representing the General Passenger Department; D. F. Coyle, a former representative of the Mackenzie-Mann interest; H. E. Barker, representing the railway conductors, and T. O'Connor, the locomotive men.

Mr. O'Donnell was born at Cobden, Ont., Dec. 17, 1879, and entered railway service, Sept. 15, 1899, since when he had been, to Sept. 1, 1901, freight brakeman, C.P.R., Chapeau, Ont.; Sept. 1, 1901, to May 1, 1902, freight conductor, C.P.R., Chapeau, Ont.; June 10, 1902, to May 1, 1905, brakeman and conductor, C.P.R., Cranbrook, B.C.; May 5 to July 2, 1905, brakeman, Canadian Northern Ry., Kamsack, Sask.; July 2, 1905, to Nov. 1, 1909, conductor, C.N.R., Battleford, Sask.; Nov. 1, 1909, to Feb. 20, 1911, Trainmaster, C.N.R., Dauphin, Man.; Feb. 20, 1911, to June 30, 1912, Trainmaster, C.N.R., Winnipeg, Man.; July 1, 1912, to July 1, 1914, Trainmaster, C.N.R., Rainy River, Ont.; July 1, 1914, to Oct. 31, 1916, Superintendent, District 3, Western Division, C.N.R., Edmonton, Alta.; Oct. 31, 1916, to Dec. 1, 1920, Superintendent, Districts 2 and 3, Central Division, Canadian Northern Ry., now Manitoba Division, Central District, Canadian National Rys., Winnipeg, and from Dec. 1, 1920, General Superintendent, Maritime District, Eastern Lines, Canadian National Rys., Moncton, N.B. His father, Wm. O'Donnell, is Roadmaster, Canadian National Rys., Manitoba District, Portage Division, Victoria Beach and Pleasant Point Subdivisions, and Gladstone Subdivision, between Carman Jct. and Portage la Prairie, with office at Fort Rouge, Man.

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The Commission offer for sale the following plant:—

- 3 Locomotives, 3' gauge, four-wheel connected;
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Toronto Transportation Commission

Canadian Railway AND Marine World

ESTABLISHED 1898

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TORONTO, CANADA, JULY, 1922.

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A Western Charge Against the Board of Railway Commissioners.

Geo. Langley, President, Saskatchewan Co-operative Grain Elevator Co., in testifying recently before the special parliamentary committee appointed to enquire into the Crowsnest Pass agreement and other freight rate matters, said:—"If we do not get the Crowsnest Pass agreement reinstated, we will be immediately thrown into the hands of the Board of Railway Commissioners, and I want to say just as emphatically as I can say it, that the farmers of the west have lost all confidence in that body. . . The impression is abroad among our farmers, and I am a representative farmer, that the Board of Railway Commissioners has ceased to be a Board of Railway Commissioners, and has become a Board of Railway Company Commissioners."

If, as Mr. Langley stated, this impression is abroad throughout the west, it is indeed an unfortunate thing. While the sympathies of any broadminded and informed person cannot fail to be with the western farmers, who have suffered greatly in the past two years because of restricted markets and greatly lowered prices for their products, it cannot fail to be evident that the farmers are placing the blame for the conditions with which they are faced where it does not belong. The Board of Railway Commissioners is in no way responsible for the conditions facing western farmers, and the Board has done all it has been able to do to make those conditions more favorable.

The Board has no authority over the railways' expenses; it is faced with the duty of prescribing rates for the railways which will enable them to meet their expenses, and that duty is complicated by the proviso that in the framing of these rates, the railways shall avoid discrimination. Counsel for the prairie provinces placed great stress on the fact that rates, generally, are lower in eastern Canada than in western Canada, but the Board has held—it could not do otherwise—that water and United States rail competition in eastern Canada are such that rate discrepancies as between eastern and western Canada are not discriminatory.

Rate making in Canada, a land of vast distances, and with many and varied influences operating in different parts, is a task to baffle the most expert. Add to this the fact that the Board of Railway Commissioners has no say as to what the total earnings of the railways shall be from these rates, but must allow rates to make total earnings to meet the expenses of railway operation, and it will be seen that the Board is faced with a most difficult proposition. Consider the fact that the Board has had to deal with complaints from British Columbia in the west, to the Maritime Provinces in the east, directed to securing lower freight rates in the same way as the complaints from the prairie provinces; consider the number of varied interests the Board has to conciliate; consider the efficiency of the railway service which Canada enjoys; and then turn to a consideration of the entire reasonableness of the return which the C.P.R. has secured, in relation to its property investment, since the Board was instituted. We are certain that the net result of these considerations will be the

formation of an opinion to the effect that the Board of Railway Commissioners has been, and is, faced with a multitude of complex and difficult problems, and that it has solved and is solving them as well and efficiently as could be done by any other similar body.

Railway Officials' Attitude to the Public.

F. J. Watson, General Freight Agent, G.T.R., in testifying recently before the special parliamentary committee enquiring into the Crowsnest Pass agreement and railway rates generally, said: "Just at this point I would like to refer to the impression that may have been created by some of the statements made here that the sole aim and object of the railway traffic men is to grind the last dollar possible out of the unfortunate shipper and consignee, and that no regard is paid by the railways as to whether or not traffic is destroyed by high freight rates. Any railway man that tries to adopt this policy is either a knave or a fool, a knave because anyone who tries to extort more than his service is reasonably worth is a knave; and anyone who, to put it concisely, 'kills the goose that lays the golden egg,' is a fool, and I do not think those who have the largest dealings with the railways are of the opinion that the average railway official is either one or the other."

There can be no doubt as to the absolute correctness of Mr. Watson's statement, and it has been unfortunate that in the past a large part of the public has not been aware of the truth to which he gave expression. Large numbers of men in public life—men who should know better—have declared railway officials to be representative of the utmost in capitalistic greed, and railway companies are being denounced as the most soulless of corporations. This public attitude has been the cause of severe regulation of railways in the United States in years gone by, resulting in large losses to railway investors who were deserving of better treatment. There is no doubt that the "Public be damned" attitude of the hard-fisted railroaders of pre-regulation days was largely responsible for this attitude on the part of the public, but the cause for such an attitude has long been removed.

The public should know that the railway officials of today are men who must be capable of fulfilling their responsibilities, not only to the railways which employ them, but to the public; that the railways are dependent on the prosperity of the community, in just the same way that the community is dependent on the railways, and that what is in the interest of one is ultimately in the interest of the other. The railway traffic official knows this, and governs himself accordingly, while the very nature of his work, and of the knowledge he has to acquire, serves to make him tolerant and able to see the other person's viewpoint. As Mr. Watson says, those who have the largest dealings with the railways know the railway official as the man he should be. It would be well if the public at large held a similar view.

The Canadian National Ry.'s Toronto employes' annual picnic was held at Cobourg, Ont., June 24, about 1,500 persons going from Toronto, in two special trains.

Canadian Pacific and Canadian National Rys'. April Earnings and Expenses

C.P.R. April gross earnings were \$12,331,370, compared with \$13,761,840 in April 1921, and operating expenses were \$10,782,597, compared with \$11,115,708 in April 1921, leaving net earnings of \$1,548,773, compared with \$2,646,131 in April 1921. While there was a decrease of \$1,430,470 in gross earnings, the decrease in operating expenses was but \$333,111, resulting in a decrease in net earnings of \$1,097,359. The net earnings for April 1922 were only 58% of those for April 1921. The operating ratio for April 1922 was 87.4 against 80.7 for April 1921. For the first four months of 1922, net earnings were \$5,107,244, compared with \$6,551,856 in the first four months of 1921, a decrease of \$1,444,612.

The Canadian National Rys., including the Canadian Northern, Canadian Government and Grand Trunk Pacific Rys., gross earnings in April 1922 were \$7,804,222, compared with \$9,295,315 in April 1921, and operating expenses were \$9,153,738, compared with \$11,931,954 in April 1921, leaving an operating deficit of \$1,349,516 in April 1922, compared with \$2,636,639 in April 1921. While there was a decrease of \$1,491,093 in gross earnings, there was a decrease of \$2,778,216 in operating expenses, resulting in an improvement of \$1,287,123 in net operating results.

While the C.P.R. results were very much less favorable in April this year than in April 1921, the Canadian National Rys. results were more favorable to about the same degree.

Looking at C.P.R. earnings, and basing conclusions, not only on the April results, but also on those for the first four months of the year, it is at once evident that the company cannot afford any more rate reductions of consequence until operating expenses are reduced. The investigation which has been going on before the special Parliamentary committee enquiring into the Crowsnest Pass agreement and other freight rate matters, details of which are given elsewhere in this issue, have made it plain that most substantial rate reductions are contemplated, and while it has been stated that only on the basis of reductions in expenses, chiefly wage reductions, can rate reductions be afforded, the fact cannot be too strongly emphasized that if the C.P.R. is to be allowed to continue to earn sufficient to pay dividends, and contribute a reasonable amount to surplus annually, the total reduction in expenses must be at least equal to the total reduction in earnings caused by the rate reduction. Further, the rate reductions should not apply until the reductions in expenses have applied.

During the investigation referred to above, much stress was placed on the theory advanced by many witnesses representing many lines of production, that lowered freight rates would so stimulate production that the resulting increased traffic offered to the railways would increase revenues so that the effect of the rate decrease would be practically wiped out. We have no fault to find with this theory in so far as the reduced cost of handling the additional traffic is concerned; but it is open to question as to whether the increased traffic would make its appearance any quicker than it would in the natural course of events, as the periodical depression which the country is experiencing yields place to an era of flourishing trade conditions. While

undoubtedly high production costs act as a brake on any industry whose products have to compete with those of other industries in the open market, we are of the opinion that the effect of the freight rates in restricting business, and consequently traffic for the railways, has been unduly magnified, and that this view is entirely reasonable is borne out by numerous instances of where rate reductions have failed to increase in any degree the traffic offering. Therefore, too much importance should not be attached to the claim that the railways can afford to make rate reductions which will total much more than the expense reductions they are able to make, on the supposition that increased traffic will make up the difference for them.

In 1921, the contribution the C.P.R. was able to make to surplus was entirely negligible, and it is seen by the figures given above that the net earnings so far this year are considerably below those of 1921. W. B. Lanigan, the company's Freight Traffic Manager, in testifying before the Board of Railway Commissioners in the freight rate equalization hearing, forcibly presented the entire reasonableness of the company's earnings, and showed that the combined annual dividend and contribution to surplus represent but a very moderate return on the value of the property used in the public service. We have pointed out before why it is of vital concern to the country that the C.P.R. be maintained in a strong financial position, and, in view of the financial results this year to date, it is as important to the country as it is to the C.P.R. that any rate reductions which may be made should not cause a total decrease in earnings, on the basis of traffic as it has been, greater than the decrease in expenses which the company will be able to secure.

Canadian National Rys. results in April 1922 were very satisfactory as compared with April 1921, and represent the continued success attending the management's efforts to get earnings and expenses into more favorable relationship. While comparatively the results are gratifying, the fact remains that the monthly operating losses are still large, and while great improvement may be expected in the heavy traffic months in the latter part of the year, indications are that the C.N.R. operating losses and fixed charges will add largely to the national liabilities contracted during 1922. Of course, conditions are such that the results secured by the C.P.R. are the governing factor in the determination of the rates which the Canadian National Rys. may charge, for it is evident that the National Railways cannot be given rates higher than the competing road. The situation at this time is simply that on the basis of rates which the C.P.R. is allowed to charge the National Railways must come as close as they can to earning operating expenses, it being axiomatic that as traffic increases the margin of operating loss will steadily decrease.

It could not be expected that the National Railways would become financially self-supporting in a short time, but the fact remains that they must become financially self-supporting before they can form the successful and strong institution which the country hopes they will develop into. Apart from all consideration as to the undesirability of the public paying through taxation for trans-

portation service furnished private individuals, effort should be made to so adjust railway earnings and expenses that the National Railways will earn their operating expenses over a complete year as soon as possible. It is of as much interest to the country in connection with the National Railways that rates be not reduced so that the total reduction in earnings will be greater than the total reduction in expenses to be secured, as it is in connection with the C. P.R. It must be clear to all who have studied Canadian railway operation figures during the past few years that the railways are operating on as close a margin as continued operation will allow, and that any action to make the operating ratio more unfavorable than it has been would result in placing a barrier in the way of a restoration to normal conditions in the railway industry, which, examination will indicate, would exert an influence to retard the restoration of prosperous conditions in all industries throughout the country.

Freight Car Locations on Railways.

The Railway Association of Canada has issued a report showing the location of freight cars on June 1, based on returns from the following railways:—Algoma Central & Hudson Bay; Canadian National, including Grand Trunk Pacific; Canadian Pacific; Central Vermont in Canada; Dominion Atlantic; Edmonton, Dunvegan & British Columbia; Grand Trunk; Kettle Valley; Michigan Central in Canada; Napierville Jct.; Pere Marquette in Canada; Quebec Central; Quebec, Montreal & Southern; Timiskaming & Northern Ontario; Temiscouata; Toronto, Hamilton & Buffalo; and Wabash, in Canada, as follows:—

Cars owned by reporting railways, 222,287; home cars on Canadian foreign lines, 15,163; home cars on U.S. lines, 35,260; home cars on home road, 171,864; Canadian-owned foreign cars on home lines, 12,327; U.S. owned foreign cars on home lines, 16,128; total cars on line, 200,319; percent on line to total owned, 90.1; deficiency on line to total owned, 21,968; home cars in bad order, 22,089; foreign cars in bad order, 319; total cars in bad order, 22,408; percent in bad order, 11.2; privately owned U.S. cars on line, 2,106; privately owned Canadian cars on line, 1,165.

Radiotelegraph Receiving on Trains.—The C.P.R., which is operating a livestock improvement train in Manitoba, in conjunction with the Dominion and Provincial Governments and cattle associations, has equipped one of the cars with radiotelegraph and carries two Marconi operators and a special mechanic to ensure successful operation.

The St. Maurice Division, Quebec District. Canadian National Rys., extends from Cape Rouge, 9 miles west of Quebec City, to O'Brien on the National Transcontinental Ry. main line, 452.4 miles. We are officially advised that it is intended to transfer the division's headquarters from Quebec City to Parment, 242.3 miles west of Cap Rouge, as soon as dwellings now under construction are completed. W. J. Atkinson is Superintendent, and J. H. Duff Assistant Superintendent.

Railway Wages and Working Conditions in Canada and the United States.

Canadian Railway and Marine World for June contained details of the agreement arrived at between the Railway Association of Canada, representing member railways, and the shop employes, members of American Federation of Labor, Railway Employees Department, Division A. A Winnipeg press dispatch of June 8 stated that shopmen on the railways in and near Winnipeg were displeased with the officers of their organization for having entered into the agreement with the Railway Association, and that at a meeting held in the Winnipeg Labor Temple the shopmen's leaders were strongly attacked for "agreeing to relinquish conditions which have prevailed on Canadian railways since the first road was built." The dispatch stated that a strike vote was to be taken because of the agreement, and that the Winnipeg shopmen refused to work under its conditions. No information has been received in verification of these statements, and in view of the fact that the agreement was signed by responsible officers of the shop employes' organization, it is difficult to see how the attitude ascribed to the shopmen could logically be taken by them.

An agreement was reached in Montreal on June 19 between the G.T.R., represented by C. F. Needham, Assistant to General Superintendent, Motive Power and Car Departments, and officers of the Canadian Brotherhood of Railway Employes and the International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employes, in connection with working conditions for clerical and station employes, freight handlers, baggage handlers, etc. The rules and working conditions which came up for revision were those agreed upon in May, 1921. The employes affected are represented on the G.T.R. by five different organizations, the Canadian Brotherhood of Railway Employes; the International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employes; the International Brotherhood of Railway Stationmen; the United Federation of Railway Employes, and the International Brotherhood of Stationary Firemen and Oilers. The G.T.R. opened negotiations with the first two organizations, upon which the officers of the other three organizations asked for conferences with the management in order to arrive at an understanding with it on rules and working conditions for the employes who are members of those organizations. R. P. Neil, President of the International Brotherhood of Railroad Stationmen, went to Montreal to secure representation for his organization at the conference, and the United Federation of Railway Employes spoke of applying for a board of arbitration if it was not represented. It is stated, however, that the negotiations were concluded between the company and representatives of the first two named organizations, and although President Neil, of the International Brotherhood of Railroad Stationmen, is credited with stating that employes who are members of that organization would not accept the conditions determined upon at the conference, we are not aware that any action has been taken to refuse to abide by the conditions agreed upon. About 7,000 men are affected by the agreement. It provides that overtime will be paid for pro rata, for the 9th and 10th hours, for

the following classes: shop and round-house laborers, scrap yard employes, stationary engineers and firemen and other boiler room and power house employes; time and a half to be paid after the 10th hour. All other classes will be paid pro rata for the 9th hour of service and time and a half thereafter. Monthly rated employes are to be paid double time if they work the seven legal holidays; if not working on these holidays they will receive the ordinary rate. Hourly rated employes will receive straight time for holidays. Sunday work will be paid for at straight time rates for all employes. Two weeks holidays with pay will be given, after one year service, to all clerical workers, station masters, baggage masters, station gate-men, ticket examiners, supervisors of crews and crew dispatchers, car checkers, train checkers, car markers, baggage checkers, and various grades of station employes. The Canadian Brotherhood of Railway Employes was represented at the conferences by J. F. McGuire, General Chairman of the Grievance Committee; A. E. Lawrence, General Secretary; Chas. Stewart, acting Vice Chairman, and other members of the grievance committee.

The Canadian National Rys. and their employes who are members of the C.B. R.E. also came to an agreement on rules and working conditions about June 17, when points arising out of the award made in 1921 by the arbitration board, of which Rev. Byron Stauffer was chairman, on which disagreement existed, were also settled.

Notice has been given by the Railway Association of Canada to maintenance of way employes' representatives that a downward revision of wages paid to such workers is intended. The reduction contemplated is from 3c. to 5c. an hour, and would amount to approximately 10%. The date of notice would make the reduction effective July 10. About 30,000 men are affected. Notice has also been given by the Railway Association to the shop employes, members of A.F. of L., Railway Employes' Department, Division 4, that reductions in pay approximating those recently made for shopmen by the U.S. Railroad Labor Board are to be made. In addition, the individual railways have informed their employes outside of shop, maintenance and train service, that a reduction in wages corresponding to reductions recently ordered by the U.S. Labor Board is intended.

Speaking generally, developments in the wage situation in Canada are coinciding very closely with those in the U.S., as is to be expected in view of the inter-relationship of the railways and the employes' organizations, and the similarity in conditions. It may be anticipated that reductions made on U.S. roads will be followed by reductions on Canadian lines applying to the same classes of employes. So far, in Canada, as in the U.S., no action has been taken to reduce wages or alter working conditions of train service employes.

United States.—Following the conclusion of hearings on wage reductions sought by the carriers, the U.S. Railroad Labor Board on May 25 issued decision 1028 (docket 1300) by which, effective July 1, the wages of maintenance of way employes and railway shop laborers are reduced about 13%. From the

wages prevailing as fixed by decision 147, the following reductions per hour are made: 1. For bridge, building, painting, construction, mason and concrete, water supply and plumber foremen, 5c. 2. For assistant bridge, building, painting, construction, mason and concrete, water supply and plumber foremen, and for coal wharf, coal chute, and fence gang foremen, pile driver, ditching and hoisting engineers and bridge inspectors, 5c. 3. For section, track and maintenance foremen, and assistant section, track and maintenance foremen, 3c. 4. For mechanics in maintenance of way and bridge and building departments, except those that come within the scope of agreements with the Federated shop crafts, 4c. 5. Mechanics' helpers in maintenance of way and bridge and building departments, 1c. 6. Track laborers, and all common laborers, in maintenance of way department and in and around shops and locomotive houses not otherwise provided for herein, 5c. 7. Drawbridge tenders and assistants, pile driver, ditching and hoisting firemen, pumper engineers and pumpers, crossing watchmen or flagmen, and lamp lighters and tenders, 5c. 8. Laborers employed in and around shops and roundhouses, such as locomotive watchmen and wipers, fire builders, ashpit men, flue borers, coal passers, coal chute men, etc., 5c. According to a report made by the Board's statistical department, maintenance of way employes' purchasing power, on the basis of wage rates, was 39.5% greater in Jan. 1920 than in Dec. 1917. After the wage increase in May 1920 it was 57.8% greater; then, owing to decline in living costs, it was still 54.1% greater after the wage reduction in July 1921, and after this latest reduction it is still 44.5% greater. It is estimated that this decision means a saving to U.S. railways of \$48,000,000 annually. A dissenting opinion was filed by the Board's labor members, in which the majority decision was severely criticized.

By decision no. 1036 (docket 1300) issued June 5, the Board cut shopmen's wages by from 5 to 9c. an hour. The reduction is effective July 1, and it is estimated that the saving to the railways will be \$59,000,000 yearly. The order stated that the following reductions should be made from the prevailing wages, as established by decision 147: 1. Supervisory forces, whether paid by the month or by the hour, no decrease. 2. Machinists, boilermakers, blacksmiths, sheet metal workers, electrical workers, carmen (except freight car men), moulders, cupola tenders and core-makers, including those with less than four years experience, all crafts, 7c. an hour. 3. Freight carmen, 9c. an hour. 4. Regular and helper apprentices and helpers, and helpers all classes, c. an hour. 5. Car cleaners, 5c. an hour. This leaves the average wages of machinists 70.3c. an hour and car repairers 64.4c. an hour. In a report dealing with the relation between these wages and living costs, the Board states that the machinists' new wages give them a purchasing power 18.8% greater than in Dec. 1917, and that carmen's new wages gives them a purchasing power 45.7% greater than in Dec. 1917. A dissenting opinion was filed by the Board's labor members.

On June 16 the Board issued a third decision, affecting the wages of clerical and station employes, stationary engine and boiler room employes, signal em-

ployes, etc. The chief reductions ordered by this decision are as follows, in cents per hour: A. Clerical and station forces. 1. Storekeepers, assistant storekeepers, chief clerks, foremen, subforemen and other clerical supervisory forces, 3c. 2. Clerks with experience of two or more years in railway clerical work, or clerical work of a similar nature in other industries, or where their cumulative experience in such clerical work is not less than two years, 3c. 3. Clerks with an experience of one year or less than two years, 4c. 4. Clerks with less than one year experience, 4c. 5. Clerks without previous experience hereafter entering the service will be paid \$60 a month for the first six months, and \$70 a month for the second six months. 6. Train and locomotive crew callers, assistant station masters, train announcers, gate-men and baggage and parcel room employes (other than clerks), 3c. 7. Janitors and elevator operators, office, station and warehouse watchmen, and employes engaged in sorting waybills and tickets, operating appliances or machines for perforating, addressing envelopes, numbering claims, and other papers, gathering and distributing mail, adjusting dictaphone cylinders and other similar work, 4c. 8. Office boys, messengers, etc., 4c. 9. Station, warehouse, platform, transfer, dock, pier, storeroom, stock-room and team track freight handlers or truckers and others similarly employed, 4c. 10. All common laborers in and around stations, storehouses and warehouses not otherwise provided for, 4c. B. Stationary engineers, stationary firemen, engine room oilers, boiler room water tenders, and coal passers, are all reduced 2c. an hour. C. Signal Department employes. Signal foremen, assistant signal foremen and signal inspectors are not reduced. Maintenance and gang foremen are reduced 5c. an hour, as are also signalmen, and assistant signalmen. Helpers are reduced 6c. an hour. D. Floating equipment employes; disputes remanded to interested parties. E. Train dispatchers, no reduction. This decision is also effective July 1. It is estimated that it will mean a saving to the railways of \$27,000,000 annually. In this case also a dissenting opinion was filed.

At the time of writing (June 23) the Board had issued no decision in connection with wages for telegraphers and it is not considered likely that one will be issued in time to become operative July 1. The Board has taken no action in connection with train service employes' wages.

Consequent upon the decision affecting maintenance of way employes being issued, a meeting was held at Detroit, headquarters for the United Brotherhood of Maintenance of Way Employes and Railway Shop Laborers, attended by general chairmen for the organization, and presided over by E. F. Grable, President. It was unanimously decided to contest the Board's ruling, and to issue a strike vote to all members. At a meeting in Cincinnati on June 6, attended by representatives of the 11 organizations whose members' wages were concerned in the Board's hearings, it was decided to submit strike ballots to all shopmen at once, and to the members of the other organizations as the wage reductions were announced. Following other meetings at Cincinnati, formal notice was served on the Labor Board by leaders of 10 of the organizations to the effect that a strike would be called if one is authorized by a majority vote of

the employes affected, about 1,225,000 in number. A Cincinnati press dispatch of June 16 stated that no general strike ballot would be sent out by the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employes, but that the general committee of that organization on each road would determine whether to call for a strike vote, and where such votes were taken the men would be bound by the result. A Cincinnati press dispatch of June 19 however, stated that a strike vote would be taken among all the organization's membership, and that all employes belonging to the organization would be called out on strike if the leaders were given authority by the vote. This organization has agreements on several roads binding the men to abide by the Labor Board's decisions, but, according to the press report quoted, E. H. Fitzgerald, President of the organiz-

ation, stated that if the employes vote to participate in a strike, these agreements will be abrogated on due notice. If the press report is correct, it is evident that the wage decreases ordered will be opposed by every organization representing the employes affected. It is stated that the U.S. Government is taking all necessary steps to back up the Board's decision in the event of a strike.

The controversy between the Labor Board and the Pennsylvania Rd., detailed in previous issues of Canadian Railway and Marine World, was brought up recently in the U.S. Circuit Court of Appeals at Chicago, as the result of an appeal made by the Labor Board from a former decision made against it. After hearing, the court took the case under advisement. It is stated that if the Labor Board does not get a satisfactory decision in the Court of Appeals, it will carry the case to the U.S. Supreme Court.

Birthdays of Transportation Men in July.

Many happy returns of the day to:

A. A. Allen, Vice President, The Holden Co., Montreal, formerly Master Mechanic, Timiskaming & Northern Ontario Ry., born at Grafton, Ont., July 7, 1870.

J. H. Black, ex-Superintendent, Timiskaming & Northern Ontario Ry., now at Toronto, born near Smiths Falls, Ont., July 8, 1874.

D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co., born at St. Thomas de Montmagny, Que., July 25, 1877.

D'Alton C. Coleman, Vice President, Western Lines, C.P.R., Winnipeg, born at Carleton Place, Ont., July 9, 1879.

G. C. Conn, ex-Freight Traffic Manager, Pere Marquette Rd., Detroit, Mich., now Director of Traffic, Buick Motor Co., Flint, Mich., born at Woburn, Mass., July 1, 1867.

A. R. Curran, Paymaster, Eastern Lines, Canadian Northern Ry., Toronto, born there, July 3, 1877.

H. Darling, Locomotive Foreman, Grand Trunk Pacific Ry., Smithers, B.C., born in Northumberland, Eng., July 27, 1873.

A. H. Eager, General Superintendent of Rolling Stock, Canadian National Rys., Winnipeg, born at Waterloo, Que., July 15, 1868.

J. T. B. Foote, Manager, Prince Edward Hotel, Canadian National Rys., Brandon, Man., born at Quebec, Que., July 17, 1878.

F. E. Hartshorn, Assistant Superintendent, Montreal Division, Quebec District, Canadian National Rys., Montreal, born at West Stewartstown, N.H., July 21, 1877.

S. J. Hungerford, Vice President, Operation and Maintenance, Canadian National Rys., Toronto, born at Bedford, Que., July 16, 1872.

C. W. Johnston, Assistant General Passenger Agent, G.T.R., Montreal, born at Actonvale, Que., July 27, 1879.

M. Kelly, Resident Engineer, Farnham Division, Quebec District, C.P.R., Farnham, born at Thamesville, Ont., July 6, 1878.

T. King, Superintendent, Detroit Division, Western Lines, G.T.R., Durand, Mich., born at Dunbarton, Ont., July 18, 1869.

A. E. Lock, Superintendent Car Service, Toronto, Hamilton & Buffalo Ry., Hamilton, Ont., born at Albany, N.Y., July 14, 1879.

W. B. Logan, District Storekeeper,

Maritime District, Canadian National Rys., Moncton, N.B., born at Amherst, N.S., July 30, 1869.

G. A. McNicholl, Assistant General Freight and Passenger Agent, Canadian National-Grand Trunk Pacific Rys., Prince Rupert, B.C., born at Montreal, July 31, 1876.

H. D. Mackenzie, Master Mechanic, Canadian National Rys., Edmundston, N.B., born at Churchville, N.S., July 22, 1864.

M. H. MacLeod, Vice President, Construction, Canadian National Rys., Toronto, born in Skye, Inverness-shire, Scotland, July 13, 1857.

J. M. Macrae, Assistant General Freight Agent, Canadian National-Grand Trunk Pacific Rys., Winnipeg, born at Stornoway, Scotland, July 31, 1884.

W. G. Manders, Assistant Freight Traffic Manager, Canadian National Rys., Grand Trunk Pacific Ry. and Grand Trunk Pacific Coast Steamship Co., Winnipeg, born at Owen Sound, Ont., July 24, 1876.

Neil Marple, Foreman Blacksmiths and Iron Machines, Michigan Central Rd., St. Thomas, Ont., born in McKillop Tp., Ont., July 1, 1860.

J. E. Morazain, General Superintendent, Quebec District, Canadian National Rys., Quebec, born at Wheatland, Que., July 31, 1875.

P. C. Perry, Assistant Resident Engineer, Canadian National Rys., Regina, Sask., born at Fort William, Ont., July 27, 1889.

R. E. Perry, Assistant General Freight Agent, Canadian National Rys., Montreal, born at Drayton, Ont., July 5, 1876.

R. Preston, Superintendent of Motive Power, Eastern Lines, C.P.R., Montreal, born at Toronto, July 28, 1863.

Gerard Ruel, K.C., General Counsel, Canadian National Rys., Toronto, born at St. John, N.B., July 5, 1866.

Capt. J. Springett, Agent for Holland, C.P.R., Rotterdam, born at Eastbourne, Eng., July 20, 1879.

George Stephen, Freight Traffic Manager, Canadian National Rys., Grand Trunk Pacific Ry., and Grand Trunk Pacific Coast Steamship Co., Toronto, born at Montreal, July 5, 1876.

Sir Thos. Tait, President, Fredericton & Grand Lake Ry. & Coal Co., Montreal, born at Melbourne, Que., July 24, 1864.

M. M. Todd, Vice President and

Treasurer, Grand River Ry. and Lake Erie & Northern Ry., Galt, Ont., born there, July 22, 1891.

H. B. Walkem, ex-Assistant Engineer, C.P.R., Vancouver, now at Port Haney, B.C., born at Montreal, July 31, 1858.

G. A. Walton, General Passenger Agent, Western Lines, C.P.R., Winnipeg, born at Montreal, July 17, 1881.

N. B. Walton, Assistant General Superintendent, Grand Trunk Pacific Ry., Prince Rupert, B.C., born at Palmerston, Ont., July 27, 1884.

R. H. Webster, Commercial Agent, G.T.R., Moncton, N.B., born at Pictou, N.S., July 2, 1885.

Railway Earnings.

Canadian National Railways.

Following are total operating revenues total operating expenses, and net operating revenues or deficits, for the Canadian Northern Ry. System, Grand Trunk Pacific Ry., and Canadian Government Rys., the last including the Intercolonial Ry., Prince Edward Island Ry. and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government:—

	Revenue	Expenses	Net	deficits
			1922	1921
Jan.	\$8,210,401	\$10,433,564	\$2,223,163	\$2,863,058
Feb.	7,650,743	10,026,572	2,375,829	2,986,998
March	9,418,100	10,397,547	979,447	2,532,959
April	7,804,222	9,153,738	1,349,516	2,636,639

	\$33,083,466	\$40,011,421	\$6,927,955	\$11,019,654
Decr.	\$7,665,431	\$11,757,130	\$4,091,699	.....

Approximate earnings for May, \$9,481,224, and for two weeks ended June 14, \$3,073,909, against \$8,348,304 for May, and \$3,944,292 for two weeks ended June 14, 1921.

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1922, compared with those for 1921. The discrepancies between these figures and those issued by the Dominion Bureau of Statistics are owing to the fact that the Bureau is, at its request, furnished with figures by the C.P.R., including the Esquimalt & Nanaimo Ry., and the Montreal & Atlantic Ry. earnings, as well as the C.P.R. ones. The figures supplied the Bureau are exclusive of certain income items which are included in figures supplied Canadian Railway and Marine World:—

	Gross	Expenses	Net	Decreases
Jan.	\$11,337,975	\$10,854,498	\$483,477	\$157,948
Feb.	11,303,698	10,649,205	654,488	153,904
March	13,847,627	11,427,120	2,420,507	30,402
April	12,331,371	10,782,598	1,548,773	1,097,359

	\$48,820,665	\$43,713,421	\$5,107,244	\$1,444,612
Decr.	\$6,881,319	\$5,436,707	\$1,444,612	.....

Approximate earnings for May, \$13,253,000, and for two weeks ended June 14, \$6,095,000, against \$13,490,000 for May, and \$6,198,000 for two weeks ended June 14, 1921.

Grand Trunk Railway.

Following are monthly gross earnings, expenses and net earnings, with increases or decreases, for 1922:—

	Gross	Expenses	Net	Increase
Jan.	\$5,354,317	\$4,984,953	\$369,364	\$1,070,530
Feb.	5,667,487	4,700,985	966,502	934,767
March	6,118,314	5,153,028	965,286	387,605
	\$17,140,118	\$14,838,966	\$2,001,152	\$2,392,902
Incr.	.....	.....	\$2,392,902	.....
Decr.	\$862,742	\$3,255,647	.....	.....

Whistling for Railway Crossings.—The Railway Association of Canada has issued the following circular: "The following communication has been received from the Board of Railway Commissioners in regard to sounding of highway crossing warning signals by engineers: 'One of our inspectors advises that he has watched the matter and very few of the engineers give the proper whistle when approaching highway crossings. He suggests a closer supervision on the part of the railway officers, as a remedy. Will you please take the matter up in that direction?' It is suggested that member lines take such action as may be necessary to have the requirements of circular 18, March 17, 1922, made effective."

Reductions in United States Railway Rates.

The U.S. Interstate Commerce Commission concluded its hearing in the general railway rate enquiry on March 13, after three months of sittings, and on May 24 last, its long-awaited decision was made public. It did not issue a formal order requiring the railways to place certain rate reductions in effect, but simply issued recommendations, stating that it had come to the conclusion that certain reductions should be made on July 1, and asking the railways to let it know if they proposed to make such reductions without the necessity of formal orders being issued. The percentages of reductions recommended by the Commission for the railways to place in force would bring about, on the average, a 10% general reduction, this being accomplished by the recommendation that in the eastern group, rates should be reduced to leave them 26% above what they were prior to the rate increase by ex parte 74, in 1920, instead of 40%; in the western group, 21½%, instead of 35%; in the southern and mountain-Pacific groups, 12½%, instead of 25%, and on inter-territorial traffic, 25%, instead of 35%. It was also recommended that rates reduced as a result of the Commission's orders in the western grain and livestock cases, and by the railways' voluntary 10% reduction on agricultural products, should not be further reduced, but should be continued in effect. The Commission also found that the fair return prescribed by the Transportation Act of 1920 should be set at 5.75%. No reduction in passenger fares was recommended.

The Commission stated in part as follows: "The carriers took the position at the hearings that we must be guided solely by those things which are definite and certain in the past. With this we cannot agree. Our function under the law is not that of mere computers, and cannot thus be atrophied. The duty to prescribe rates for the future carries with it the obligation to exercise an informed judgment upon all pertinent facts, present and past, in order to forecast the future as best we may. Practically all agree that stability of freight rates is highly desirable and that normal traffic may not well be expected until the present widespread expectation of rate reductions is realized or dispelled. To assume that rates can or should be stabilized on the present high basis is futile. The period of deflation has been in progress more than 15 months; demand is reviving; prices are showing a tendency to stabilize upon a level much below that of 1920, but above that of pre-war years, and conditions of the agricultural and manufacturing industries have greatly improved in the past few months. We are of opinion that general reduction in the rate level, as substantial as the condition of the carriers will permit, will tend not only to lessen the transportation burden, but also to equalize and stabilize the conditions under which commerce and industry are carried on, with consequent fuller assurance to the carriers of realizing the fair return contemplated by law."

On May 29 a large number of eastern U.S. railway executives voted to govern themselves in accordance with the Commission's recommendations, and to place in effect the reduced rates prescribed. Southeastern and southern railway executives came to a similar decision on the

same date, but at both meetings strong exception was taken to the Commission's action in finding that 5.75% on the value of the railways constitutes an adequate annual return, the view being held that such a rate does not constitute a fair return and that it will not enable the roads to properly finance themselves and render an adequate transportation service to the public. On June 1 the western railways' presidents decided to adopt the Commission's recommendations.

All the members of the Commission did not agree in the findings, although all were convinced of the necessity for some reduction in freight rates. Some of them were in favor of ordering reductions on specific commodities, instead of a general decrease, and it is stated that these commissioners represented the views of the Washington Administration. It would, however, be a very difficult thing to effect large reductions on specific commodities on the U.S. roads without causing gross discriminations, for the reason that many of the roads derive by far the larger part of their revenue from the transportation of one or two important commodities, and for other reasons. It seems that the recommendations for a reduction will be put into effect substantially as made by the Commission.

Self-Propelled Cars on Steam Railways.

Canadian Railway and Marine World for June gave on pg. 289, details of two gasoline railway passenger motor cars, which the Canadian National Rys. are having built in Montreal and one of which is to be operated between Pictou and Trenton, 30.6 miles, on the Ontario District, Ottawa Division, Pictou Subdivision, and between Trenton and Trenton Jct., 1.6 miles, on the Maynooth Subdivision, also between Trenton and Napanee, 34.6 miles, on the Rideau Subdivision. We are advised that the first car has been delivered, and made its first run on June 28. The second car, of the same type will, it is expected, be completed about the third week in July, when it will be placed in service on the Ontario District, Ottawa Division, Brockville Subdivision, between Brockville and Westport, 44.4 miles.

The Canadian National Rys. have also ordered a gasoline railway passenger motor car from the Service Motor Truck Co., Wabash, Ind., for operation on the Maritime District, Campbellton Division, Bathurst Subdivision, between Bathurst and Campbellton, N.B., 62.96 miles, to replace the storage battery car which has been operating there, and it is expected that the storage battery car will be run between Montreal and Ottawa. The gasoline car ordered is similar to one ordered for the Greater Winnipeg Water District Ry. and which was described and illustrated in Canadian Railway and Marine World for May, pg. 231.

The Canadian National Rys. have arranged to put two storage battery cars in operation on the Ontario District. The car bodies will be constructed and the electrical and mechanical equipment assembled in the Niagara, St. Catharines & Toronto Ry. shops at St. Catharines, Ont. While arrangements for this work are not yet complete, rapid progress is being made, and it is the intention to have the cars ready for service as quickly as possible.

The Bad Order Freight Car Situation.

The Railway Association of Canada reports the total number of freight cars on Canadian lines for the 15 days ended May 15 as 199,354. The allowance for bad order cars on the A.R.A. basis, which assumes a total of 7% of the cars in bad order, was 13,955, and the actual number was 23,045, an excess of 9,090 on the 7% basis. The figures 23,045 represent 11.5% of the cars in bad order. There were 30,450 surplus cars in good order, making the total not in use 53,495, or a total of 40,540 idle cars on the basis of 7% of the cars being normally in bad order. For the 15 days ended June 1, the total number of freight cars on Canadian lines was 200,319. The allowance for bad order cars on the A.R.A. basis was 14,022, and the actual number was 22,408, an excess of 8,386 on the 7% basis. The figures 22,408 represent 11.2 per cent. of cars in bad order. There were 37,616 surplus cars in good order, making the total not in use 60,024, or a total of 46,002 on the basis of 7% being normally in bad order.

The American Railway Association's Car Service Division reports that the total number of freight cars on line on class 1 roads on May 15 was 2,271,998. Of these 334,108 were in bad order, representing 14.7% of the total, compared with 14.1% on May 1. Out of 1,027,623 box cars on line on May 15, there were 16,530, or 15.7%, in bad order; out of 58,325 refrigerator cars, there were 8,725, or 15% in bad order; out of 964,593 gondolas, there were 137,704 or 14.3% in bad order; out of 81,876 stock cars, there were 10,190 or 12.4% in bad order, and out of 97,487 flat cars, 12,718, or 13% were in bad order.

In both Canada and the U.S., the change in the bad order car situation from a month previous to the dates given above has been very slight.

Railway Rolling Stock Orders and Deliveries.

The C.P.R., between May 12 and June 12, received 9 steel sleeping cars, the frames for which were built by the National Steel Car Corporation, from its Angus shops, Montreal.

Montreal Locomotive Works, during May, delivered 6 locomotives, 4-8-2 type, with cylinders 22 x 26 in., for the South African Rys., and 1 switching locomotive, type 0-4-0, for John B. Smith & Sons.

Telegraph, Telephone and Cable Matters.

Frederic Roper, Secretary-Treasurer, Dominion Telegraph Co., who died in Toronto Jan. 17, left an estate valued at \$12,274.

J. B. Paterson has been elected a director of the Montreal Telegraph Co., succeeding his brother, the late R. McD. Paterson.

The Commercial Cable Co.'s s.s. Mackay-Bennett sailed from Halifax, June 6, for England, where her crew will be transferred to the company's new cable repair steamship, John W. Mackay.

Canadian National Telegraphs have opened offices at Lake Joseph and Rainy Lake, Ont., and closed offices at Carrier Jet and Pont Rouge, Que., and Solina, Ont. The name of the office at Notta-

way, Que., has been changed to Senne-terre.

The Marconi Wireless Telegraph Co., on June 1, opened a continuous wave coast station at Louisburg, N.S., for communicating with ships at sea, at long ranges. The charge is 18c. a word, in addition to the land line rates to the wireless station.

G. G. Ward, Vice President and General Manager, Commercial Cable Co., died at New York, June 16, after a long illness. He was also a director of the Halifax and Bermuda Cable Co., and the Direct West Indies Cable Co. operated between Halifax, N.S., and Bermuda and Jamaica.

Evan H. Goodfellow, heretofore Inspector of Telegraphs, C.P.R., Calgary, Alta., has been appointed Superintendent of Telegraph Traffic, Eastern Lines, C.P.R., Montreal, vice J. B. Mitchell, whose appointment as Superintendent of Telegraphs, Eastern Division, C.P.R., Montreal, was announced in a recent issue.

William Stanton Emery, whose appointment as chief operator, C.P.R. Telegraphs, Montreal, was announced in our last issue, was born at St. John, N.B., July 18, 1885, entered telegraph service there in 1899, with the Western Union Telegraph Co., and worked for a short time as operator at Fredericton, N.B. He entered Canadian Pacific Telegraphs service in 1899 at Fredericton, and was transferred to St. John, N.B., as operator, was promoted to chief operator there, and then transferred to Halifax, N.S., as local agent, which position he held up to the time of his present appointment.

Evan Holmes Goodfellow, who has been appointed Superintendent of Telegraph Traffic, Eastern Lines, C.P.R., Montreal, was born at Campbellton, N.B., Aug. 20, 1878, and entered transportation service, March 23, 1893, since when he has been, to Aug. 1899, agent and operator, British Columbia Division, C.P.R.; Aug. 1899 to March 1901, operator, C.P.R. telegraphs, Vancouver, B.C.; March 1901 to July 25, 1903, operator, Canadian Government telegraphs, Northern British Columbia and Yukon; July 1903 to May 5, 1915, consecutively operator and wire chief, C.P.R. telegraphs, Vancouver, B.C.; May 5, 1915, to May 1, 1922, Inspector of Telegraphs, C.P.R., Calgary, Alta.

Among the Express Companies.

The Canadian National Ex. Co. has opened offices at Folleigh, N.S., Beresford, N.B., and Cushing Jct., Que. The office at Cushing Jct. is about a mile west of Cushing, which is now a star point.

The Canadian National Ex. Co. has opened offices at Deschaillons, Petite Riviere, St. Irene, Les Eboulements, Fortierville, Que., Nash Creek, N.B., and has closed its offices at Solina and Sellwood, Ont.

John Pullen, President, and W. C. Muir, Vice President and General Manager, Canadian National Express Co., made an inspection trip to the Pacific coast in June.

The Canadian National Ex. Co. has opened offices at St. Anthony, N.B., Chaudiere and Dixie, Que., Grand Beach, Narcotte, Victoria Beach and Libau, Man., and Stewart, B.C., and has changed the name of its office at York, Ont., to Danforth.

The Canadian National Ex. Co. has

placed its service on the Canadian National Rys., between Charlottetown and Murray Harbor, Lake Verdi and Vernon, Harmony Jct. and Elmira, P.E.I.; Campbellton and St. Leonards, Gloucester Jct. and Shippegan, Pokemouche Jct. and Tracadie, Moncton and Buctouche, and Havelock and Elgin, N.B., and has opened offices at Elmira, Murray Harbor, Murray River, Vernon River, Vernon, P.E.I., Buctouche, Burnsville, Caraquet, Elgin, Grand Anse, Havelock, Inkerman, Kedgewick, Notre Dame, Stonehaven, Shippegan, St. Quentin, Tracadie and Upsalquitch, N.B.

The Special War Revenue Act, 1915, has been further amended by providing, among other things, that every express company carrying on business in Canada, shall, before, issuing a money order or traveller's cheque, affix thereto a 2c. adhesive stamp, if the amount does not exceed \$50, and for every additional \$50 or fraction thereof, 2c., but not to exceed, in any case, \$2. The company may charge the amount of the stamps affixed, and collect same, from the purchaser of the order or cheque, or from the payee. The company shall, before delivery of the order or cheque, cancel the stamps by writing across them, initials, or other identification, of the company with the date of issue.

R. Mason, for 31 years messenger, Dominion Ex. Co., between Calgary, Alta., and Vancouver, B.C., is to be superannuated on July 1. He entered the service July 17, 1889. In Jan. 1909, in a railway accident, he went, with his car, over a steep bank into the Fraser River, at Saddle Rock, B.C., and had a narrow escape from drowning. He was seriously injured and was unable to resume his duty until Apr. 1, 1910. He is 73 years old, and until a few months ago was in active service. In Nov. 1921, while crossing the street, after leaving the C.P.R. station at Vancouver, he was struck by an automobile, and had both legs and one arm broken, besides other injuries. Although he made a satisfactory recovery, and was anxious to resume duty, it was felt, in view of the seriousness of the accident, that he should enjoy a rest.

The Niagara Peninsular Growers, Ltd., applied to the Board of Railway Commissioners for suspension of American Railway Express Co's tariff 150-A, C.R.C. 1,333 and the Express Traffic Association for Canada's tariff C.R.C. no. ET 752, as applicable to rates on fruit and vegetables moving from Ontario points. The Board passed order 32,448, May 31, suspending the American Railway Express Co's tariffs C.R.C. 1,333, 1,341 and 1,334, also item 1 in Express Traffic Association's tariff C.R.C. no. ET 732, and ordered that the rates published in American Railway Express Co's tariff C.R.C. 1,193 be continued in effect until further order. The board passed order 32,511, June 19, as follows: Upon it appearing that an agreement has been reached between shippers and the American Express Co., as to rate on fruit from Ontario points, order 32,448, is rescinded, provided that the company publish and file a local rate on fruit and vegetables from Fenwick to Hamilton, Ont., of 40c per 100 lb. in lieu of the rate of 50c per 100 lb., published in the company's tariff C.R.C. 1,344.

Standard Specification for Steel Railway Bridges has been issued by Canadian Engineering Standards Association, Ottawa, in book form, 78 pages.

Electric Railway Department

The Canadian Electric Railway Association's Annual Meeting at Quebec.

The Canadian Electric Railway Association's 18th annual meeting, held at Quebec, Que., June 1, 2 and 3, was undoubtedly the most largely attended, and in every way the most successful in the Association's history. The principal innovations, both of which proved very acceptable, were the presence of ladies at the social functions, and the exhibits of electric railway equipment, appliances and supplies, which were shown for the first time by manufacturers. The great success of the meetings was the result of weeks of enthusiastic and untiring preparatory work by the Association's President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.; its Vice President, Major F. D. Burpee, Manager and director, Ottawa Electric Ry., who was also chairman of the papers committee; W. J. Lynch, General Manager, Quebec Ry., Light, Heat & Power Co., who was chairman of the entertainment committee, and R. M. Reade, Superintendent, City Division, Quebec Ry., Light & Power Co., who was chairman of the exhibits committee. As the meeting was in progress when Canadian Railway and Marine World for June went to press, we were able to give considerable information as to the programme and some of the proceedings in that issue, which will therefore not be repeated in this one.

The Business Meetings.

On June 1 the members, associate members and guests attending registered at the Drill Hall, on Grand Allee, starting at 9 a.m., and at 10 a.m. President Gale took the chair and introduced Sir Charles Fitzpatrick, Lieutenant Governor of the Province of Quebec, who welcomed the members, in a very interesting and practical speech, in which he dwelt on the necessity of Canada developing its great water power resources, so as to make it less necessary to depend on the United States for coal supplies. He paid a warm tribute to the Quebec Ry., Light, Heat & Power Co.'s services, and to the unfailing courtesy with which its patrons are treated. The Mayor of Quebec, Jos. Sampson, also gave an address of welcome. The members then accompanied the Lieutenant Governor and the Mayor to the Drill Hall's ground floor, where a thorough inspection of the exhibits was made.

President Gale resumed the chair at noon, and read his address, which was followed by the presentation of annual reports by Secretary L. E. Moreland and Treasurer A. Gaboury. The address and reports were published in Canadian Railway and Marine World for June pgs. 308 to 310. President Gale then appointed the ex-presidents of the Association who were present, viz., A. Eastman, E. A. Evans, A. Gaboury, Lt. Col. J. E. Hutcheson and C. L. Wilson, to act with him as a nominating committee to recommend the names of members for election as officers, etc., for the ensuing year. This was followed by a display of moving pictures "Safety for all," and "The only way," by National Safety League.

The afternoon session opened with a paper on valuation of street railway assets, their maintenance and depreciation, by L. A. Herdt, D.Sc., and E. G. Burr, B.Sc., consulting electric engineers,

Montreal, which is given in full farther on in this issue, together with the discussion on it.

This was followed by a paper on the modern street railway motor, by J. K. Stotz, Canadian Westinghouse Co., which was discussed at length by W. G. Gordon, Railway and Traction Engineer, Canadian General Electric Co.; W. R. McRae, Superintendent of Rolling Stock and Shops, Toronto Transportation Commission; W. H. Sawyer, East St. Louis, Missouri; and T. C. Berkele, English Electric Co. The paper will be pub-

Canadian Electric Railway Association.

Honorary President, E. A. Robert, President, Montreal Tramways Co., and Quebec Ry., Light, Heat & Power Co.

Honorary Vice President, Wm. C. Hawkins, Managing Director and Secretary, Dominion Power & Transmission Co.

Honorary Council. Thos. Ahearn, President, Ottawa Electric Ry.; Acton Burrows, Proprietor, Canadian Railway and Marine World; Geo. Kidd, General Manager, British Columbia Electric Ry.; Lt.-Col. J. E. Hutcheson, General Manager, Montreal Tramways Co., and director, Quebec Ry., Light, Heat & Power Co.

President, Major F. D. Burpee, Manager and director, Ottawa Electric Ry.

Vice President, H. H. Couzens, General Manager, Toronto Transportation Commission.

Executive Committee, The President, the Vice President, the immediate past President (G. Gordon Gale, Vice President and General Manager, Hull Electric Co.) and D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co.; E. P. Coleman, General Manager, Dominion Power & Transmission Co.; A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Ry.; D. W. Houston, Superintendent, Regina Municipal Ry.; A. W. McLimont, Vice President and General Manager, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Railway, Light & Power Co.; W. R. Robertson, General Superintendent of Railways, Hydro-Electric Power Commission of Ontario; W. L. Weston, Manager, Nova Scotia Tramways & Power Co.; H. E. Weyman, Manager, Levis County Ry.; C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Treasurer, W. S. Hart, Managing Director, Three Rivers Traction Co.

Auditor, Lt.-Col. G. C. Royce, General Manager, Toronto Suburban Ry.

Secretary, D. N. Gill, Comptroller, Ottawa Electric Ry., Ottawa, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

lished fully in a future issue.

On June 2, D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co., read a paper on motor buses and trackless trolleys, which is given in full farther on in this issue. It was discussed at length by M. W. Manz, Ohio Brass Co., who illustrated his remarks by a number of pictures, plans, etc.; also by Capt. Gordon Bell, Vice President, Eastern Canada Truck Co., Hull, Que.; L. H. Palmer, Assistant to President, Baltimore Electric and Light Co.; W. R. Robertson, General Superintendent of Railways, Hydro Electric Power Commission of Ontario; and W. G. Naegal, Canadian Brill Co.

This was followed by moving pictures "The romance of the rail and power," by Canadian Westinghouse Co.

J. F. H. Wyse, General Manager, Canadian National Safety League, suggested that a safety section of the Associ-

ation be formed, to be affiliated with the Canadian National Safety League, and that a committee be appointed by the incoming executive to deal with the subject. It was decided to refer the suggestion to the incoming executive committee.

In the afternoon, E. B. Entwistle, Lorain Steel Co., read a paper on welded track joints which will be given in full, later. It was discussed by W. F. Graves, Chief Engineer, Montreal Tramways Co., R. L. Brown, Metal and Thermit Corporation, and others.

The National Safety League then showed moving pictures "The rule of reason," and "Comrades of success," after which G. W. Lyndon, President, Association of Manufacturers of Chilled Car Wheels, of which the Dominion Wheel and Foundries Ltd., Toronto, is a member, showed pictures depicting various processes of manufacturing chilled iron car wheels.

On June 3 there was a session in the morning devoted to unfinished business and the election of officers. The nominating committee reported suggesting the following members as officers and members of the executive committee.

Honorary President — E. A. Robert, President, Montreal Tramways Co., and Quebec Railway Light, Heat & Power Co. Honorary Vice President—Wm. C. Hawkins, Managing Director and Secretary, Dominion Power & Transmission Co.

Honorary Council — Thos. Ahearn, President, Ottawa Electric Ry.; Acton Burrows, Proprietor, Canadian Railway and Marine World; Geo. Kidd, General Manager, British Columbia Electric Ry.; Lt. Col. J. E. Hutcheson, General Manager, Montreal Tramways Co., and director Quebec Ry., Light, Heat & Power Co.

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Treasurer—W. S. Hart, Managing Director, Three Rivers Traction Co. Auditor—Lieut. Col. G. C. Royce, General Manager, Toronto Suburban Ry.

The committee's report was adopted unanimously.

Subsequently the President, with the

executive committee's approval, appointed D. N. Gill, Comptroller, Ottawa Electric Ry., as Secretary.

Votes of thanks were passed to the retiring President, G. Gordon Gale, and other members of the executive committee, also to Secretary Moreland, for the way in which the Association's work had been carried on and developed during the past year, and also for the very excellent arrangements made in connection with the annual meetings; to the Que-

plies occupied the whole of the Drill Hall's ground floor, the most complete arrangements for them having been made by the chairman of the exhibits committee, R. M. Reade, who worked unceasingly and secured splendid results. The other members of the committee, Don. M. Campbell and A. Gaboury, not being able to be in Quebec much previous to the meeting, the great bulk of the work fell on Mr. Reade, who did it admirably, and received great praise from the ex-

Association's annual meeting.

The programme provided the following times for the inspection of exhibits: June 1, following the opening addresses, also from 12.30 to 1 p.m., and from 5 p.m.; June 2, from 9 to 10 a.m., from 12.30 to 1 p.m., and from 6 p.m.; June 3, from 9 to 10 a.m. Owing to business meetings being in progress during some of the periods allotted for the inspection of exhibits, the latter feature was somewhat interfered with and it has been suggested that in future years at least a whole afternoon, preferably on the second day of the meeting, be devoted to them.

The associate members presented R. M. Reade with an inscribed silver mounted cane; P. J. Quinn with a silver cigarette case; and Mr. Garrett with a gold eversharp pencil.

The associate members re-elected their committee for another year, viz:—Don. M. Campbell, Preston, Ont., chairman; H. T. Gibbs, Canadian Westinghouse Co.; and O. C. Rehfuess, Canadian Car & Foundry Co.

Entertainment and Social Features.

A splendid series of entertainment for the members, associate members and the ladies accompanying them was carried out, the arrangements for which had been made most thoroughly by the chairman of the entertainment committee, W. J. Lynch, General Manager, Quebec Ry., Light, Heat & Power Co. It was started on June 1 at 1 p.m., with a get-together luncheon for members, associate members and ladies at the Chateau Frontenac, some 300 attending. President Gale, who occupied the chair, expressed satisfaction at having among the guests the members of the American Electric Railway Association's executive committee, which had met in Montreal on the previous day, all the members of that Association's way committee, and the New England Electric Railway Association's President. Don. M. Campbell, chairman of the electric railway supply men's committee, proposed the health of the American Electric Railway Association, to which its President, R. I. Todd, President Indianapolis Traction & Terminal Co., responded. In the evening a perfectly arranged and excellently served dinner was held at the Chateau Frontenac, some 350 members, associate



Exhibits in Drill Hall at Quebec, during Canadian Electric Railway Association's Annual Meeting.

bec Railway, Light, Heat & Power Co., for courtesies extended during the meetings; to W. J. Lynch, R. M. Reade, H. G. Bosse, P. J. Quinn, Mr. Cassels, and other officials of the company, for their untiring energy in arranging for the entertainment and instruction of the members; to the manufacturers and supply men for the enthusiastic way in which they had arranged for display and ex-

hibitors as well as the members. He was ably assisted by P. J. Quinn, Master Mechanic, Quebec Ry., Light & Power Co., and Mr. Garrett of Mr. Reade's office staff. The hall was divided into separate spaces for each exhibitor, as shown in the diagram published in Canadian Railway and Marine World's May issue. Each space was neatly railed off, and the hall was profusely decorated with



Canadian Electric Railway Association's Annual Meeting at

hibits; to the military authorities for giving the use of the Drill Hall; and to the technical and local press for the interest taken in the meeting and the very complete reports of it. This was followed by moving pictures, "Careless America," and "The high cost of hurry," by National Safety League, and "The St. Maurice River and Hydro Electric Development," by Shawinigan Power Co.

The Exhibits

of electric railway equipment and sup-

flags and adorned with flowers. Direct current was installed for the use of those having moving exhibits. A list of the exhibitors, their exhibits and the names of their representatives was given in Canadian Railway and Marine World for June, on pgs. 307 and 308. The various exhibitors made a very complete display, which was most creditable in every way, particularly when it is borne in mind that it was the first time there had been an exhibit in connection with the

members, ladies and other guests being present. The chair was occupied by Lt. Col. J. E. Hutcheson, General Manager, Montreal Tramways Co., and director Quebec Light, Heat & Power Co., who proposed the King's health.

The other toasts were "Our Guests," proposed by Vice President Burpee and responded to by J. H. Welsh, Executive Secretary, American Electric Railway Association, and Capt. Emile Trudel, Chief of Police, Quebec City; "The Lad-

ies," proposed by F. J. Neale, Vice President, Dominion Wheel and Foundries, Toronto, and responded to by C. L. Wilson, Assistant Manager, Toronto and York Radial Railway; "The Association," proposed by C. L. Henry, President Indianapolis & Cincinnati Traction Co., and responded to by President Gale; "The Press," proposed by Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry., and responded to by F. Carrell, President, Quebec Telegraph; Acton Burrows, Proprietor, Canadian Railway and Marine World, and H. H. Norris, Managing Editor, Electric Railway Journal. The dinner was followed by an informal dance, during which the Royal Canadian Artillery band played on Dufferin Terrace.

On June 2, the members, associate members, ladies and other guests went in the afternoon by steamboat, from the Champlain wharf, up the St. Lawrence

River, to a little above the Quebec Bridge, a splendid view of which was obtained. Refreshments were served during the trip. In the evening there was a reception and ball at the Chateau Frontenac, the guests being received by Mesdames G. Gordon Gale, F. D. Burpee, W. J. Lynch, H. G. Bosse, R. M. Reade and Don M. Campbell.

Through the Quebec Ry., Light, Heat & Power Co.'s courtesy the ladies were given a trip around the city, on an open observation car, and on return to the Drill Hall were entertained at afternoon tea.

A group photograph of a large number of the members, associate members and guests was taken in front of the Drill Hall and is reproduced herewith.

On the morning of June 3, the Quebec Ry., Light & Power Co. gave a number of the members, associate members, ladies and other guests an electric car

ride to Montmorency Falls and the shrine of Ste. Anne de Beaupre, and some of the members and guests started on a steamboat trip to the Saguenay, returning to Quebec on the morning of June 5. On the Saturday afternoon a number of the members and guests were present at a garden party given by Sir Charles and Lady Fitzpatrick, at Spencerwood, the beautifully situated Government House, in honor of the King's birthday.

W. J. Lynch's efforts as chairman of the entertainment committee were greatly assisted by Mesdames Lynch, Bosse and Reade, of Quebec, who were most assiduous in their attentions to the visiting ladies.

The Royal Canadian Artillery Band, under the direction of Chas. O'Neill, Mus. Bac., provided most excellent music in the Drill Hall during each morning, and on Dufferin Terrace during the first evening.

Motor Buses and Trackless Trolleys.

D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co., read the following paper:—The evolution of urban transportation has reached a stage where serious consideration must be given to the various developments of the trackless vehicle. It is not the intention of this paper to demonstrate the advantages of any particular scheme, but an effort will be made to introduce some of the questions that must be considered before making a choice of satisfactory and economical equipment to meet various sets of conditions. A healthy discussion of these questions may help some of us to make wiser decisions than would be the case if we were to follow our personal fancies. It will be as well to keep in mind the fact that the subject has been forcibly thrust upon us by the competitive efforts of jitney and independent bus drivers, whose competition may be unfair and unprofitable, but which, nevertheless, takes away from us a certain proportion of our most desirable business.

Competitive Business.—It would appear to the writer that, in some cases,

There is no doubt that greater comfort can be obtained on the rails, and, in equally congested district, the rail-borne vehicle should be faster and more economical when comparisons of costs are made on an equal basis.

Non-competitive Business.—There are cases where, owing to topographical reasons and narrow streets, it may be found more economical to handle certain traffic by running buses over a short distance, rather than to carry passengers around a longer distance over existing tracks. Where such a condition exists, it is liable to attract competitors, especially if transfer privileges are of no value. This competition might be anticipated to the net advantage of the company. As soon as deflation of costs allow of a generous building programme, we will be confronted with many demands for extensions through thinly populated districts, and, in many cases, connections with separate small but thriving suburban communities will be desirable. This kind of business is admittedly unprofitable, for a time, and even if an extra fare is charged at first

be profitable to the company, has been reached. Due consideration must be given to the fact that good pavings do not usually precede population in outlying districts in this country. Steel rails may be essential in many cases.

Expediency.—In almost every city, there are examples of existing lines that are a source of actual loss, but which must be maintained on account of contracts, commission rulings, level crossing regulations and other restrictions. The point has been stressed by many writers that full consideration of such conditions might show that losses could be reduced by trackless operation. A decision in favor of the bus or trackless trolley, in such cases, will usually be dependent upon the necessity of track renewals or regrading of streets.

Unfairness of Competition.—When making comparisons of operating costs between buses and electric cars, it will usually be noted that the electric railway is called upon to build and maintain its own roadbed which carries, at the railway's expense, a large part of the independent street traffic and that it is heav-



Quebec—Members and Guests in front of the Drill Hall.

the best defence of the organized street railway would be to steal the enemy's thunder, but in many other cases there is a strong presumption that the bus can only thrive where existing transportation facilities are unsatisfactory to the users. In such cases, it would perhaps be found advisable to spend as much or more money and to exercise as much executive ability on improving the existing service. Various means suggest themselves, such as more cars, better cars, closer study of traffic movement, faster schedules, etc.

to offset the low density of traffic, there is always the danger that political pressure will force the extension of city fare zones long before the traffic becomes profitable on such a basis. The tendency will be to leave this business to independent bus operators, but the suggestion is offered that such communities might be efficiently served, without loss, if a definite contract were arranged under which the community will undertake to make good any operating losses and to guarantee a fair return on the investment until a density of traffic, that will

ily taxed in many other ways for the public benefit. The development of bus traffic on this side of the water has not reached the point where the public conscience demands an equivalent rate of taxation on bus operation for profit over the public highways. Furthermore, it is usual for the independent bus to appear only at such hours and places that show promise of fair profits. Municipal regulations of street cars, on the contrary, oblige them to maintain a service throughout the lean hours at a loss. The operation of buses by organized com-

panies may hasten the day when both methods of transportation will be subjected to the same treatment.

Questions.—The writer suggests that each delegate to the Association's annual meeting be prepared to express an opinion on the following questions as applied to his own peculiar set of conditions.

Has the self propelled vehicle a legitimate place in the economical operation of my system?

What are the obvious advantages of such operation?

What are the possible disadvantages of such operation?

What are the limitations of such operation?

Will the service be competitive with existing lines or not?

Is it to be considered as a temporary expedient or as permanent?

How do ultimate costs of operation compare?

What is the best type of vehicle? Gasoline propelled or trackless trolley? Double or single deck? Low floor, quick loading type with easy riding springs, or just a small street car body mounted on a high truck designed for freight handling? Will the cost of a heavier chassis, heavier engine and wheels, and the cost of an extra man, as well as the cost of hauling extra weight all day, justify the addition of a double deck for fine weather and rush-hour traffic?

Would the district affected be better and more economically served by a larger fleet of single deck, one man buses, operating to suit changing traffic conditions or by a smaller number of two-man, double deck buses, costing more per bus unit for both investment and operating charges?

What kind of tires should be used? Is roadway smooth enough to allow use of solid tires? Is roadway so rough that pneumatic tires are essential for comfort as well as to keep down cost of engine, chassis and body maintenance? Are cushion tires satisfactory? Are cushion wheels, with hard tires satisfactory? Does the pneumatic tire offer better traction on snow-covered roads?

Is light weight of great importance? Would the possible saving of fuel and tires justify the higher rate of maintenance and depreciation of a light body? Does not a light body construction allow of consequent saving of weight and cost of lighter chassis, lighter tires and lighter engine?

Is the nature of the route such that sight-seeing traffic and joy-riding will be a factor?

What are the controlling factors in laying out a satisfactory bus system for a given service? Should the size and carrying capacity of the unit be based upon satisfactory and efficient operation during 90% of the daily performance under normal conditions, or are the prin-

ciples of efficiency and overall economy to be ignored in order that we may handle temporary overloads during 10% of the time in service? Is it not more economical, when both operating and interest charges are included, to utilize buses designed for the light service of the normal hours, and to provide extra equipment of a suitable character to take care of the rush hours only? Should overloading of buses with standing passengers be allowed at rush hours or at any other time?

Passenger load is so great a proportion of the total weight carried that the practice of overloading of buses can only result in low efficiency and high cost of service, because a vehicle having capacity for overloads must be designed throughout to carry these overloads safely. The extra capacity is taken advantage of for only about 10% of the time. During 90% of the running time, this extra weight and rigidity under light loading will result in a higher cost of operation than necessary. The first cost and unusual charges will also be relatively high. The most successful bus operating company in America, after long experience and careful study, has adopted a cast-iron rule of "a seat for every passenger." Real economy is thus obtained under conditions that make for comfort and satisfaction of the passengers and a correspondingly high hope of success.

Valuation of Street Railway Assets, Their Maintenance and Depreciation.

The following paper by L. A. Herdt, D.Sc., and E. G. Burr, B.Sc., consulting electrical engineers, Montréal, was read:—According to the Encyclopedia Britannica:—"An efficient service of street traction may be defined as one which, while giving a reasonable return on the capital invested, provides the public, without disfigurement of the highway, with a quick and frequent service of cars." To ensure this efficient service, given by electric tramways, two systems of management are known, viz.: public management and private management.

Absolute public ownership and operation is believed in by many. It has been tried on electric tramways and on railways as well. The tramway is but a particular type of railway. Railways have a great bearing on the agricultural, industrial and commercial interest of a country, and both their organization and their rates are matters of vital public concern. The street railway plays a similar part in the welfare of the towns and cities. Electric tramways are an essential public necessity and it is a matter of grave importance to make certain that such essential public service be effectively performed and the rates charged equitable.

A Federal commission of enquiry was appointed in May, 1919, by President Wilson, of the United States, to enquire into the alarming situation confronting street railway companies in America, due to the sudden sharp rise in wages and cost of material, and the utter inability of the companies to face these new charges with a 5c fare limit. After an enquiry lasting from June, 1919, to July, 1920, during which the most competent of experts, as well as the leaders in banking, commerce, civil government, street railways employees' associations, and street railway companies had been heard; conclusions and recommendations were made, a few of which are listed as

follows:—The electric railway is an essential public utility and, as such, should have the sympathetic understanding and co-operation of the public. The electric railway industry, as it now exists, is without financial credit and is not performing its public function properly. The industry can be restored to a normal basis only by economical operation, improved tracks, equipment and service, and the certainty of a fair return on the investment. The electric railways must expand to meet the growing needs of their communities; therefore, the first essential is to restore their credit, in order to enable them to secure the new capital required for the extension and improvement of service. Restoration of credit involves a readjustment of relations, which will remove public antagonism, provide public co-operation, and ensure to the investor the integrity of his investment and a fair rate of return thereon. The fair valuation of the property employed in the public service is an essential condition to a fair solution of the street railway problem. Municipal governments should tax the companies as lightly as possible. Cost-of-service contracts are in the experimental stage, but, where tried, they seem to have secured a fair return upon capital, established financial credit, and resulted in reasonably satisfactory service. Subject to a proper safeguarding of the public's right eventually to acquire the property, such contracts are advisable. Public operation not being practicable under present conditions, private ownership and operation should be maintained.

It will be seen from the above that this Federal commission placed great importance upon a fair valuation of the property and the necessity of protecting the investment. It stated amongst other recommendations that:—"A fair valuation of the property employed in the

public service is an essential condition to a fair solution of the street railway problem." Again—In the words of Mr. Justice Harland, of the U. S. Supreme Court: "What a company is entitled to ask is a fair return upon the value of that which it employs for the public convenience."

The correct principle is thus briefly stated, the practical application of this principle, however, is a matter of some difficulty. This principle involves the conception of a property which has an actual value and a fair return is to be given to the owner for the service provided by his property. This value being ascertained, the determination of what constitutes a fair return becomes a matter of consideration of the financial risk involved and the facility with which money can be attracted for an investment in such properties. What then is "the value of that property which is employed for the public convenience?" In one sense, value cannot be separated from its fair return. A property only has value inasmuch as it is a paying venture, and from this point of view, the above statement of principle becomes merely a statement of the right of a company to hold property and gives no light on the further matter of the right for that property to earn a return for its owners.

It is clear that some other meaning must be attributed to the word "value" and that a property may be considered valuable for public service irrespective of its power to earn a return for the owners. The company should therefore receive a fair return based on the service value to the public of that property which is employed in this public service. How can this service be ascertained and what are the items of property which perform this service? There is the physical property engaged in the service, consisting of the various structures,

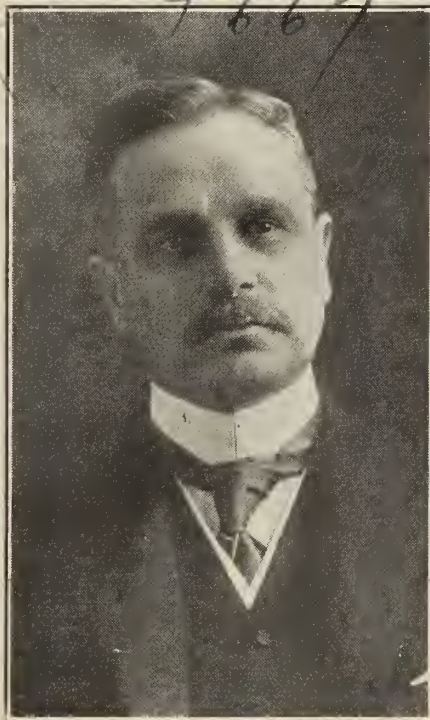
pieces of apparatus, equipment, land, etc., which are used for public service, together with such contingencies and overhead expenses as are necessary to build the property completely. There are the items which are not tangible or appreciable to the physical senses, but which are employed in the public service, and without which the service could not be given. The chief of these are the brains and the experience of the management of the company. The whole value is the sum of the two.

The difficulty of appraisal of the intangible values has made it customary to base the fixed return on the value of the physical property only, but the other part of the value should not be lost sight of, and some means must be provided for paying a fair return thereon, if by capable and efficient management such a value to the public is created. The lack of incentive to create such an intangible value has been the chief reason of failure of many public owned and operated utilities, and the compromise plan of public control, but privately owned operated utilities cannot hope for better fate unless this value is realized and practical means devised for paying a return when such value is created. The Montreal franchise includes such a feature, in the form of an operating profit or bonus available to the company if it keeps within the fixed allowances while maintaining service to standards laid down each year by the Tramways Commission, and provision is also made for its participation in such surplus as may be earned, after meeting all the charges of the service.

We have then to determine the value of the physical property which is employed for the public service, as the available basis for computing the fair return to the company. It is seldom possible to use the capitalization of the company as a fair measure of the value of the physical property. The possibility of additions and betterments to the property having been made from earnings resulting in a too low value on the one hand, watering of stocks on the other hand, makes such data unreliable. Complete purchase records are seldom available. If available, they must be modified to conform to the general trend of prices. The many difficulties of obtaining a proper basis of fact under such circumstances has led to the preparation of an estimate of the cost of reproducing a property of identical items to be completed at the date of the appraisal, and including all costs of organization of the company and financing the works ready to give the service in the manner and at the cost of operation of the existing company. The value thus estimated is generally called the reproduction cost, and some notes on routine of this part of the work are given in the appendix hereto. Some considerable difficulty occurs where the reproduction of items to be thus estimated are of a type which in the progress of the art have been superseded by later designs. A reasonable procedure in this case appears to be to estimate on the modern equivalent of the actual item, and make allowance for any operating saving resulting, while disregarding merely changes of fashion. This amounts in fact to an allowance for obsolescence in the old equipment, and must be done with judgment and intimate knowledge of the trend of design of apparatus. This may also be taken into account after completing the above estimate.

With the completion of the reproduc-

tion estimate comes the question of depreciation. A number of public utility commissions in the United States have adopted the idea that, for rate cases as well as in purchase proceedings, the depreciated value of the reproduced property should be ascertained. If the property has not been maintained up to a standard of full service efficiency by the discarding of worn out or obsolete parts, an allowance for obsolescence in the old equipment can be made. Full service standard will, however, represent in a street railway property probably not more than 85% of the reproduction cost, that is to say, at no time is a property actually new, time is required to construct it, and it begins to wear before it is actually placed in service. The 15% difference between its reproduction cost new and its value representing full service standard has been employed in the public service, and the property could not exist without the company making this 100% expenditure, and it would seem required to rehabilitate the property to a full operating condition of standard



E. A. Robert,
President, Montreal Tramways Co., and Quebec
Railway, Light, Heat & Power Co., and
Honorary President, Canadian
Electric Railway Association.

efficiency. This, adopted as a principle in rate cases, would safeguard the undoubtedly right that in rate cases the value allowed should be determined as the value of the physical property new, and that depreciation should only be deducted for the amount which would be lost from paying a return on the full new value of obsolete parts of a property, or of nearly worn out parts, as well as high operating and maintenance charges, while granting the company its return on the value of that which it uses in the public service.

It will be noted that the above suggestion amounts to depreciating the property value only if parts of the same are obsolete, while making no deduction from new value for parts which are merely worn, as it is the undoubted right of the company that its property value shall be maintained unimpaired under the stress

of the service rendered to the public. It may be claimed that in many cases past rates have been insufficient to allow the company to replace obsolete parts or to maintain the property to full service standard. Such cases may be considered on their merits, by an examination of the history of the particular company and allowances made if found desirable. In a large property it is often feasible to provide for replacements in the annual budget and pay for the same as a current expense. This is the scheme adopted in the Montreal Tramways contract. It has the advantage of meeting such charges from the people who benefit by the expenditures, rather than making the people of today provide the money to reduce the cost of service to later generations. Smaller properties, however, may find it impossible to assess current revenue for such major replacements, and should accumulate a fund from revenue for this purpose. Such fund should be limited, as its purpose is to meet replacements for obsolescence, and with the standardization of the art the risk of obsolescence, is growing smaller. Experience has shown that a definite annual contribution to such fund, if no limit is set, results in an accumulation for which no proper use can be found, and therefore is an unjustifiable charge under public service.

Appendix.

Routine of Estimating Reproduction Cost New.—Inventory, Classification.—It is desirable to prepare the inventory under a standard schedule of accounts. The Interstate Commerce Commission's schedule is frequently adopted, but several accounts may be grouped for convenience when the property is small. The Board of Railway Commissioners of Canada schedule is very similar to that used in the United States.

Establishing Unit Cost Prices.—From 1899 to 1915 the price of labor and material increased or decreased, in a sufficiently normal manner to enable the establishing of a curve showing the rise and fall in prices each year for the period covered. This is called establishing a "trend curve" and such curves are of very great assistance in obtaining unit cost prices. Starting late in 1915, the costs of material and labor showed abnormal increases due to war conditions. The peak was reached in 1920, the present day costs have receded somewhat from the peak, but they are still high. It is possible, however, if the "trend curve" is established to 1915, to extend this curve from 1915 to 1922, not following the actual costs of labor and material during this period, but at an increase relatively equal to the average increase per year during the period from 1899 to 1915. It will, however, be found that regulating commissions hesitate in approving or disapproving any theory in arriving at a replacement value which is not based on actual costs, considered in conjunction with the actual local conditions.

Functional and Physical Depreciation.—In addition to the operating expenses and ordinary maintenance charges and a fair return on a fair valuation, a public utility company must take care of depreciation, whether functional or physical. That is, the wastage in property, called physical depreciation, or the discardage of property due to functional depreciation, must be taken care of. This can be done in either of two ways, by setting up a renewal fund into which annual appropriations, from revenue, are made.

Replacements and renewals are chargeable to this fund; or, by providing additional capital for replacements and renewals. If one or the other of these are not done, the property and service will in time disappear. No one will admit that it is possible for any length of time to charge to capital account all such items of property as go entirely out of existence, due to wastage or obsolescence.

Maintenance and Renewal Fund.—The Montreal Tramways contract provides in article 92, paragraph 2, as follows: "The entire plant and property of the company used and necessary to provide the public transportation service shall at all times be maintained at the highest practical standard of operating efficiency. For the purpose of maintenance, renewals, replacements and substitutions made necessary by wear and tear, age, obsolescence, inadequacy, accident or other cause, a sum shall be set aside for each revenue car-mile, exclusive of car-house and car-yard miles, made by cars equipped with motors, and other sums for each revenue car-mile made by trailers and by freight cars, always exclusive of car-house and car-yard miles. Such sums shall be known as the maintenance allowance, and shall be placed in a fund to be known as the maintenance and renewals fund. Any items of property contained in the valuation schedule A, or added to the tramways system since June 30, 1917, which shall become worn out, or which for any other reason shall at any time be deemed no longer useful as a part of such system, shall be disposed of under the direction of the Commission, subject to the provision of any trust deed, upon the most advantageous terms obtainable, and the proceeds thereof, with, when required, the consent of any trustee for the bondholders of the company, shall be paid into said maintenance and renewals fund, or if such consent be not forthwith obtained, then said proceeds shall be deducted from capital value. The proceeds from the sale of land and buildings shall not form part of said fund, but shall, however, be deducted from capital value. Out of said maintenance and renewals fund shall be paid from time to time the actual necessary expenses of maintenance and renewals, and of replacements and substitutions as hereinafter provided, and any moneys not needed for such purposes during any year shall remain in said fund and be held in reserve until required for such purposes, or for investment in betterments, additions and extensions as hereinafter provided. Whenever any portion of the plant is replaced, or other property substituted therefor, the cost of such replacement or substitution up to the full reproduction cost of the unit or article so replaced or substituted for, as fixed by the said valuation, shall be paid out of the maintenance and renewals fund, and any cost in excess of said reproduction cost shall be paid out of moneys supplied by the company as hereinafter provided, and the amount thereof shall be added to capital value. In case any item of property which shall have been added to the plant subsequent to June 30, 1917, shall be replaced or substituted for, then the actual cost to the company of such item shall be paid from the maintenance and renewals fund, and any cost in excess of such actual cost shall be paid out of moneys supplied by the company as hereinafter provided, and the amount thereof shall be added to capital value. In case the cost of any such replacement or substitution shall

be less than such reproduction cost or such actual cost, as the case may be, or in case any item of property included in said valuation or thereafter added to the plant shall become worn out or be abandoned or sold as hereinabove mentioned, and shall not be replaced or substituted for, then the difference in cost or the full amount of the reproduction cost or the actual cost, or the proceeds of the sale, as the case may be, shall except to the extent that capital value shall be reduced by the proceeds of the sale of land and buildings as hereinbefore provided, be appropriated out of the maintenance and renewals fund from time to time with the approval of the Commission, for the making of betterments, additions to and extensions of plant, as may be required, and the cost of such betterments, additions and extensions paid from such appropriations shall not be added to capital value.

"If at the end of the first year of operation under this contract or at the



Major F. D. Burpee,
Manager, Ottawa Electric Ry., Director, Ottawa
Traction Co., and President, Canadian
Electric Railway Association.

end of any subsequent year, it shall appear to the satisfaction of the Commission that the maintenance allowance herein fixed is insufficient, such allowance shall be increased for the ensuing year and from year to year as may be deemed necessary. If at the close of any year the Commission shall find that the maintenance allowance is excessive or that the maintenance and renewals fund is greater than prudent management of the tramways system required, then the Commission may reduce such allowance to any extent which it may see fit; provided that the maintenance allowance shall never be so reduced as to cause a reduction in the maintenance and renewals fund, except temporarily, below \$500,000, and in case such fund is at the end of any year found to be reduced below such sum, then the Commission shall forthwith increase the maintenance allowance in an amount sufficient to restore said fund to at least \$500,000. Said

fund shall be under the control of the Commission, and no monies in it shall be paid out or loaned or invested except with the Commission's approval. In case the moneys in such fund are deposited in bank or invested, the interest thereon or the revenues derived therefrom shall be added to and become a part of said fund.

"In case the city shall purchase or acquire the property of the company at the termination of this contract, the maintenance and renewals fund, as then existing, shall become the property of the city, and the amount of such fund shall not be added to the purchase price, and any monies then due by the company to said fund shall be deducted from the purchase price."

This paragraph is a long one, but of great importance. In brief it states that a basic condition of good service is that the entire plant and property be properly maintained. Replacement and substitutions are to be paid out of revenue up to the full reproduction cost of the item or part of the property so replaced, as fixed by the valuation which was made at the time of the contract. Any cost in excess of the reproduction cost now fixed in the valuation is charged to capital; any cost less than such reproduction cost is placed into the fund to be used for the making of betterments, additions to or extensions of the plant as ordered by the Tramways Commission.

J. F. St. Cyr, chairman, Montreal Tramways Commission, explained the working of the Montreal Tramways Co.'s franchise and said that the city preferred co-operation with the company, rather than municipal ownership. A. B. Ingram, Vice Chairman, Ontario Railway & Municipal Board, and L. Tait, Secretary, London Street Ry., also took part in the discussion.

H. E. Weyman, Manager, Levis County Ry., in opening the discussion, said:—I will endeavor to consider this valuable paper from the public authorities' point of view, and not our own, and I think this should be borne in mind during the discussion. The paper covers vital and important subjects, in fact it covers so wide a field that it is not possible with the limited time at our disposal to more than touch on the high spots. The valuation of a property must be impartial if it is to be effective. We have during the recent year heard a lot about employees receiving a living wage, etc., which the public generally have upheld as only fair. Does not the same principal apply to those who have invested their money in street railway properties for the use and benefit of the public? They are just as much entitled to a living wage as any workman. Up to the present there appear to be two well known theories advanced upon which to base a valuation: 1, Reproduction cost. 2, Reproduction cost less depreciation. Dr. Herdt and Mr. Burr have suggested that Reproduction Cost be taken, which is the cost of reproducing the property, under certain conditions, and not, as advocated by some engineers and experts, the reproduction cost under the actual conditions existing at the time of the valuation, which is clearly advantageous to the company interested. The reproduction cost, less depreciation theory, upheld also by some prominent authorities, holds that it is improper to grant a reasonable return upon the actual reproduction cost at time of valuation, since the property has depreciated perhaps up to 50% of the reproduction cost, and the unit cost may be abnormally high or

low at that particular period of valuation. There is little doubt that there have been many cases where there has been a tendency to permit the property to depreciate much below a good operating standard, and when this is permitted, the ordinary operating and maintenance costs increase rapidly in practically the same ratio as the property has been allowed to depreciate, the final result being rehabilitation at a cost out of all proportion with the saving made in maintenance in previous years. "A stitch in time saves nine" still stands as a good motto. The Montreal Tramways starved the property, or permitted maintenance to accrue, but what a different tale is told of other properties.

The paper puts forward certain fundamental principles upon which to base a valuation. It is suggested that the reproduction cost, based on a "tend" curve of unit costs, covering a number of years, be adopted as fair, and that the full service standard, or standard of maintenance, be expressed as 85%, which shall be equivalent to 100% reproduction cost. In other words, the total depreciation is divided up into physical and functional, and 15% physical depreciation is allowed, the physical depreciation being the depreciation which starts during construction, and is always present, even if the property is maintained at the highest standard possible. The 15% represents the difference between the theoretical and actual practical conditions, and, therefore, should be taken care of. If the property is and has been maintained at 85% full service standard, 100% reproduction cost is the basis of the valuation. This, in itself, is an advancement, and will be, I think acknowledged as such by public authorities. We, therefore, come to the functional depreciation, which is obsolescence, accrued maintenance, and worn out parts, and is expressed at any figure under 85%, according to the condition of the property at the time of valuation. The whole question appears to hinge on this point. For instance, there are properties where the track has been permitted to deteriorate considerably, even to a point where the rails are held by the pavement only, and joints shimmed on the concrete base, so that when the pavement finally gives up the ghost a very heavy rehabilitation expenditure will have to be made, which the depreciation fund, if in existence, will not pretend to take care of. The track is the foundation of the whole system and its condition affects the total operating expenses right along the line. Drainage is the foundation of the track, and, generally speaking, not enough attention is paid to this item. Other properties may be operating today only on account of the track having been maintained at a fairly high standard, the remaining portion of the property being in a considerably deteriorated state, but the effect in operating expenses not being as bad as in the former case. In any case, someone is paying abnormal high operating expense when the functional depreciation is high. If the company has been taking everything out and putting nothing back into the property, is it entitled to reproduction cost? Suppose the equipment is and has been poorly maintained, so that its operating standard is low, and maintenance high, is it to be valued at reproduction cost? Should the company in both cases be allowed full reproduction cost, always allowing the 15% physical depreciation. If so, what inducement is there for a company to maintain its property at the

service standard. If someone was about to purchase the property, would not the functional depreciation be deducted from the value, which also would include an allowance for poor maintenance. This question would hinge on whether functional depreciation has been taken care of in the company's accounts. If adequate reserves for depreciation covering all accrued functional depreciation have been established, which means that the company has been granted an allowance through the annual depreciation charge, and at the same time received a return on its investments, and if this depreciation has not been used to liquidate bonds, or other indebtedness, but employed in making extensions or betterments, a valuation on reproduction cost should be allowed. On the other hand, if the company has not taken care of functional depreciation, but employed its net to the advantage of its stockholders, then the valuation is affected by the amount of functional depreciation. The question as to whether abnormal deferred and accrued maintenance of the pro-



H. H. Couzens, A.M.I.E.E.,
General Manager, Toronto Transportation Commission and Vice President, Canadian Electric Railway Association.

erty should be included in the functional depreciation, is one that I would like to ask. It is not clear to me that in the case of a piece of property poorly maintained, and in consequence, expensive in operation, which is being paid for by the public, and in order to bring it back to the service standard, which will cost a considerable amount over and above the depreciation allowance, that reproduction cost should be allowed. The company has taken a certain amount of money out of that item and the public is paying high maintenance in consequence. Should the company be allowed full value for an item, which must have a certain amount on it, in addition to the depreciation allowance, if allowed for, to bring it to an efficient operating item?

It appears that if the functional depreciation is not taken care of, the bondholders are not properly or safely pro-

tected. It is essential that careful and proper accounting be employed: A property or plant ledger should in all cases be employed, together with perpetual inventory, and the functional depreciation should be taken care of in this ledger. Such well kept records ought to be an aid, rather than a hindrance in securing justice and fair treatment at the hands of the public authorities. The Interstate Commerce Commission realized this, and in 1914 published a uniform system of accounting, which U.S. electric railways are supposed to follow. This system takes care of depreciation and property accounts. Had this been established and followed earlier many companies would have been the gainers. In Canada very few companies appear to follow this prudent system.

As pointed out by Dr. Herdt, functional depreciation is an expense and should be deducted from gross revenue before net profits are determined, and not as some do from net profits. Mr. Weyman concluded by suggesting that a sub-committee be appointed to consider the standard classification of accounts, and the including of depreciation in its various forms as an expense account.

An Electric Railway Declared to Be a Common Carrier.

The Ontario Legislature, at its recent session, passed an amendment to the Ontario Temperance Act providing that no intoxicating liquors may be transported for export on any public highway unless by a common carrier. Under this provision the Ontario License Board, seized 60 kegs of beer, belonging to the British American Brewing Co., on the cars of the Ontario Hydro Electric Rys., Essex Division, at the end of the Petite Cote spur line on, June 19. Proceedings were taken against the brewery company for contravention of the provisions of the new Act, the summons being returnable June 21. When the case was called on that day, it was intimated that the defence would be that the electric railway is a common carrier within the meaning of the Act. An adjournment was made to June 23, when the police magistrate heard arguments and dismissed the case, holding that it was quite clear that the electric railway has the full powers of a railway, and is a bona fide common carrier.

Guelph Radial Railway Operation, Betterments, Etc.

Guelph, Ont., press dispatch: The Hydro-Electric Power Commission of Ontario, which is operating the Guelph Radial Ry. for the City, has presented to the city council's finance committee a complete statement of the operations under its management up to May 8, which shows that it has expended practically the whole of the \$150,000 which the city provided to put the road in good operating condition, and it now asks another \$150,000, which it says will be necessary to complete the job. Of this amount nearly \$90,000 is for new rolling stock, comprising a number of safety one-man cars. The Commission proposes to relay a large amount of the track with new steel, and put in new ties and otherwise improve the road. There is considerable dissatisfaction among a number of the citizens regarding the operation of the road, but Chief Engineer Gaby is optimistic as to it finally being made a paying proposition.

Mainly About Electric Railway People.

Major F. D. Burpee, Manager, Ottawa Electric Ry., and director Ottawa Traction Co., Ottawa, Ont., who has been elected President, Canadian Electric Railway Association, was born at Ottawa, Apr. 25, 1876, and commenced railway work in 1891 on District 4, Eastern Division, C.P.R., Ottawa, and transferred to Ottawa Electric Ry. service in 1893, since when he has been, to 1896, stenographer; 1896 to 1898, cashier and paymaster; 1898 to Aug. 1912, accountant, during which time he also acted as assistant to the Secretary-Treasurer, and to the Superintendent. In Aug. 1912, on the resignation of Lt. Col. J. E. Hutcheson, to become General Manager, Montreal Tramways Co., he was appointed Superintendent. He enlisted in the 207th Battalion, C.E.F., in Feb. 1916, assisted in recruiting the battalion, and sailed for England as second in command in May 1917, with the rank of Captain, where the battalion was eventually broken up. He then transferred to the Canadian Railway Troops, reverted to the rank of lieutenant and went to France July 7, 1917, and was engaged at points all over the British front, becoming Captain and then Major. He returned to Canada early in 1919, and resumed his duties as Superintendent, Ottawa Electric Ry., in March 1919, and in 1920 was appointed Manager. In Feb. 1922, he was elected a director, Ottawa Traction Co. He was Vice President, Canadian Electric Railway Association, Feb. 1, 1921, to June 3, 1922.

Abner Coleman, father of E. P. Coleman, General Manager, Dominion Power & Transmission Co., Hamilton, Ont., died at Taunton, Mass., May 30. He was born at Stockport, Eng., Aug. 31, 1845, was for many years with the Taunton Locomotive Manufacturing Co., and was one of the pioneers in the telephone business in southern Massachusetts.

Henry Herbert Couzens, A.M.I.E.E., General Manager, Toronto Transportation Commission, who has been elected Vice President, Canadian Electric Railway Association, was born at Totnes, Devonshire, Eng., Oct. 16, 1877, and was educated at the Independent College (Taunton School), Taunton, Eng. He served subsequently as an articled pupil in both mechanical and electrical engineering, with Allen & Sons, Taunton, and the Taunton Corporation Electrical Works respectively, and in 1898 was appointed Assistant Engineer, Bristol Corporation Electrical Department, Bristol, Eng., and held that position until 1901, when he was appointed Deputy City Electrical Engineer, Bristol. He resigned in 1909 on his appointment as Manager and Engineer, West Ham (London, Eng.) Corporation Electric Supply, and in 1912 was appointed to a similar position with the Hampstead Borough (London, Eng.) Council and continued for a year as Consulting Engineer for West Ham. He resigned that position at the end of 1912, on his appointment as General Manager, Toronto Hydro Electric System, and took up the duties of the latter position early in 1913. In 1920 he was given an indefinite leave of absence to become General Manager, Toronto Transportation Commission.

Max. A. Pooler, who has been appointed General Manager, New Brunswick Power Co., St. John, N.B., which operates the St. John Ry., succeeding Percy W. Thomson, resigned, was born at

Austin, Minn., in 1880, and graduated from the Case School of Applied Science, Cleveland, Ohio, in 1904, and the Purdue University, Lafayette, Ind., in electrical engineering, in 1905. From 1905 to 1907, he was with the Mahoning and Shinango Ry. and Light Co. (now Pennsylvania-Ohio Electric Co.), Youngstown, Ohio; 1907 to 1914, Superintendent, New Castle, (Pennsylvania) Electric Co.; 1914 to May 26, 1922, General Manager, Hagerstown and Frederick Ry. (now Potomac Public Service Co.) and its subsidiaries, Northern Virginian Power Co., Potomac Light and Power Co., Chambersburg, Greencastle and Waynesboro Street Ry., Waynesboro (Pennsylvania) Electric Co. These companies as well as the New Brunswick Power Co., are under the managing directorship of Sanderson and Porter, New York.

E. A. Robert, President Montreal Tramways Co. and Quebec Railway, Light, Heat & Power Co., who has been elected Honorary President, Canadian Electric Railway Association, was born at Beauharnois, Que., March 3, 1865, and received his early education there, completing it in Montreal. During his early business life he was engaged in manufacturing in Beauharnois with his father, who had a woolen mill at that place. For several years he was in the wholesale woolen business, and after having made a success of it, sought a wider field and turned his attention to the power situation in the Province of Quebec. He organized the Canadian Power Co. and the erection of a big power plant at St. Timothee, followed. Later he obtained control of several smaller power companies in and around Montreal which he merged into the Montreal Public Service Corporation, which is proving a big factor in the distribution of light and power throughout Montreal Island. Recently he has organized the Carillon water power project, which promises to result in the development of considerably over 200,000 h.p., and with the acquisition of other power sites throughout the province he will ultimately be in control of a power corporation that will prove a decided factor in the industrial life of the province. As President of the Montreal Tramways Co. for about twelve years, he has developed the system into one of the best on the continent, and he has in contemplation far-reaching improvements and extensions.

The Toronto Electrical Clean Up Proposition.

The various matters affecting the "clean up" deal, between the Toronto Ry. Co., the Hydro Electric Power Commission of Ontario and the City of Toronto, having been the subject of conferences between the Premier, the Commission, the City Council and the company, are now thought to have been finally adjusted. As a result the bills relating to the matter, which were introduced at the beginning of the Ontario Legislature's recent session, were passed, and it was stated, June 23, that things were shaping up for the signing of the various agreements at an early date.

One of the acts deals with the filing of claims against certain companies or their properties. It provides for filing of claims in respect of matters arising before Dec. 1, 1920, when the Commission

took over the various properties, following advertisements to be published by the Commission, after which the claims will be barred. The limit is April 1, 1923, and actions in respect of any such claim will be barred after Oct. 1, 1923, but this section is not to apply to certain claims under certain conditions. Claims in respect of certain broad issues are specifically exempt from the provisions of the act. It is also expressly provided that the act does not revive any right or claim against the companies which is already barred by statute or extend the period of limitation fixed by any statute in force in the province for the enforcement of any such claim.

Moncton Tramways, Electricity & Gas Co.

A contract is reported to have been made between the New Brunswick Hydro-Electric Commission, the Moncton City Council, the Moncton Tramways, Electricity & Gas Co., and the Canadian National Rys. for electric current. The contract provides for the supply to the city by the Commission of from 5,000,000 to 7,000,000 k.w. hours of power and energy at a cost not to exceed 2½c per k.w. hour from the Commission's development now nearing completion; the M. T., E. & G. Co. undertakes to take over one-half of the supply at 2½c per k.w. hour, and to distribute it to consumers at a cost not to exceed 10c per k.w. hour, for three years, during which the price may be reduced on appeal to the New Brunswick Public Utilities Commission, and on the expiration the Commission will fix the future price, in the absence of an agreement between the parties. The fourth party to the agreement, the Canadian National Rys., agrees to take 2,500,000 k.w. hours at cost price. The contract is to run for 15 years, subject to the reference to the Public Utilities Commission as stated above by users of power distributed by the M. T., E. & G. Co.

Fixing of Ontario Electric Railway Fares.

R. Cooper, Welland, introduced a bill at the Ontario Legislature's recent session to amend the Ontario Railway Act by repealing Sec. 210, and replacing it by a new one as follows: "Notwithstanding anything to the contrary contained in any agreement with a municipality or other corporation or persons, or in any special act, the fare to be taken by a railway operated by electricity shall be such as shall be approved of by the Ontario Railway and Municipal Board, and no fare shall be charged upon such railway which has not been so approved."

The bill was read a second time and referred to the municipal committee, which amended the proposed new section to read as follows: "Notwithstanding anything to the contrary contained in any agreement with a municipal or other corporation or person, the fare to be taken by a company on a railway operated by electricity shall be such as shall be approved of by the Board, and no fare shall be charged upon such railway which has not been so approved. The approval of the Board may be given subject to such terms and conditions as it may deem proper."

The opposition to the bill, which had been apparent from its introduction, culminated on June 7, when it came up in committee of the whole house, and was thrown out.

Toronto Transportation Commission's Works, Etc.

Canadian Railway and Marine World for June, contained on pg. 310 details of the track construction and rehabilitation work which was under way in May on the Toronto Transportation Commission's lines. On the section on King St., between Spadina Ave. and Sherbourne St., which embraced 12,160 single track feet of rehabilitation, the portion between York and Church Sts. has been completed, and the portion between Church and Sherbourne Sts. is nearly completed at the time of writing (June 15). The work on York St., between Front and Queen Sts., is about finished. The work on Gerrard St., between Pape and Greenwood Aves., is completed, as is the rehabilitation of track on Parliament St., between Gerrard and Winchester Sts. On Church St. the rehabilitation of the west track, between Queen and Dundas Sts., was completed June 1; the rehabilitation of both tracks on Church St. between Dundas and Bloor Sts., remaining to be done. On Dovercourt Road, the section between Bloor and College Sts. is nearly finished, and on Bloor St., west of Spadina, 6,600 ft. of work is completed. The extension along the Lake Shore Road, from Sunnyside to the Humber River, which was commenced April 24, is well under way; a connection has been installed with the track at Sunnyside, and construction of a loop at the western end of the new line is proceeding. The work on Howard Park Ave., between Dundas St. and the loop at the park, is nearing completion. The loop at the Woodbine race course is completed, but the loops at Neville Park Boulevard and at the intersection of Victoria Park Ave. and Kingston Road have not been started.

In addition to the different works detailed in last month's issue, the Commission has begun work on the following extensions: On Main St., in the eastern part of the city, between Gerrard St. East and Danforth Ave., 3,000 single track feet of new construction, which was commenced June 2; an extension which will run on Carlaw Ave. from Gerrard St. East to Riverdale Ave., thence east on Riverdale Ave. to Pape Ave., and north on Pape Ave. to Danforth Ave.; 9,300 single track feet of new construction involved. The work was commenced on June 12.

The following rehabilitation work has been undertaken by the Commission, in addition to the works specified in Canadian Railway and Marine World for June: Rehabilitation of track on Carlton St., between Sherbourne and Parliament Sts., 2,550 single track ft. The work was commenced June 5 and is well under way. Rehabilitation of track on Queen St., from Kingston Road to Woodbine Ave., 3,400 single track feet. Work was begun June 7 and is well under way. On McCaul St., between Elm and College Sts., 2,400 single track feet, begun June 6 and well under way. On Spadina Ave., from Spadina Crescent to Bloor St., east track only, 2,300 single track feet, begun May 26 and nearing completion. On Dundas St., from the railway bridge to Howard Park Ave., 1,650 single track feet; begun June 12. On Dufferin St., from Exhibition loop to Queen St., 5,280 single track feet, well under way. On Dupont St., from Kendal Ave. to near Avenue Road, 6,120 single track feet, completed.

Extensions additional to those already started are planned for this year as follows: On Dovercourt Road line, from Van

Horne St., north on Oakwood Ave. to St. Clair Ave., 6,000 single track feet; on Yonge St., from Woodlawn Ave. north to Deloraine Ave., at the northern city limits, 37,100 single track feet.

Rehabilitation work additional to that already started is planned for this year as follows: On Gerrard St., from River St. to Broadview Ave., 3,850 single track feet (held up pending construction of a new bridge); on Bloor St., between Yonge and Church Sts., 1,750 single track feet; on Roncesvalles Ave., between Queen and Dundas Sts., 9,850 single track feet; on Queen St., from Scarboro Beach Park to MacLean Ave., 1,830 single track feet.

The rehabilitation work specified in our June issue included 82,154 single track feet of track; the additional work of rehabilitation since started, as detailed above, includes 23,700 single track feet, and that planned for later in the season, 17,280 single track feet, or total rehabilitation for the season of 123,134 feet. The extensions mentioned in our June number totalled 31,332 single track feet of new track; additional extensions started, as noted above, total 12,300 single track feet, and extensions planned for later in the season total 43,100 feet, making the total new construction for the season, 86,732 single track feet. The grand total is thus 209,866 single track feet, equivalent to 39.75 miles of single track. While the greater part of this is rehabilitation, it means a complete renewal of the track structure from sub-grade to top of rail, from which it is evident that the Commission's track repair and extension programme for 1922 is a very extensive one. While in the foregoing description of the work all measurements have been given in single track feet, all lines are double tracked except where specifically noted.

The work on Yonge St. will be by far the largest individual job that the Commission has undertaken, and while all is in readiness for a start to be made on it, operations have been held up pending the consummation of the "clean-up" deal, in which are concerned the city, the Hydro-Electric Power Commission of Ontario, and the Toronto Ry. Co. and various subsidiaries, and under which the city will come into ownership of certain railway and electrical utilities now operated by private interests. Yonge St., between Woodlawn Ave. and the northern city limits, is now occupied by the Toronto & York Radial Ry's Metropolitan Division, single track line, and it is the intention to replace this by a double track line to the city limits, which will be operated by the Transportation Commission. A loop will be installed some distance north of the present Y at Woodlawn Ave. for turning some of the cars operating on Yonge St., so that when the new track-age is built, operation may be carried on without the necessity of ruining all the Yonge St. cars to the northern city limits. As stated above, the Yonge St. work will involve the construction of a double track line containing 37,100 feet of single track, and on account of dense traffic and unfavorable physical conditions, the work will be necessarily carried on under great difficulties, but the Commission anticipates bending every energy toward rushing the work through to completion as soon as the consummation of the "clean up" deal makes a start possible.

Car Houses.—Mention was made in a previous issue of the Commission having acquired an area of land on north Yonge St. for the erection of car houses. This construction, like the track construction on north Yonge St., is dependent on the "clean up" agreement being definitely settled, and has not been started.

Cars.—No decision has been arrived at in connection with the acquisition of additional new cars, and there are no new developments to report beyond the information published in our June number, viz., that in all probability the Commission will acquire, during the year, about 150 of the modern double truck cars similar to those got in 1921.

Overcoats.—The Commission called recently for tenders for the supply of trainmen's uniform overcoats, about 1,200 being required. Overcoats are furnished the conductors and motormen every second year, the employee paying the full price for the first coat furnished, half the price of the second, and nothing thereafter.

Offices.—The Commission's staff is now established in the new offices in the Public Utilities Building, at the corner of Front and Yonge Sts., the repairs and alterations to the building being nearly completed.

Purchases.—The Commission made the following purchases during May: 5,500 tons grooved girder rail; special work layout for Dupont St., Lake Shore Road, Harbord St. and Spadina Ave., King and Yonge Sts., King and Bay Sts., Dundas and Church Sts., King St. and Spadina Ave., Queen St. and Neville Park Boulevard; 2 right hand crossovers; 75,000 tie plates; 7,000 rail bonds; 3,900 pairs welding plates; 5 tons track bolts; 4,000 lb. welding rod; 68,000 lin. ft. 6 in. field tile; 1,000 ft. 6 in. sewer pipe; 70,000 lb. cadmium copper trolley wire; 40,000 lb. and 24,000 ft. bare copper cable; 65,000 lb. weatherproof cable; 1 ton no. 9 magnet wire; 1 cable winch; 300 trolley frogs; 400 type A crossarms; 200 type B crossarms; 1 reciprocating track grinder; 1 Seymour rail grinder; 12 rotating rock drills; 12 tie tampers; 1 little giant track drill; 3 electric hand grinders; 5 Barber-Green bucket loaders; 1 boiler for Thew shovel; 1 heavy dredging clam shell bucket; 1 cutting torch; 150 drills; 50 batch boxes; 5 5-ton National truck chassis; 1 5-ton Gary truck chassis; 3 Ford touring cars; 2 C. H. & E. gasoline tractors.

The 50 motor cars, which were ordered from the Canadian Brill Co., have all been delivered.

Manitoba Public Utilities Commission.—The Manitoba Attorney General is reported to have made a statement on May 30, with regard to the Public Utilities Commission. The act under which the Commission was appointed remains in effect, but as the Legislative Assembly did not vote a supply, the Commissioner, P. A. Macdonald, and the staff could not be paid, and had been advised that salaries would not be paid after May 31. The order in council appointing them had not been rescinded; they had not been dismissed, neither had they resigned office. The Legislative Assembly, after defeating the Government by a vote of censure respecting its action in regard to the Commission, failed to enact legislation providing for the Commission's abolition. All rulings made by the Commissioner would remain in full force and effect.

Electric Railway Wages, Working Conditions, Etc.

London St. Ry.—On Dec. 30, 1921, the company under its agreement with its employees, gave 60 days notice of an intention to reduce wages of conductors and motormen to 40c, 43c and 45c an hour for first, second and third year men respectively, a reduction of 3c an hour. These rates were put into effect March 1. In the meantime negotiations took place between the company and the employees, but without result. The men asked for a maximum rate of 50c, and appealed to the Ontario Railway and Municipal Board, which decided it had no jurisdiction in the matter. The men then applied to the Dominion Labor Department for a board of conciliation, but before this was granted, they offered to accept a maximum rate of 48c an hour, as under the old agreement. The board of conciliation having been authorized, the company nominated F. H. McGuigan, Toronto, as its representative, and the men nominated F. H. McKay. These two failing to agree upon a chairman, the Minister of Labor named J. M. McEvoy, London. Considerable difficulty was experienced in fixing times for meeting suitable to all parties, and finally the board sat on June 9, 10 and 12. The company and the men had held various conferences, at one of which, on June 9, the company offered an advance of 1c an hour on the rates which went into effect March 1, for motormen and conductors, with certain adjustments of wages of some shops, line and track men. The hearing was continued before the board on June 10, when the men presented their case, and in the evening the men held a mass meeting to consider the company's offer, the vote at which was favorable to its acceptance, with the result that the board met on June 12, merely for the purpose of working out its report for the Department.

The compromise rates of 41c, 44c and 46c became effective June 16. All other terms of the old agreement are continued, the new agreement being merely an amendment of the old one as to rates of wages.

On June 13, the three members of the board of conciliation signed a report dealing with the facts of the settlement as above stated, and attaching a copy of the agreement as to wages, etc., and said that "it was a wise and reasonable solution of the dispute."

Niagara, St. Catharines & Toronto Ry.—We are officially advised that a new wage agreement between the company and certain of its employees, was signed June 1, to be effective Dec. 1, and thereafter, subject to 30 days' notice by either party of a desire to open the agreement for revision. The rates of wages per hour for passenger motormen and conductors are, 1st year, 40c; 2nd year, 43c; 3rd year, 45c; 4th year and after, 48c; freight motormen and conductors, 1st year, 40c; 2nd year, 41c; 3rd year, 42c; 4th year and after, 43c; trainmen 1st year, 40c; 2nd year, 41c; 3rd year, 42c; 4th year and after 43c. Time and a half will be paid for over 10 hours a day to passenger conductors and motormen, and 15c an hour for over 10 hours, and time and a half for over 11 hours a day to freight train men. Motormen and conductors will be paid 25c a day, or part of a day, extra, when engaged in training students. The agreement also fixes general working conditions.

Ontario Hydro Electric Rys.—Essex Division. — The Hydro Electric Power Commission of Ontario is reported to have notified the employees of the Ontario Hydro Electric Rys., Essex Division, formerly the Sandwich, Windsor and Amherstburg Ry. that it is proposed to reduce wages by 5c an hour on July 1. The present rate for motormen and conductors, 45c for new men, rising to 55c was made early in 1920. In June 1921, the men asked for an increase of 5c, but after considerable negotiations the old agreement was continued. The day platform men at a meeting June 16, decided not to accept the proposed reductions, and the night men were expected to join in the refusal. It is probable that the men will apply to the Labor Department for the appointment of a board of conciliation.

The Ottawa Electric Ry. announced on Feb. 27 that the then existing rates of wages would not be continued after May 1, on which date the agreement with the employees would expire. This announcement was made by bulletin and a copy, with a letter was forwarded to the secretary of the local union. No notice was taken of this until March 23, when the union acknowledged receipt of the company's communication and submitted a draft of a new agreement calling for an 8-hour day and the following wages per hour for conductors and motormen: 1st year, 55c; 2nd year, 60c; 3rd year and after, 65c, with corresponding increases in other departments, which would make an all round increase of about 18%. A conference followed at which the union committee was informed that the company would not consider an 8-hour day or any increase in wages, but on the contrary could not continue the then existing scale of wages after May 1, and that as the cost of living had dropped approximately 20% since the rate was fixed in May, 1920, the company proposed to reduce wages in proportion to that drop, as shown by the Labor Department's figures for April. The employees who are members of the union applied to the Labor Department for the appointment of a board of conciliation under the Industrial Disputes Act, giving as the matter in dispute: "Demand made by Ottawa Electric Ry. employees for increase in hourly rates of wages and in reduction in hours of daily labor." The company, before nominating its representative to the board, protested to the Labor Department that the primary matter in dispute was a reduction in wages which it had announced, Feb. 27, and not the increase demanded by the men three weeks later. On the assurance by the Minister of Labor that the board would have power to consider the whole question of wages, up or down, hours of labor and working conditions, a board was formed, consisting of G. D. Kelley, K.C., nominated by the company; E. J. Tully, nominated by the employees, and Alex. Smith, barrister, appointed as chairman by the Minister, in the absence of a nomination by the other two representatives.

The first matter brought before the board was the reason for its formation, and after some discussion, the chairman referred the matter to the Labor Department, and a letter was received from the Minister definitely broadening the board's functions so as to include all matters connected with wages and working

conditions. The last public meeting of the board was held early in May and subsequent private meetings were held to consider the evidence, and a report was prepared, dated May 18, and signed by the chairman and G. D. Kelley, representing the company; the men's representative disagreeing and subsequently drawing up a minority report. The majority report, and an annexed draft agreement provided for the following wages per hour for conductors and motormen: 1st year, 43c; 2nd year, 45c; 3rd year, 46c; 4th year and after, 48c. The working day should be considered to be 9 hours, to be completed within 10 consecutive hours, and time and a half is to be paid for overtime. A number of other alterations are recommended in the working conditions. The wages fixed in the recommended agreement represent a reduction of 12½% in the wages paid prior to May 1, while the company proposed a 20% cut. Mr. Tully, in the minority report, advocated an 8-hour day, and a 48c hour rate, and gave reasons for dissenting from the majority report, as to the wages.

We are advised that the company has accepted the terms of the majority award, and is prepared to sign the agreement attached thereto. The men refused to accept this agreement. As the company had notified the men that a reduced rate of wages would be put into effect May 1, and as the first pay period ended May 15, a bulletin was issued that a payroll would be prepared for May 19, and that each man would receive a lump sum as an advance on account of wages for May. This step was taken by the company because the Industrial Disputes Act provides that no change should be made in wages or conditions of work while an award of a board is pending. The union officers protested to the Labor Department against it. The company, which is not legally required to pay its men twice a month, simply made a payment to keep the men until the wage matter is definitely settled, when any differences in amounts will be adjusted.

Electrification of Granville Island Lines, Vancouver Harbor.

The Vancouver, B.C., Harbor Commissioners have given a contract to W. W. Fraser & Co., Vancouver, to electrify the railway lines on Vancouver Island, 2.8 miles, the cost being reported as about \$12,000. The work covers the supply and erection of pole lines, trolley, feeders, guy wires, etc., and also rail bonding. Granville Island is a small island of 35 acres, in False Creek, opposite the end of Granville St., at the end of the C.P.R. terminal yards. There are about 40 industrial concerns on the island, which are provided with transportation facilities by the railway. The cars on the island tracks are now moved by a small locomotive owned by the Vancouver Harbour Commissioners, being received from and delivered to the B.C. Electric Ry. at the southern end of the island. This arrangement has been in effect since the tracks were laid.

An arrangement has, we are officially advised, been made with the B.C.E. Ry. Co., under which it will operate the lines on the island as soon as the electrification is completed.

Electric Railway Projects, Construction, Betterments, Etc.

The British Columbia Electric Ry. started work on June 6 in Vancouver on an extension of its Broadway West line from Trafalgar St. to Alma Road a distance of one mile. The new line will be double track and of permanent construction. A Y will be installed at the Alma Road end, connecting with the Sasamat line at that point. It is proposed to run Sasamat and Dunbar cars to the city by Broadway West, instead of by Fourth Ave. which has extremely heavy traffic. The line will cost \$75,000 and will be laid with 87-lb. rail, set in concrete on a crushed rock foundation. The city will pave the surface permanently. The extension is the result of negotiations with the city for the continuance of present rates of fare until a permanent franchise is agreed on or failing that until the B.C. Government appoints a board of arbitration or utilities commission. The fare permission is to go on until Dec. 15 when the permanent arrangement is to be settled one way or another. Part of the consideration for the extended fares was the building of the Broadway West extension.

Grand River Ry.—Lake Erie & Northern Ry.—A press report states that plans prepared in the C.P.R. Chief Engineer's office in Montreal have been received in Galt, Ont., for the station building proposed to be built on Main St., there, for the two railways (May, pg. 258).

Hamilton Radial Ry.—The Strauss trunnion bascule bridge, over the canal at Burlington Beach, Ont., which was opened for traffic recently, has already been described in Canadian Railway and Marine World. The bridge carries one railway track, used by the Hamilton Radial Ry., for its Hamilton-Oakville line.

Hull Electric Co.—We are advised that the protection directed to be provided by the Board of Railway Commissioners, referred to in our last issue, was installed last autumn. It consists of derail switches in the electric railway tracks, operated by lever controlled by the switchman, who also operates the gates at the crossing. The switches were made by the Canadian Steel Foundries, and installed by the company's track department. (June, pg. 315.)

Montreal & Southern Counties Ry.—We are officially advised that the company has under construction an automatic substation at Brookline, Que., and a car shed at Marieville, Que.

Montreal Tramways Co.—Construction work was started June 1, on Wellington St. and the Center St. cars were diverted via Notre Dame and McCord Sts. The work, which consists of the laying of a double track line from McGill St. to the Lachine Canal at Wellington St. bridge, was authorized by the Montreal Tramways Commission in May. (June, pg. 315.)

Ontario Hydro Electric Rys.—Essex Division.—We are officially advised that the reconstruction of the single track on Sandwich St., Windsor, Ont., between Ouellette Ave. and Ferry St., was started on June 12, and it was expected to have it completed in about a week. The approval of the municipalities interested has been asked for the following betterments: Reconstruction of single track on Ouellette Ave., between Pine St. and Sheppard Ave., Windsor; reconstruction of single track on Sandwich St., east from Goyeau St., Windsor to Victoria Road, Walkerville, together with the re-

moval of the most southerly track on this street, the proposal being to operate this as a single track line with a passing track in the vicinity of the waterworks plant, and singling the existing double track on Victoria Road, near Sandwich St., thereby providing passing accommodation at this point, and eliminating one track on the turnout from Sandwich St. to Victoria Road. It was expected to have the work on Ouellette St. in hand before June 30, and to start the Sandwich St. west work in July. The Commission also has in contemplation the construction of a single track on Sandwich St. west, between Ouellette Ave. and Ferry St., Windsor. (June, pg. 315.)

Ottawa Electric Ry.—A letter from Major F. D. Burpee, Manager, Ottawa Electric Ry. Co., was received by the Hull, Que., City Council, June 5, intimating that the company would expect to receive a new franchise from the city during the year. The company proposes to lay a loop at the terminus in Hull, which would enable larger cars to be used and a better service to be given. In this connection the council was asked to join with the company in applying to the Board of Railway Commissioners for permission to cross the Hull Electric Co's tracks at Bridge St.

Windsor, Essex & Lake Shore Rapid Ry.—We are officially advised that the company proposes to build a siding of about 800 ft. into its terminal at Leamington, Ont.; and to lay about 4,750 ft. of paving in Kingsville, Ont. It is in the market for 3,000 no. 1 white oak ties and 100 tons of 85 lb. rails, C.P.R. section.

Winnipeg Electric Ry.—An extension of the Academy Road line from Ash St. to west of Lindsay St., about half a mile, is under construction. The cost is estimated at \$75,000, and the following supplies were bought for the work: 3,000 barrels of cement, 2,500 yards of crushed stone, 1,000 yards of sand, 5,400 ft. of drain tile, 2,600 ties, 2,500 tie plates, 21,200 lin. ft. of stone setts, 4,000 sq. yds. of asphalt, 180 pairs of joint plates, 125 tons of 80 lb. rails, and 60 kegs of spikes. We are officially advised that the company has bought 150 tons of steel rails, partly 60 lb. and partly 85 lb. The 60 lb. ones were bought in the United States, and the 85 lb. ones from the Algoma Steel Corporation. The company has under construction a small oxygen hydrogen plant. (Mar. pg. 259.)

Ottawa Electric Railway Franchise Negotiations.

In connection with the negotiations in progress between the Ottawa Electric Ry. Co. and the Ottawa City Council for an extension of the company's franchise, the company was reported, on June 20, to have submitted a proposition in response to the City Council's special committee's suggestion. The report states that the company desires to have a 30-year franchise, the elimination of all limited fares, and the right to charge a straight 5c. fare so long as it will give a reasonable return and permit of a satisfactory service. This increase of fare would, it is said, permit the company to make some extensions of its lines, and to maintain a good service. The report also states that considerable progress has been made, but that the members of the committee will not discuss the matter outside the committee room.

Levis County Railway and the Municipalities.

The Quebec Public Service Commission gave judgment June 19, on the matters which recently came before it with respect to the Levis County Ry., and the municipalities served thereby. A press report summarizes the judgment as follows:—The company is authorized to charge 10c. for each passenger and for each zone. The company must sell 25 tickets for \$1.25 for children under 16 years of age who are attending school.

The company may from time to time modify the zones but the Commission may be appealed to in such case. The maintenance of the sections between the tracks and outside up to the end of the ties must be taken care of by the municipalities. If in paving work the municipalities cause any damage they will be responsible to the company. The snow removal will be carried out in St. Romuald as in the past. In Levis, Bienville and Lauzon, the cost of removing the snow will be paid by the municipalities. The total expense of such removal not to be more than \$16,000. The surplus, if any, will be paid by the Levis County Ry. The proportion in which the municipalities will be responsible is as follows: 11-16 for Levis, 4-16 for Lauzon, 1-16 for Bienville. The municipalities are requested to discourage autobuses and encourage the street car service. The disposition of this judgment will come into force as soon as the company will give a service in accordance with its franchise. At the end of 13 months after this ruling the company must submit a report of its operation. The cost of stenographic notes and transcription is charged to the company.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies—

	April 1922	April 1921	10 mos. to April 30, 1922	10 mos. to April 30, 1921
Gross	\$818,177	\$835,793	\$8,589,842	\$8,467,314
Expenses	591,085	612,427	6,203,010	6,081,194
Net	227,092	223,366	2,386,832	2,386,120

Cape Breton Electric Co.—

	April 1922	April 1921	4 mos. to April 30, 1922	4 mos. to April 30, 1921
Gross	\$50,155	\$51,464	\$193,519	\$210,986
Expenses and taxes	41,360	43,026	206,136	198,405
Net	8,795	8,438	12,617*	12,581
Interest	3,280	2,716	35,017*	10,301

Winnipeg Electric Railway—

	May 1922	May 1921	5 mos. to May 31, 1922	5 mos. to May 31, 1921
Gross	\$427,880	\$433,836	\$2,229,274	\$2,328,683
Expenses	293,680	307,018	1,238,388	1,748,785
Net	134,200	126,818	1,060,886	579,898
Surplus after fixed charges	56,717	56,176	320,171	239,686

Sunday Street Cars in London.—The London St. Ry. Co. was granted a franchise for the operation of its cars on Sundays on May 3, 1920, and it was stated at a meeting of the London City Council's finance committee, on June 14, that this franchise had expired May 2, 1921, and had not been rescinded. The company had, however, continued the Sunday operation. Ald. Watkinson advocated the cancellation of the franchise, but the majority of the aldermen favored its continuance in the interests of the working men. The Ontario act authorizing cities of less than 50,000 and more than 15,000 of population to authorize the operation of street cars went into effect on June 4, 1920.

Electric Railway Passenger Fares.

Brandon Municipal Ry.—The Brandon, Man., Sun, of June 6, stated: "Arriving at the conclusion that the 5c fare was a costly experiment for the street railway during the three months that it was tried, the city council has ordered the return of the 7c; or 4 tickets for 25c. The order went into effect this morning, and the higher fares established last year, but suspended in February to give the cheaper fare a trial, were re-established. The 5c fare cost the city approximately \$1,700 according to figures submitted by the chairman of the street railway committee. The experiment was put into effect about March 1, and was in operation only three months. During that short period the railway revenue decreased \$1,636.60, compared with 1921. Actual figures submitted showed that while the passenger revenue for March, April and May of 1921, was \$10,943.15, the revenue for the same period this year was \$9,306.55. It is a singular fact, however, that there were more passengers carried during the time that the cheap fare was in effect, the report showing 176,562 persons carried in three months, in 1921, and 177,123 carried in March, April and May this year. When confronted with the report that showed nearly \$1,700 loss in three months in revenue, the city council did not hesitate to state that the experiment inaugurated in March was a very costly one. Nor did they hesitate to reinstate the old fares, even the chairman of the street railway, who brought in the lower fare recommendation previously, voting in favor of the recommendation made in committee. Many requests were made to the chairman of the street railway early in the year asking that a cheaper fare be put into effect on the railway. The street railway superintendent at that time was opposed to the decrease in fares, declaring the scheme had been tried before and had proved a failure. However, the council agreed to give the cheap fares a three months trial, and at the end of that time decide whether it should be continued. The report submitted showed a loss, and the council did not hesitate to order the return of the 7c fare."

British Columbia Electric Ry.—Following the withdrawal of the Vancouver Fraser Valley and Southern Ry. Co.'s application to the Dominion Parliament for an extension of powers, the Vancouver City Council on May 22 expressed its willingness to extend the operation of the 6c. fare from June 30, to the day before the sitting of a tribunal which would be authorized by the B.C. Legislature to fix the fares to be charged on the British Columbia Electric Ry. lines. This expression of opinion was formulated in a resolution on May 26, which was carried by the Mayor's casting vote. The city's counsel was authorized to prepare a bylaw to extend the present agreement as to the 6c. fare. The company agrees to extend its line on Broadway West to Alma Road by Sept. 1, and to retain the present wages scale during the currency of the agreement. The new bylaw was finally approved by the Council May 31, by 5 votes to 3.

London St. Ry.—The Ontario Legislature, at its recent session, passed a bill authorizing the company, notwithstanding its franchise provisions, to charge 5c. for adults, 3c. for children between 5 and 12 years of age, children under 5, in charge of adults, to be carried free. The Ontario Railway and Muni-

cipal Board on the application of the London City Council, or of the company, may decrease or increase the fares fixed. Except as amended by this Act, no other part of the agreement between the city and the company as confirmed by 59 Victoria, chap. 105, is affected. The management put the newly authorized fares in effect on June 14. The cash fare is 5c., and 5 unlimited tickets are sold for 25c., available at all times. Limited or workmen's tickets have been discontinued. Children's fares and tickets remain as heretofore:—Cash fare 3c., or 2 tickets for 5c.

The Toronto Transportation Commission has announced that commencing July 1 tickets for children not over 51 in. high will be sold at 10 instead of 7 for 25c., which latter rate has been in effect since the road was taken over by the city on Sept. 1, 1921. The Toronto Ry. Co. up to the time of the transfer of the property sold 10 tickets for 25c. for children not over 9 years.

Electric Railway Notes.

The Winnipeg Electric Ry. Old-Timers' Association held its 13th annual reunion June 7, and elected officers.

Hamilton Radial Ry. started a half-hourly service between Hamilton and the beaches on June 18, for the summer. Cars leave Hamilton terminal station at 10 minutes past the hour and 20 minutes to.

The Montreal & Southern Counties Ry. is in the market for 2 motor and 2 trailer passenger cars, one 50-ton electric locomotive and a motor generator for automatic substation at Brookline, Que.

The Calgary Municipal Ry. management is reported to have under consideration plans for the adoption of the pay-as-you-leave type of cars, by transforming the present one-man pay-as-you-enter cars.

The Hydro Electric Power Commission of Ontario has received one safety car out of an order of 25, from Canadian Brill Co., for operation on the Hydro Electric Radial Rys., Essex Division, at Windsor, Ont.

Members of the Montreal Chamber of Commerce, on the invitation of the Montreal Tramways Co., made a trip over the company's line, and inspected the entire plant, including the new power plant on Cote St., on June 6.

Hamilton and Dundas Electric Ry. started a half hourly service between Hamilton and Dundas, Ont., June 18, which it is said may be a permanent all the year round, one. Cars leave Hamilton terminal station at 15 minutes past the hour and at 15 minutes to.

The Port Arthur Public Utilities Commission has given instructions that, if the Board of Railway Commissioners gives permission for the operation of one-man cars over the Canadian National Rys. crossing, the necessary number of cars are to be converted for one-man operation.

The Ottawa City Assessment Department assessed the Ottawa Electric Ry. Co. for business tax in the roll, which was confirmed by the Court of Revision. The company appealed to the County Court, and Judge Mulligan, after hearing arguments on June 20 reserved judgment.

The Ottawa Electric Ry. Co., beginning July 1, will relieve conductors and

motormen only at the different starting places, located at Sussex, Bank, and Elgin streets and Holland Ave. For years past crews have been relieved at Bank and Sparks Streets, and Albert and Bank streets. The change it, is it stated, being made in the interests of economy.

The Mayor of London, Ont., is reported to have stated June 14, that he expected to name within a short time the members of a commission to investigate the city's transportation problems and to devise means for their solution, the commission to consist of the mayor, two members of the city council, and two other citizens. It is expected that Sir Adam Beck will be one of the latter. The committee will be instructed to consider especially the status of the London St. Ry., and whether the city should buy it at the expiration of the franchise, and if so, on what terms.

Edmonton Radial Railway's Improved Position.

City Commissioner Yorath, of Edmonton, Alta., is reported to have said, in addressing the Board of Trade there recently: "I want to specially refer to recent remarks by a few prominent citizens in regard to the street railway. What was the position 12 months ago? The railway had carried forward from 1920 a deficit of \$198,000 and had accumulated a deficit of \$8,980 by the end of Mar., 1921. The cars were in a very unsatisfactory condition, the schedule could not be relied upon, and the citizens generally had lost confidence in their railway and were prepared almost to give it away. This year up to the end of April the railway has made a profit of \$10,134 after having placed in reserve \$10,000 for repair of tracks, trolley wire, etc., a provision which has not been previously made. A good schedule is being run on all routes, and there are more cars fit for service than for a number of years in the past. Today 68 cars are fit to put upon the road, compared with 48 at the same time last year."

St. John's, Nfld., Electric Ry.—A letter in the St. John's, Nfld., News of June 15, states that negotiations are in progress between the Reid Newfoundland Co., and a Canadian syndicate relative to the sale by the former of the St. John's Electric Ry. and its other electric interests. A press report states that the Government will introduce a bill in the Legislature to give the Light and Power Co. what is described as "an outright and complete franchise."

Fort William and Port Arthur Electric Railways.—At a joint meeting of the Port Arthur Public Utilities Commission and the Fort William Public Utilities Committee, June 6, a resolution was adopted providing that the matter of the extra mileage run by Fort William cars in Port Arthur compared with the mileage run by Port Arthur cars in Fort William, be referred to the Ontario Railway and Municipal Board, to determine the cost, if any, of such extra mileage of operation, the Board's decision to be final and binding on both parties. The Board has requested the parties to send in any documentary evidence they have and any arguments they may choose to make in their own interests, and if it finds if it can give a decision on these, it will not be necessary to have a hearing; but if a hearing should be considered advisable, due notice will be given.

Marine Department

Canadian Government Merchant Marine Ltd., Annual Report

The directors' third annual report, for the calendar year 1921, has been issued over the signature of D. B. Hanna, President, addressed to the shareholders—the Dominion of Canada—as follows:—

Ships in Operation.—During 1921 eighteen additional ships were completed and turned over to the company for operation. These, added to the 47 in operation at the end of 1920, brought the fleet total up to 65. The last remaining ship under construction was completed in Jan., 1922. By the loss of the Canadian Exporter, wrecked on the Pacific Coast, off Willapa River, the actual number of ships in operation at the end of the year, was reduced to 64. The Canadian Recruit, which was stranded in the St. Lawrence as a result of being rammed while at anchor in a fog, may also prove to be a total loss.

Results of Operation.—The accounts for the year, as certified by the auditors, show the following results:—

Gross revenue from closed voyages.....\$10,768,828.52
Operating expenses, closed voyages..... 12,979,553.07

Deficit from operation.....\$ 2,210,724.55
Interest accrued on notes to Government for year.....\$3,351,500.14
Reserve for depreciation 2,374,410.37
Reserve for outstanding liabilities 50,000.00
Reserve for doubtful debts and claims..... 60,000.00
Incorporation expenses..... 1,000.00
5,836,910.51

Deficit after all charges, including depreciation and interest.....\$ 8,047,635.06

In announcing a loss in operation it is only fair to state that conditions existing in the steamship business throughout the world made such a result inevitable. Admittedly, from an economic standpoint, 1921 was the worst year in recent shipping experience. In addition to a general falling off in tonnage, ocean rates were reduced in some cases as much as 50%. Steamship rates that would bring in a proper return did not exist, and the best rates would only pay operating expenses. While tonnage outward was fairly well maintained, the inward business, especially from the United Kingdom, continental ports and South America, fell away to such an extent that homebound cargo was practically impossible to obtain. On this account many voyages resulted in losses. The total loss has been substantially increased by charging depreciation at 4% and interest at 5½% per annum on the original cost of the vessels. The difficulties of the situation were further increased by the addition of 18 new ships to the company's fleet during a most severe business depression.

While the operations of the company have resulted in a loss for the year, the advantage which the company's fleet has been to the Canadian National Rys. and to Canadian trade generally should be considered. Large shipments which have been handled by the Merchant Marine at the low rates prevailing have provided tariff return to the National Railways. Much business of this character would have been handled through foreign ports, and by other or foreign railways if the company's vessels had not been available. Boards of Trade throughout Canada, and exporters of many products, have placed

on record their appreciation of the assistance the Merchant Marine has rendered to them, without which they claim a large amount of export business secured would have been lost to other countries.

West Indian Passenger Service.—Inasmuch as the operations of the Canadian Fisher and Canadian Forester, providing a combined passenger and freight steamship service every three weeks to the Bahamas, Jamaica, and British Honduras, have from the outset, been unprofitable, from a revenue standpoint, your directors took early opportunity of advising the Government that they were forced to regard this service as apart from the company's regular commercial operation and that the service would

moved to the Great Lakes. They loaded full cargoes of grain at the head of the lakes and carried them down to Georgian Bay ports, where they were tied up for winter storage. Operating conditions grew steadily worse towards the end of the year, and when homebound cargoes could no longer be secured, and rates prevailing for outbound cargo would not pay the cost of operation, a number of services were curtailed, and at the end of the year, eight ships, in addition to those already mentioned, were taken out of service and laid up at Halifax. The directors are glad to report that Canadian manufacturers, acting in co-operation with the Canadian Government Merchant Marine, arranged for a party of representative merchants, manufacturers and others interested in export trade, to visit the West Indies. The party sailed from Halifax on the Canadian Fisher on Feb. 15, 1922, and the itinerary included the more important trading points in the West Indies.

Offices and Agencies Established.—The company has offices in Toronto, Montreal, Vancouver, St. John, N.B., Halifax, N. S., St. John's, Nfld., New Zealand, Australia, British West Indies, London, England. Agencies have been appointed which give the C.G.M.M. representation in all principal parts, as follows: Panama Canal Zone, South America (including Buenos Aires, Montevideo and Santos), Cuba, British West Indies, Ceylon, Fiji Islands, Hawaiian Islands, China, Japan, India, Malta, Gibraltar, South Africa, Algeria, Portugal, Spain, Italy, Sicily, Greece, Syrian Coast, Egypt, Persian Gulf, Borneo, Straits Settlements, Java, France, Belgium.

The disposition of the company's fleet at Dec. 31, 1921, was as follows, as to trade routes and number of ships: United Kingdom and continent, 13; Australia, 10; Russia (special), 5; Orient, 3; West Indies and Cuba, 5; India, 1; Newfoundland, 1; South America, 2; Vancouver—California, 3; Great Lakes, 8; in port at St. John, N.B., 2; at Halifax, 8; at Vancouver, 2; lost at sea, 1; stranded, 1; total, 65.

Voyages.—During 1921 235 voyages were made, as follows: Atlantic Services: United Kingdom and continent, 93; West Indies, 23; South America, 9; Newfoundland, 22; Nassau and Kingston, 16; Cuba, 10; East Indies, 3; Australasia and New Zealand, 9; Russia, 5; Coastwise, 6. Total, 196. Pacific Services: Australasia and New Zealand, 9; India, 2; Orient, 6; California, 20; Egypt, 2. Total 39. Grand total, 235.

Canadian Officers and Crews.—The policy of giving all possible preference to Canadians in filling positions in the service has been continued. Of a total of 2,341 officers and men employed, over 75% are Canadians, and of the balance practically all are British.

Ship Losses.—During the year the fleet was reduced by the loss of the Canadian Exporter, which on July 31, ran aground off the Willapa River. She was abandoned to the underwriters and the full insurance carried has been received. In August, the Canadian Importer, en route to Australia, sprang a leak which resulted in the engine room

Dominion Marine Association.

Honorary President, A. A. Wright, President, Tidewater Shipbuilders, and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

President, T. R. Enderby, Operating Manager, Canada Steamship Lines, Montreal.

First Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Second Vice President, G. J. Madden, George Hall Coal Co. of Canada, Ogdensburg, N.Y.

Executive Committee. The President, First and Second Vice Presidents, and W. E. Burke, Canada Steamship Lines, Montreal; Yvon Dupre, Sincennes-McNaughton Line, Montreal; M. J. Haney, Canada Steamship Lines, Toronto; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transports, Montreal; Honorary members, L. L. Henderson and A. A. Wright, Montreal.

Counsel, Francis King, K.C., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

only be continued on the assurance that it was to be maintained on account of the Government. The service is, therefore, being maintained on this basis. The loss in operation on this account for 1921 was \$310,989.54, and, including depreciation on the ships, was \$416,184.28. This loss forms part of the total deficit shown in the income account. The service, as stated in the previous year's report, was inaugurated at the request of the Government as the result of the Canada-West Indies trade agreement. As against the loss chargeable to the Government may be applied any subsidy collectible by it from the West Indies Governments as provided for in the agreement.

Trade Routes.—In addition to the services inaugurated during 1919 and 1920, new services have also been provided during the past year as follows: From Atlantic ports to Australia; from Pacific ports to China, Japan, and to India; and the Pacific coastal service to California. In the late autumn, to assist in the grain movement and to provide lake port storage, eight of the smaller ships were

being flooded. She listed badly and it was only after considerable hardship that she was taken into Victoria, where repairs were made. The directors desire to record that the officers and crews concerned in the handling of the ship and sister ships which conducted a search for the Importer, lived up to the best traditions of gallant conduct associated with merchant marine service. The Canadian Recruit, while lying at anchor in the St. Lawrence, near the South Traverse in a fog, was rammed by the s.s. Maskinonge on Aug. 18. Salvaging operations which were carried on during the autumn were abandoned without success on account of winter, but will be resumed, if possible, in the spring. As far as the company is concerned, the vessel is abandoned to the underwriters. Any loss sustained is covered by insurance.

Insurance.—Tenders were called for renewal of insurance on the fleet, and Willis, Faber & Co. of London, Eng., who submitted the most favorable proposal, received the contract for 1922. The schedule has been considerably reduced in line with reduction in replacement values in Canada.

Recommendations.—The experience of the last three years leads your directors to make certain definite recommendations, as follows:—

1. That practically all the small type ships be disposed of, thus reducing the fleet to 37 vessels. The ships recommended to be sold, and their respective approximate d.w. tonnages are as follows, each having the prefix Canadian in its name: Warrior, 3,995; Recruit, 3,964; Trader, 3,341; Sailor, 3,357; Signaller, 3,975; Adventurer, 3,408; Gunner, 3,978; Aviator, 5,166; Sower, 3,406; Settler, 4,918; Raider, 5,181; Farmer, 3,964; Miner, 2,778; Beaver, 3,973; Sealer, 2,777; Observer, 3,982; Trapper, 5,054; Rancher, 4,892; Hunter, 5,021; Rover, 3,920; Coaster, 3,939; Harvester, 4,000; Pathfinder, 3,640; Engineer, 3,679; Logger, 3,839; also without the prefix Canadian: Thos. J. Drummond, 3,501; Sheba, 3,400; J. A. McKee, 3,575.

2. That the capital cost of the ships be reduced to what may be considered present replacement value. Enquiries made in Canada and Great Britain indicate that present construction costs of ships of the types which make up your fleet range from \$63 to \$110 per d.w. ton, so that a value of \$75 a ton would appear to be a fair replacement value.

3. That interest due the Government be payable for each year only if earned, after allowing for depreciation. Such remission of interest to be applicable for five years.

With reference to the first recommendation, it may be said that the fact that the operation of many small units would prove to be unprofitable has previously been pointed out to the Government. While no doubt exists as to the material value to the Government's railways of co-operative merchant marine service, yet it is considered that the most helpful routes can be maintained with the fleet reduced, and, as the larger ships have a better operating ratio, losses during present conditions would be less, and under improving conditions net profits would earlier be obtained.

In connection with the second recommendation, it should be remembered that the contracts for these ships were placed at a time when the cost of construction, in fact, when prices generally, were abnormal, and that the average price of the fleet per deadweight ton is approximate-

ly \$191. This situation no longer continues, and it is considered desirable that the capital cost be reduced to the present value. Great Britain, the United States and other countries, which undertook the replacement of tonnage lost during the war, have had to undergo the same depreciation in the value of tonnage.

With respect to the third recommendation as to payment of interest, it is submitted in view of the company establishing new trade routes to provide facilities for Canada's export trade—services which in the early stages may prove unprofitable—that the Government should agree that interest on the capital cost of vessels should be payable for each year only if earned, after allowing for depreciation. In this connection it should be remembered that the company is still in the development stage, having in the past year, during a time of depression, taken over from the builders and placed in service 18 additional ships. In the first two years surpluses from operation were made, but owing to the majority of the ships being completed during a period of business depression following the war, this company, unlike older established steamship companies, was unable to build up a reserve which would enable interest to be paid during times of depression.

Believing that the carrying out of the first recommendation is in line with what proper business management would dictate, your directors have had prepared a programme of operation for the year which contemplates the removing from service of a number of smaller type vessels, reducing the company's operating fleet to 37.

Management.—Your directors wish to express their appreciation of the faithful and efficient work of the officers, employees and crews, during the year.

Consolidated Balance Sheet, Dec. 31, 1921.

ASSETS	
Fixed assets:	
Ships as at Dec. 31, 1920.....	\$50,005,892.71
Net additions during year.....	22,386,459.56
	\$72,392,352.27
Less depreciation reserve.....	3,158,775.51
	\$69,233,576.76
Plant and equipment as at Dec. 31, 1920.....	\$ 27,243.25
Net additions during year.....	41,630.08
	\$68,873.33
Less depreciation reserve.....	4,086.48
	64,786.85
Office furniture as at Dec. 31, 1920.....	\$ 29,128.66
Net additions during year.....	9,850.91
	\$ 38,979.57
Less depreciation reserve.....	2,912.87
	36,066.70
	\$69,334,430.31
Current assets:	
Cash in banks and on hand.....	\$ 294,467.53
Accounts receivable less reserve for doubtful accounts.....	1,218,793.24
Advances to captains, crews and agents.....	150,412.28
Adjusted losses due by underwriters.....	147,485.17
Insurance claims, estimated amount recoverable.....	511,642.44
Interest receivable accrued.....	4,583.33
Inventories of stores and supplies.....	68,305.85
	2,395,689.84
Insurance unexpired.....	17,209.70
Dominion of Canada Victory Bonds, 1934, hypothecated as security to bank overdraft.....	500,000.00
Funds deposited with bankers, being proceeds of insurance received respecting loss of Canadian Exporter.....	1,304,778.37
Deficit.....	9,116,144.28
	\$82,668,252.50

LIABILITIES

Capital stock:	
Authorized, 10,000 shares of \$100 each.....	\$1,000,000.00
Issued, 4,909 shares of \$100 each.....	\$ 490,000.00
Less amount relative to s.s. Canadian Exporter (lost), to be cancelled....	10,000.00
	\$ 480,000.00
Notes payable due Dominion Government, secured by mortgages on ships.....	\$73,571,842.27
Interest accrued to date.....	5,096,826.17
	78,668,668.44
Current liabilities:	
Bank overdraft.....	\$ 1,607,670.63
Accounts payable.....	1,610,751.60
	3,218,422.23
Balances of uncompleted voyages.....	300,261.83
Contingent liabilities, non-ascertained.....	
	\$82,668,252.50
Operating Account for Calendar Year, 1921.	
Revenue from ships.....	\$10,766,782.06
Commission on handling outside ships.....	2,046.46
	\$10,768,828.52
Expenses:	
Operation of ships.....	\$12,306,555.16
Operation of wharves.....	32,103.99
Stevedoring and machine shop expenses.....	20,694.93
Loss on operation of Government dock—Vancouver.....	18,833.45
Interest.....	24,684.70
Loss on exchange.....	37,146.96
Management and office salaries.....	334,975.34
Rent, taxes and insurance.....	19,365.14
Travelling expenses.....	24,647.56
Printing and stationery.....	30,239.17
Advertising.....	30,375.81
Cables, telegrams and telephones.....	50,834.98
Office expenses and supplies.....	32,010.51
Miscellaneous.....	17,085.37
	12,979,553.07
Operating loss.....	2,210,724.55
Interest on accrued notes to Gov't for year.....	\$3,351,500.14
Reserve for depreciation.....	2,374,410.37
Reserve for outstanding liabilities.....	50,000.00
Reserve for doubtful debts and claims.....	60,000.00
Incorporation expenses.....	1,000.00
	5,886,910.51
Loss for year.....	\$ 8,042,635.06
Deficit Account, Dec. 31, 1921.	
Loss for calendar year 1921, as per operating account.....	\$ 8,042,635.06
Balance of interest on notes due Government accrued to Dec. 31, 1920.....	\$1,745,326.03
Deficiency on insurance recovered on s.s. Canadian Exporter lost....	327,416.20
	2,072,742.23
	\$10,120,377.29
Less surplus, Dec. 31, 1920.....	1,004,233.01
Deficit, Dec. 31, 1921.....	\$ 9,116,144.28

S. W. Jacobs, George Etienne Cartier, Montreal, stated in the House of Commons on June 17 that there was a well-founded rumor in London that the Canadian Government Merchant Marine ships had been offered for sale, on the London market, to British interest; that he hoped the good news was true, and asked if the Government could give any information. Prime Minister King said he imagined that it was a newspaper report, to which Mr. Jacobs replied that sometimes newspaper reports are correct. Mr. Meighen, opposition leader, said he had no doubt it would be good news to many private interests.

Flag for Seaplane Stations.—A distinguishing flag is to be flown at all seaplane stations in Canadian waters, as follows: Light blue, in the dexter canton the Union, and in the center of the fly, on a red shield edged with white, an albatross, with wings extended over three maple leaves on one stem, proper.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owner or Managing Owner	
150609	G. of G. No. 9.....	Vancouver, B.C.	.....Scow..	Vancouver, B.C.	1913	74.7	30.0	6.3	119	119	Gulf of Georgia Towing Co., Vancouver, B.C.
150609	J. C. 31.....	"	"	.....North Vancouver, B.C.	1922	90.5	30.3	7.5	171	171	J. Crane, North Vancouver, B.C.
150407	Patara.....	Lunenburg, N. S.	.....Schr..	Mahone Bay, N.S.	1921	132.8	27.2	10.4	180	113	Ernst Shipbuilding Co., Mahone Bay, N.S.
150557	Sadie No. 3.....	Victoria, B.C.	.....Barge..	Victoria, B.C.	1922	100.7	34.0	9.3	259	259	Victoria Tug Co., Victoria, B.C.
150606	W. S. & D. No. 2.....	Vancouver, B.C.	.....Scow..	North Vancouver, B.C.....	1911	90.0	30.2	6.6	147	147	Wallace Shipbuilding & Drydock Co., North Vancouver, B.C.

General Shipbuilding Matters Throughout Canada.

Marine Department Dredge.—Tenders will be received by the Marine Department, Ottawa, to July 5, for furnishing materials and labor of all kinds necessary for the construction, completion and delivery at Quebec, Que., of a steel, single screw hopper barge, of the following dimensions,—length b.p. 210 ft., breadth moulded 35 ft., depth moulded 19 ft.; hopper capacity 950 cub. yds., i.h.p. 1,250.

British American Shipbuilding Co., Ltd., Welland Ont., has assigned to H. Vigeon, Toronto, authorized trustee.

Collingwood Shipbuilding Co., Collingwood, Ont.—The launching of the s.s. Charles Dick on May 27 for National Sand and Material Co., Welland, Ont., was mentioned in our last issue. She is built for carrying sand and gravel, and is equipped with special loading and unloading pumps and machinery. She was christened by Charles Dick, son of D. Dick, Jr., President of the owning company, who was accompanied by H. B. Smith and J. S. Leitch, President, and Managing Director, respectively, of the building company. The ship has the following dimensions: Length over all, 258 ft.; breadth, 43 ft.; depth, 20 ft., with a d.w. carrying capacity of about 3,000 tons. She will be classed BS* under British Corporation. The machinery and boilers will be placed aft. The hold is divided into 2 large hoppers, each 60 ft. long, with capacity of approximately 2,000 cub. yd., of sand and gravel. Between the hoppers is an engine room 10 ft. long, which will contain the unloading machinery. The pump room is placed forward of the forward hopper to accommodate two 18 in. centrifugal pumps, direct connected to the compound condensing engines, which have cylinders 13 and 26 in. diam. by 14 in. stroke. The 18 in. suction from each of these pumps is direct connected to the shell 5 ft. above the keel. A special feature of the ship is the recessing of the shell plating, accommodating guides down which the outboard suction pipe flange will slide. The suction pipes will be portable and will be removed when the cargo has been loaded. The pumps will discharge into troughs running over the top of the hoppers, and the excess water will be discharged through specially designed spillways at the end of each hopper. A special unloading device, erected on A frames, will run the full length of the hopper, and accommodate large clam-shell buckets. These will remove the material from the hold and discharge into a special hopper amidships, the material falling on an elevator arrangement which will pass it up to a conveyor, which in turn will discharge it on the deck. The space between the main hoppers and the ship's side is divided into several compartments, and there are trimming and fore peak tanks forward, with a dry tank under the boilers and water ballast tank under the engine room. The captain and crew will be accommodated forward, and the deck house aft will contain the dining room, mess room, galley, engineers' quarters, etc. She will be single screw driven, and completed with all necessary auxiliary machinery, including refrigerator and electric light plant, special windlass, winches, etc. The main propelling machinery will consist of triple expansion surface condensing engines, with cylinders 19, 32 and 56 in. diam. by 36 in. stroke, supplied with steam by 2 boilers, each 14 ft. 7 in. diam. by 10

ft. 8 in. long, at 180 lb., under natural draft, 1,400 i.h.p. When completed she will be operated in the rivers. She is specially built to supply material for large contracts, and is stated to be the first of her kind to be built in Canada.

The Collingwood Shipbuilding Co's annual meeting was held at Collingwood, Ont., June 7. A quarterly dividend of 1¼% was declared, payable June 15 to shareholders of record June 7. The directors for the current year are: H. B. Smith, President; R. M. Wolvin, Vice President; J. S. Leitch, Vice President and Managing Director; S. H. Lindsay, Secretary; and S. Dymont, J. F. M. Stewart and W. H. Smith. J. M. McPherson is Treasurer.

Dobson Shipyard, Midland, Ont., is building a steam tug for Spanish River Pulp and Paper Co. The propelling machinery will be transferred from the steam tug Clipper.

Prince Rupert Drydock and Shipyard, Prince Rupert, B.C.—The following overhaul and repair work has been completed recently: Steam trawlers Carruthers, Foster and Kelly docked, painted and overhauled; Dominion Government snag boat Cygnet, docked and painted; Granby scow No. 8, docked, painted and hull repairs; Coastwise Steamship & Barge Co's barge Griff, docked, painted and general repairs; Grand Trunk Pacific Coast Steamship Co's steamships Prince George and Prince Rupert, docked, painted and generally overhauled. In addition to these, 37 fishing boats of different classes were docked, cleaned, painted and repaired. J. H. Pillsbury is Manager.

Turpel's Marine Railway Co., Victoria, B.C., has, we are advised, acquired the site formerly occupied by the Turpel Shipbuilding Yard & Marine Railway at Victoria, and, during the war, by the Foundation Co. of British Columbia, and is putting in a new marine railway, with capacity of 1,000 tons, which will be 185 ft. long, 40 ft. wide, and will take ships with a draft of 20 ft. In addition to repair work, the company will build ships. The plant will be operated by a 75 h.p. motor, and will be equipped with modern machinery.

Yarrows Ltd., Victoria, B.C. did the following repair and overhaul work during May:—C.P.R. British Columbia Coast service,—s.s. Princess Alice, 3,099 tons, docked, cleaned and painted, and repairs to steam heater; s.s. Princess Charlotte, 3,844 tons, docked, cleaned and painted, rudder repairs and straightening 2 propeller blades; s.s. Princess Louise, 4,032 tons, docked, cleaned and painted; Canadian Government Merchant Marine s.s. Canadian Highlander, 5,500 tons, docked, cleaned, painted and minor repairs; s.s. Canadian Britisher, 5,500 tons, docked, cleaned, painted and minor under water repairs; C.G.S. Thiepval, 357 gross, repairs to windlass; Union Steamship Co. of British Columbia, s.s. Cheakamus, 689 tons, manganese bronze propeller blades; s.s. Chasina, 259 tons, making a manganese bronze propeller; Pacific Construction Co., steam tug, Burrard Chief, docked, and propeller changed; British Columbia Cement Co., s.s. Matsqui, 150 tons, docked, cleaned and painted; Bowring and Co., s.s. El Lobo, 4,800 tons, docked, cleaned and painted, and deck, hull, tank and engine room repairs; Vancouver Steamships' s.s. City of Vancouver, 5,697 tons, docked, cleaned and painted, and minor under water repairs. Three

manganese bronze propeller blades were supplied for the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert, and several small ships were hauled out on the marine railway for cleaning, painting and repairs.

Welland Ship Canal Contract Awarded.

The contract for the completion of the work on sections 3 and 4 combined of the Welland Ship Canal, has been awarded by the Railways and Canals Department to P. Lyall and Sons' Construction Co., Montreal. Sec. 3 extends from station 380 to station 490, about 2 miles and the original contract was let to O'Brien & Doheny and Quinlan & Robertson in the autumn of 1913. Work was carried on until the end of 1916, when, owing to war conditions, the contract was cancelled. Following the conclusion of the war, and as a part of the re-establishment work decided on by the Government, the construction was carried on further, from 1919, on a cost plus 8% basis, by Doheny, Quinlan and Robertson. Under these contracts the bulk of the earth and rock excavation was done, but only a comparatively small amount of the large quantity of concrete required for the important structures was placed.

Sec. 4 extends from station 490 to station 597, about 2 miles, and crosses the present canal below lock 25. For economic reasons it was decided to complete the work on these two sections under one contract, on account of the interlocking of the different items of work. The principal items involved are,—rock excavation, 1,659,000 cub. yd.; earth excavation, 5,074,000 cub. yd.; watertight embankment, 446,000 cub. yd.; mass concrete, 1,300,000 cub. yd.; other concrete, 100,000 cub. yd.; steel bars for concrete reinforcement, 7,400,000 lb. The principal structures are,—twin locks 4, 5 and 6 in flight, single lock 7 and the guard gate, together with their entrance piers and other retaining walls, safety regulating and waste weirs, bridge substructures, concrete bridges, two large syphon culverts and two docks.

The Royal Mail Steamship Packet Co's contract with the Dominion Government for steamship service between Canada and the West Indies, as authorized by order in council, Feb. 1, which was published in Canadian Railway and Marine World for March, pg. 161, has been signed and is effective as from Apr. 1. The contract is on the same basis as the previous one, but instead of binding the company to run its steamships at a speed of 11 knots an hour, of which they are not always capable, they are to be operated at their best speed. The provision in the old contract obliging the company to use its best endeavors to arrange through rates for freight to and from inland points in Canada, has been extended to cover passengers in the present contract.

Ice Breaking Steamship J. D. Hazen.—We were officially advised by the Marine Department, on June 12, that the purchase of this ship had not been concluded, and that consequently it was impossible to make any statement as to when she might reach Canada.

Canadian Pacific Railway Ocean Steamship Services.

The s.s. Montezuma, which sailed from Montreal on her first trip to the West Indies, at the end of May, inaugurated the C.P.R. new cargo steamship service to Bermuda, Barbados, Trinidad and Demerara. The s.s. Holbrook, which has been operated for some time in the trans-Atlantic service, has been diverted to the West Indies service, and sailed from Montreal on her first trip, June 22.

The s.s. Empress of Canada arrived at Hong Kong, China, May 31, on her maiden trip from Great Britain, via the Suez Canal. She sailed from Hong Kong June 7, for Vancouver, and sailed again from Vancouver for the Orient, June 29. With the Empress of Australia she will maintain the trans-Pacific link of the Europe-Orient service, via Canada, the trans-Atlantic service being maintained by the Empress of Scotland and Empress of France.

Canadian Pacific Steamships Ltd., as traffic agent for the Norwegian-American line, has arranged a direct steamship service between Montreal and the principal Norwegian ports. The steamships Idefjord and Topdalsfjord are being used in the service. The latter ship arrived at Montreal, early in June, and sailed again for Bergen, Christiania, Trondjhem and Stavanger. These ships were built by Canadian Vickers, Ltd., at the close of the war, and are of the two deck, poop, bridge and forecastle type, with straight stem and elliptical stern. Their dimensions are: Length, b.p., 365 ft.; breadth, 49½ ft.; depth moulded, 29 ft.; draft, 24 ft. 1 in.; d.w. tonnage, 6,400, with a sea speed of 11½ knots an hour.

The s.s. Empress of Japan sailed from Vancouver, June 1, for the Orient, on her last outward trans-Pacific voyage for the company, and is expected to return about July 19, when she will have completed her 158th trans-Pacific trip, and covered approximately 2,500,000 miles in C.P.R. service, in addition to her war record. She is reported to have been sold to an Indian Prince for use as a yacht.

The steamships Mattawa and Methven arrived on the Atlantic coast during June, from Hong Kong, China, via the Suez Canal. Both of them were utilized in the Pacific service through the war to handle the unusual amount of cargo and general supplies. They have now been transferred to the Atlantic service between Canada and British ports.

The s.s. Montcalm which sailed from Montreal on June 2, at 10 a.m., for Liverpool, Eng., grounded about 7 hours later at Point Bigot in the St. Lawrence River, about a mile below Champlain. G. M. Bosworth, Chairman, Canadian Pacific Steamships Ltd., stated at Montreal, June 5, that the grounding was due to the jamming of the steering apparatus. She was released about 5 a.m., June 4, with the aid of 5 tugs, and proceeded to Quebec, under her own steam, arriving at 11 a.m. the same day, where her passengers were transferred to the C.P.R. steamships Metagama and Minnedosa, the White Star-Dominion Line s.s. Canada, and the Donaldson Line s.s. Cassandra. The general cargo was unloaded, and she proceeded to Levis with 38,000 bush. of grain on board, where she was drydocked for complete survey, and repairs, which were completed June 24, and she was expected to sail on her regular schedule, June 30. Among the passengers were the members of H.M. Scots Guards Band, returning to England.

Inspector of Dredges' Appointments.

The Civil Service Commission has invited applications for the position of an inspector of dredges, Public Works Department, for the Maritime Provinces, at an initial salary of \$1,800 a year, which will be increased upon recommendation for efficient service at the rate of \$120 a year, until a maximum of \$2,280 has been reached. This initial salary will be supplemented by whatever bonus may be provided by law. Duties.—

Under direction of a district superintendent of dredges, to direct repairs to, and operations of dredging and other floating equipment in an assigned district; to inspect equipment of floating plant, to determine the necessity for, cost of, and best method of making repairs and alterations; to inspect work done by private contractors; to instruct officers and crews in the proper performance of their duties; and to perform other related work as required. Qualifications.—Education equivalent to high school graduation; four years of experience in the construction, repair, and operation of dredges and other floating equipment; rating as a journeyman machinist; tact, good judgment, and ability to manage men; good physical condition. While a definite age limit has not been fixed for this competition, age may be a determining factor when making a selection. Examination.—A rating on education and experience will be given from the sworn statements submitted by applicants on their application forms. To those who qualify, an oral examination may be given if necessary. Preference will be given to residents of the Maritime Provinces.

The Civil Service Commission has also invited applications for the position of a senior inspector of dredges for the Marine Department's River St. Lawrence Ship Channel Branch at Sorel, Que., at an initial salary of \$2,100 a year, which will be increased upon recommendation for efficient service at the rate of \$120 a year, until a maximum of \$2,580 has been reached. This initial salary will be supplemented by whatever bonus is provided by law. Duties.—Under the direction of the Superintending engineer, St. Lawrence Ship Channel, to be responsible for the maintenance and repair of general dredging and other floating equipment; and to perform other related work as required. Examples:—Making inspections of and ordering the placing of ships on the ways for hull inspection and repairs; inspecting and passing on the necessity for overhauling boilers, engines, pumps, condensers, generators, dredging apparatus, and other power and machinery equipment on dredges, and making estimates as to cost of such repairs; ensuring that ships are given proper care and kept in a shipshape and seaworthy condition by the officers in charge; directing, advising and instructing masters, mates and engineers, in the performance of their duties, aside from their duties pertaining to the navigation of vessels; and to instruct the officers in the methods to be used in the safe and economic operation of the equipment in their charge. Qualifications.—Education equivalent to high school graduation; five years of experience in the construction, operation, and repair of dredges and other floating equipment; two years of which shall have been in a position of responsibility; rating as a journeyman machinist; tact,

good judgment and ability to manage men; good physical condition. While a definite age limit has not been fixed for this competition, age may be a determining factor when a selection is being made. A rating on education and experience will be made from the sworn statements of applicants on their application forms. To those qualified an oral interview may be given if necessary. An eligible list from which future appointments can be made may be established, but there is only one position in the Marine Department classified as Senior Inspector of Dredges. Preference will be given to residents of the Province of Quebec.

Water Transportation in Northern Alberta and the Northwest Territories.

Canadian Railway and Marine World for May contained interesting details of some of the water transportation routes in Northern Alberta and the Northwest Territories. Some additional information has been received concerning the Northern Trading Co.'s service between Waterways, Alta., the terminus of the Alberta and Great Waterways Ry., and Scenic, in the Mackenzie River delta, about 50 miles from the Arctic coast.

The s.s. Northland Echo, during the present navigation season, will make a trip every 10 days, starting from McMurray, Alta. The first through trip to Norman left McMurray June 10, and connected with the s.s. Northland Trader for Norman.

The s.s. Northland Trader was expected to leave Fort Smith for Norman, as soon as the ice is cleared from Great Slave Lake, between June 20 and July 1, the trip from Fort Smith to Norman and return taking about 12 days.

The s.s. Northland Pioneer, which was specially built to handle heavy machinery and drilling rigs for oil companies, burns crude oil and has twin engines of 150 h.p. She has a speed of 16 miles an hour, and runs between Fort Smith and the Norman oil wells.

The passenger fare from Waterways to Norman oil wells and return, including meals and berth, is \$300. Between Waterways and Scenic, calls are made at McKay, Jackfish River, Chipewyan, Fitzgerald, Fort Smith, Resolution, Hay River, Providence, Simpson, Wrigley, Norman oil wells, Good Hope, Arctic Red River and McPherson. In addition to the steamboats mentioned above, the company operates the gasoline boats Notraco and Speed, the Northland Echo and Notraco operate between Waterways and Fitzgerald, and the Northland Trader, Northland Pioneer and Speed operate from Fort Smith to Scenic, including Great Slave Lake points.

Fuel for Lighthouse Boats.—C. A. Gauvreau, Temiscouata, Que., asked the following questions in the House of Commons recently:—"After trials made by the Marine Department in regard to wood and coal fuel for the use of lighthouse boats of Ile Rouge, Ile Blanche and Princess Shoal, is it the Government's intention to return to the old method of supplying the boats with cordwood instead of coal, if it is found less costly?" The Minister of Marine answered "Yes."

Canadian Government Merchant Marine Operation, Etc.

Officers of Steamships.—The following changes in masters and chief engineers have been made in addition to those mentioned in previous issues:—Canadian Explorer, Capt. P. J. Murphy, from s.s. Canadian Hunter, vice Capt. W. Wyman, on leave; Canadian Hunter, Capt. J. Slater, from s.s. Canadian Logger, vice Capt. P. J. Murphy, transferred to Canadian Explorer; Canadian Inventor, Capt. R. P. Roberts, formerly chief officer, s.s. Canadian Britisher, temporarily, during the absence of Capt. Dudley on sick leave; Canadian Logger, Capt. R. Forbes, formerly chief officer, same ship, vice Capt. J. Slater, transferred to s.s. Canadian Hunter; Canadian Planter, chief engineer, J. A. Prysz; Canadian Rancher, chief engineer, P. C. Bennett; Canadian Ranger, chief engineer, J. Still; Canadian Volunteer, chief engineer, G. V. Brown.

The s.s. Canadian Coaster sailed from Charlottetown, P.E.I., for Havana, Cuba, recently with 60,000 bush. of potatoes, stated to be the largest single cargo of potatoes shipped from the Island.

The s.s. Canadian Recruit is still lying submerged between the Traverse and the Pillars, near bell buoy 65, in the St. Lawrence River, where she was sunk, while at anchor, by the Dominion Coal Co.'s s.s. Maskinonge, during a fog, Aug. 18, 1921. The salvaging contract was let to Lachance Ltd., Quebec, and two attempts were made to float her, without success. Severe weather intervened at a time when full success was expected, and the work was abandoned by the contractors, Nov. 16, 1921, and has not been resumed. We were advised June 17, that there was nothing to report on the situation.

The s.s. Canadian Squatter, while on her way up the Miramichi River, N.B., June 4, collided with and damaged the drawbridge.

Montreal Sailings.

Liverpool Service.—Canadian Explorer, July 14; Canadian Ranger, July 28.

London Service.—Canadian Mariner, July 13; Canadian Cruiser, July 27.

Glasgow Service.—Canadian Volunteer, July 14; Canadian Squatter, July 28.

Cardiff and Swansea Service.—Canadian Otter, July 13; Canadian Runner, Aug. 21.

Australia and New Zealand Service.—Canadian Spinner, July 26.

Barbados, Trinidad & Demerara Service.—Canadian Coaster, July 5; Canadian Logger, July 19.

Hamilton, Bermuda, Nassau, Kingston & Belize Service.—Canadian Forester, July 13; Canadian Fisher, Aug. 3.

Newfoundland Service.—Canadian Sapper, July 3 and 18; Aug. 3 and 19.

Vancouver Sailings.
Australia & New Zealand Service.—Canadian Skirmisher, July 5; Canadian Traveller, July 20; Canadian Scottish, Aug. 30.

Oriental Service.—Canadian Prospector, July 20.

Pacific Ocean Services.—A Victoria, B.C., press report states that four additional steamships are to be placed in the Pacific service shortly, by transfer from the Atlantic services, where the business offering is comparatively light. It is stated that three of them will be used in off shore service, and one for the California coast trade, for which, it is said, the Grand Trunk Pacific Coast Steamship

Co's s.s. Prince Albert has had to be utilized. We have been officially advised that the report is incorrect, and that no such changes are contemplated. The s.s. Canadian Highlander sailed from Victoria early in June with 200,000 ft. of lumber for Australia.

Bermuda Service.—In connection with the service to the West Indies, it has been decided to make Bermuda a port of call, with the steamships Canadian Fisher and Canadian Forrester. This call is made as a part of the Nassau, Kingston and Belize service, and provides a direct connection between Nassau and Bermuda. The additional service was inaugurated June 22, with the sailing of the s.s. Canadian Fisher from Montreal, the two ships sailing alternately on a three weekly schedule. The ships are both of 5,100 d.w. tons, and contain 10 state-rooms and 2 suites, with accommodation for 28 first class passengers. The passenger rates are \$300 for a suite with private bath, \$80 a berth for stateroom with private bath, \$70 a berth for special stateroom, \$50 a berth for stateroom without private bath, and \$35 a berth for third class steerage. The general cargo rate is 32c. a cub. ft. or 60c. per 100 lb. The service is to be continued throughout the winter, the Canadian port being Halifax, N.S.

Liability of State Owned Ships.—In connection with statements which have appeared in a number of newspapers recently, with respect to immunity of state owned ships from liability to legal action for recovery of claims for salvage, damage to cargo, or to other ships, and claims of any other nature, publicity has been given to a letter signed jointly by Wm. Phillips, European Manager, Canadian Government Merchant Marine, and H. Larkin, General Manager, Australian Commonwealth Line of Steamers, London, Eng., stating that both of these lines voluntarily and unreservedly submit to the ordinary jurisdiction of any court, and agree to be held, subject to the ordinary system of writ and arrest in precisely the same manner as any private owner, and that this has been their definitely stated policy since their inception.

The Commercial Cable Co's cable repairing s.s. Marie Louise Mackay, which was launched at Newcastle-upon-Tyne, Eng., May 11, is a smaller ship than the s.s. John W. Mackay, built for the same company in Nov., 1921, her dimensions being, length 246 ft., breadth 34 ft., depth 24 ft. 4 in., driven by twin screws. She will have two masts, the usual overhanging bow for cable sheaves, and will be arranged to carry water ballast in the fore and aft peaks and double bottom, oil fuel being carried in a cross bunker. Provision is made in a hold forward, for cable stores, etc., and a refrigerator is provided aft with ample storeroom capacity. Cable will be carried in 3 tanks forward of the propelling machinery with a total coiling capacity of 18,000 cub. ft. The machinery for working the cable will include picking up and paying out gears, dynamometers, sounding machine, etc. Accommodation for the captain will be arranged on the navigating bridge and rooms for the other officers will be on the awning and main decks amidships, the petty officers, cablemen and seamen being accommodated on the main deck aft. The propelling machinery will consist of twin screw triple expansion engines.

Welland Canal Lock Gate Accident.

While passing through the Welland Canal, June 16, Canada Steamship Lines' wooden s.s. India down bound with a cargo of wheat, struck the lower gates of lock 16, about 6.05 p.m., ploughing through them, and making a descent of 14 ft. into the reach below. The water released from the level above the lock also carried out the upper tow path gate. The rear slopes of the canal banks were washed out in spots, to a small extent. After the accident the ship lay sunken below lock 16, close to the easterly bank, in such a position as not to block traffic through the canal. It is believed that her entire wheat cargo is damaged by water. It is stated that the cause of the accident was the ship's engines going ahead instead of reversing when entering the lock. Two wire cables were cut, but they either parted or rendered around the ship's timber heads. Three spare lock gates were placed in position, and navigation was resumed by noon the following day, several up and down bound ships being somewhat delayed. The estimated cost of repairs to Government property is \$12,000. The Reid Towing and Wrecking Co's s.s. Manistique lightened the grain and floated the ship.

Quebec Harbor Commissioners Abolish Dues.

The Quebec Harbor Commissioners sent the following cablegram to Donaldson Bros., London, Eng., recently: "To place Quebec on better footing than competitive St. Lawrence ports, we have decided to waive tonnage dues 7c, net register ton, also side moorage 60c hundred tons net register on steamships loading full grain cargoes, Quebec. Steamships should save about 2 days steaming plus pilotage, about \$200 stopping Quebec instead proceeding up channel. Kindly give this greatest publicity possible. Might advise Baltic and London Corn Exchange, also as many owners and interested parties quickly. Can run grain Quebec 60,000 bushels per hour, abundant water, loading berths up to 33 ft. Our opinion steamships could accept three pence quarter less at Quebec than other ports. There is half-cent bushel more rail freight to Quebec than Montreal, but time and money saved more than offset this. Loading can be done as cheaply as at Montreal, and shifting boards and bags are cheaper here."

Heretofore the tonnage duty at Quebec has been 7c. for every ton on the registered tonnage of ships loading or unloading full cargoes, and the moorage rate 60c. per 100 tons register, these charges having existed there from the early days of the old Trinity House control. The commissioners have waived these charges on ships loading full cargoes of grain at Quebec, to comply with a long standing pressure by the shipping interests, and to put, as far as possible, the port on the same footing as other grain shipping ports.

Aube Steamship Co. Ltd. has been incorporated under the Dominion Companies Act, with \$100,000 authorized capital, and office at Montreal, to own and operate ships, and carry on a general steamship agency and forwarding and carrying business. The provisional directors are: F. H. Markey, G. G. Hyde, J. G. Ahern, R. C. Grant, and R. J. Forster.

Atlantic and Pacific Oceans.

The name of the s.s. Bilbster, owned by Canada Steamship Lines, has been changed to Essex County.

The s.s. Salina, stated to be an Italian ship bound from Barry, Wales, for Montreal, was reported ashore at Fox Bay, Anticosti Island, June 9.

The Norwegian s.s. Sangstad, which grounded on Sea Island, near Cape Sable, June 6, and released herself the same day, arrived at Halifax, June 8, leaking. The cargo of sugar was discharged and she was drydocked for examination.

The Leyland Line s.s. Winifredian arrived at St. John's, Nfld., at the end of May, with the same company's s.s. Oxonian in tow, the latter having lost her rudder. The tow was for about 450 miles, which, on account of heavy weather, took about 10 days.

The Red Cross Line s.s. Silvia, which has been undergoing overhaul and repair at Glasgow, Scotland, was expected to leave Glasgow about June 20, for St. John's, Nfld., to take up her service on the Halifax-St. John's-New York route, in conjunction with the s.s. Rosalind.

Maritime Provinces and Newfoundland.

About 50,000 tons of Cape Breton coal was shipped from Sydney, N.S., to Boston, Mass., recently, for the New York, New Haven & Hartford Rd.

The s.s. Seneca was libelled at Newcastle, N.B., recently, on a claim for \$10,000 by the Canadian Salvage Co., for services rendered when she was in trouble in ice off Halifax, during last winter.

The schooner Eva Blanche, bound to Bay Roberts, Nfld., with coal from Sydney, N.S., ran ashore near Cape Pine, Nfld., June 4, during a dense fog, and became a total loss. The crew left the ship in boats, and rowed to Trepassy, landing there the following morning.

The Bras d'Or Steamboat Co., Sydney, N.S., has not, as recently reported, bought the s.s. Princess, or any other steamboat this year. The service given by the company between Sydney, Baddeck, and Whycomagh will probably be continued this year by the s.s. Marion.

Sydney, N.S., pilotage district has been placed directly under the Minister of Marine and Fisheries' authority. In future, the only pilotage station for this district, which includes North Sydney, Sydney, and International Pier, will be on Cranberry Head, on the north side of the entrance to Sydney harbor, and pilots will be obtained from the pilot boat off that station.

It is announced that Halifax, N.S., has been chosen as the site of a national monument to Canadians lost at sea, through the hazard of war. This monument, which will be erected by the War Graves Commission, will be of the type of the Bloomfield Cross of Sacrifice, as erected in the British military cemeteries in Belgium and France, and will be placed in Point Pleasant Park, on an elevation facing the open sea.

An order in council has been passed dismissing J. P. Piot, pilotage commissioner, Caraquet Pilotage District, N.B., and appointing J. L. Blanchard, T. Le Bouthiller, M. Aziz and A. D. Chiasson, as pilotage commissioners for that district, on the Minister of Marine's report that the Commission had not made any

returns for a number of years, as required by sec. 441 of the Canada Shipping Act. J. P. Piot was the only surviving commissioner for the district.

F. R. Reed, owner of the s.s. Pawnee, who offered her to the Newfoundland Government, for mail carrying purposes, during the recent difficulty with the Reid Newfoundland Co., is reported to have decided to operate her in the passenger service in Conception Bay, Nfld. It is stated that she is being painted and overhauled to suit her for such service, and that her name will be changed to Ruby S. Burton. She was formerly owned by G. Dexter, Boston, Mass., and during the war was used as a scout patrol, and for icebreaking purposes at Cape Cod. Her dimensions are, length 115 ft., beam 15 ft., draft 8 ft., and she is equipped with triple expansion engines of 400 h.p., for a speed of about 15 knots an hour.

In connection with the sinking of the Eastern La Have Transportation Co's schooner Con Rein, by a U.S. submarine, near Black Rock, R.I., Aug. 29, 1921, E. M. Macdonald, Pictou, N.S., moved in the House of Commons, recently, for copies of all documents in connection with the company's petition to the Secretary of State for External Affairs, and communications and replies from the U.S. Government in the same connection. The object is to call attention to the anomalous position of a Canadian company in a case of this kind, as it cannot proceed direct against the U.S. Government, but has to apply through the Canadian Government, which in turn must deal with the British Embassy at Washington, D.C., which takes up the matter with the U.S. Government.

Province of Quebec.

A conciliation board has been appointed to deal with a dispute between Shipping Federation of Canada member companies and ships' liners in the port of Montreal. D. K. Trotter will, it is stated, represent the companies, and J. T. Foster the men. Thos. Robb, Manager, Shipping Federation of Canada, is reported to have stated that the Federation is taking no part in the matter, as it has nothing to arbitrate, and intends to ignore it.

The Clarke Steamship Co. is reported

to have bought the s.s. Gaspeian, in England, for service between Montreal, Quebec, Gaspe Coast, and Prince Edward Island ports. The Gaspeian was built at Wallsend-upon-Tyne, Eng., in 1874, and has an iron hull of the following dimensions,—length 160.8 ft., breadth 27.1 ft., depth 11.3 ft., tonnage 598 gross, 319 net, and she is screw driven by engine of 70 h.p. She was originally named Warkworth and later Theodore Conseil, and was for several years operated by the Gaspe and Baie des Chaleurs Steamship Co., on the Gaspe coast. She was later owned by the Canadian Maritime Co., Montreal, and was sent to Europe in 1917 for operation during the war. She has accommodation for about 100 passengers, and has a dining room, smoke room, and other conveniences. Before returning to Canada she was thoroughly overhauled and refitted.

Ontario and the Great Lakes.

The Northern Navigation Co's ferry service between Sarnia and Port Huron, was commenced May 29, with the s.s. Louis Phillippe.

The steam tug McNaughton, owned by C. S. Boone Dredging and Construction Co., Toronto, has had her name changed to John J. Manley.

The name of the s.s. B. F. Berry, bought from U.S. owners recently, by Mathews Steamship Co., Toronto, has been changed to Berryton.

A regular passenger service will, it is reported, be established between Port Stanley and Cleveland, with the s.s. Colonial, making two trips a week.

The Port Huron ship channel, in the St. Clair River, was closed during the greater part of June, during dredging operations, and all ships used the Canadian channel.

Canada Steamships Lines s.s. City of Ottawa, which arrived at Toronto, June 10, was the first steamship to dock at the new harbor wharves at the foot of York St.

Imperial Oil s.s. Imperial left Sarnia, June 9, for Icono, near Vancouver, B.C., via the Welland Canal, St. Lawrence River, and the Atlantic Ocean to New York, thence through the Panama Canal and up the Pacific coast.

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during May, 1922:

Articles	Canadian Canal	U.S. Canal	Total
Lumber	8	20,814	20,822
Flour	507,880	647,300	1,155,180
Wheat	1,088,920	23,573,476	24,662,396
Grain, other than wheat.....	2,369,333	24,365,439	26,734,772
Copper	1,441	4,548	5,989
Iron Ore .....	.....	1,379,850	1,379,850
Pig Iron .....	.....	.....	.....
Stone	2,100	2,900	5,000
General Merchandise	714	62,397	63,111
Passengers	395	3	398
Coal, Soft	10	202,978	202,988
Coal, hard	2,100	.....	2,100
Iron Ore .....	.....	.....	.....
Manufactured Iron and Steel..	2,368	9,886	12,254
Salt	1,971	9,956	11,927
Oil .....	.....	30,696	30,696
Stone .....	.....	24,479	24,479
General Merchandise	29,399	56,786	86,185
Passengers	426	132	558
Summary			
Vessel Passages	392	913	1,305
Registered Tonnage	492,167	2,640,835	3,133,002
Freight—Eastbound	133,296	2,812,720	2,946,016
Westbound	35,848	334,781	370,629
Total Freight	169,144	3,147,501	3,316,645
Correction in April Summary:—			
Registered tonnage.....	Net	89,529	586,473
			676,002

An order in council has been passed confirming the license granted to A. Laflamme for the operation of a ferry across the Ottawa River, between Buckingham, Que., and Cumberland, Ont., at an annual rental of \$5, and providing regulations therefor.

The s.s. Rapids King, owned by Canada Steamship Lines, was placed in service by the Northern Navigation Co. June 24, between Wallaceburg, Ont., and Detroit, Mich., making three trips a week. The same company is also operating the s.s. Thousand Islander, between Chatham, Ont., and Detroit.

Arrangements are reported to have been made for the raising of the s.s. J. H. Jones, which was lost with all hands at Cove Cork, near Lionshead, Nov. 22, 1906. It is stated that she is lying on a good bottom, and the only thing that might prevent the raising will be the depth of water.

The Kingston Navigation Co. is operating its ships in conjunction with those of Canada Steamship Lines, picking up freight at Bay of Quinte ports, and transshipping to C.S.L. ships at Kingston. It will also take all freight discharged at Kingston by C.S.L. for B. of Q. ports, and will deliver it.

The Maple Leaf Milling Co. which bought the s.s. S.N.A. in Europe recently, is transferring her to the Canadian register, and will probably rename her Hedley Shaw. She is being operated between Port Colborne and Montreal, by the Port Colborne and St. Lawrence Navigation Co., a Maple Leaf Milling Co. subsidiary.

Canada Steamship Lines s.s. Kenora, which ran aground June 6, at Morgan's Point, was refloated undamaged by John E. Russell, wrecking contractor, Toronto, June 8. After being released, a portion of the cargo, which had been lightered, was reloaded and she resumed her voyage to Montreal.

The U.S. Lake Survey reports the mean stages of the Great Lakes for May, in feet, above mean sea level, as follows: Superior, 601.94; Michigan and Huron, 580.40; St. Clair, 575.25; Erie, 572.74; Ontario, 246.55. Compared with the average mean levels for the past 10 years, Superior was 0.20 ft. below; Michigan and Huron, 0.29 ft. below; Erie, 0.08 ft. below, and Ontario, 0.17 ft. below.

The U.S. Naval Communication Service has announced the establishment of radio compass stations at points in Lake Superior and St. Mary River, as follows: Detour Point, Grand Marais and Whitefish Point. The stations operate on a wave length of 800 metres, and there is no charge for the service. Grand Marais and Whitefish Point are connected by a land line, and operate as a group.

The s.s. Conestoga, owned by the Crosby Transportation Co., Milwaukee, Wis., was damaged by fire in the Cardinal Canal, towards the end of May, with a cargo of 40,000 bush. of wheat consigned to Montreal. She was built at Cleveland, Ohio, in 1878, and has an oak hull of the following dimensions: Length, 252 ft.; breadth, 36 ft.; depth 26 ft. 3 in. She was originally named Susquehanna.

The s.s. Aragon, which ran ashore at Salmon Point, near Kingston, Nov. 17, 1921, and which was abandoned to the underwriters, was released during May by John E. Russell, Toronto, and taken to the drydock at Kingston. The salvage work was of the ordinary kind, but was interfered with, to some extent, by bad

weather. It is stated that the ship will be offered for sale by the underwriters.

Livingstone Channel light 3B has been established in the Detroit River, on the dike along the western side of the channel, in lieu of the temporary gas buoy 3B, which has been discontinued, and the channel buoys 23 and 25 have been moved 50 yds. westward to the new west bank of the widened channel. Channel light 5 has been established in lieu of temporary gas buoy 5, which has been discontinued.

The dredging of the St. Mary River at Sault Ste. Marie, by the Dominion Public Works Department during 1921, has resulted in a material widening of the deep water approach to the lower end of the U.S. canal. Two red wooden spar buoys, one on the east and one on the west, have placed to mark the northerly limits of the dredging. These spar buoys may safely be ignored by ships loaded to pass through the Canadian canal.

A ferry steamship, which was launched at Toledo, Ohio, May 29, for the Detroit & Windsor Ferry Co., is said to be the largest boat of its kind for operation as a fresh water ferry. It is expected to be ready for operation between Detroit and Windsor, about July 1. The dimensions are: Length, 170 ft.; breadth, 66 ft. She has two decks, the lower of which will accommodate 75 automobiles, the upper, or cabin deck having capacity for about 2,000 passengers.

The Dominion Public Works Department has dredged the middle ground in front of the Government wharf at Belleville to a depth of 12 ft. at low water, which is 245 ft. above mean sea level at New York. A basin at the east side of the wharf, and the entrance thereto, 100 ft. wide, were also dredged to a depth of 12 ft. below low water for 300 ft. shoreward. An obstruction, consisting of loose stone located in the south channel of the swing span of the Prince Edward County bridge, west of Belleville, has been removed to a depth of 14 ft. below low water.

The s.s. Joyland, which was wrecked at Little Round Island, near Brockville, and abandoned by Canada Steamships Lines to the underwriters, has been sold to John E. Russell, harbor contractor, Toronto. She was built at Detroit, Mich., in 1884, and was originally named William A. Haskell. Her dimensions are: Length, 250.5 ft.; breadth, 37 ft.; depth, 14.3 ft.; tonnage, 1,845 gross, 1,070 net, and she is screw driven by engine of 88 h.p. She was formerly owned by Montreal Transportation Co., and was taken over by Canada Steamship Lines on the acquisition of that company's property. She was taken to Kingston for overhaul and later to Port Dalhousie for repairs, and is expected to be offered for service shortly.

British Columbia and Pacific Coast.

The White Pass and Yukon Route s.s. Whitehorse was the first steamboat to arrive at Dawson, Yukon, this season, tying up there, June 9.

The Dominion Public Works Department Superintendent of Dredges, at Vancouver, received tenders to June 14, for repairs and general overhaul to dredges 303, Fruhling; and 305, King Edward.

The small steamboat Klondike, built at Dawson, Yukon, in 1921, was sunk in an ice jam, off Mayo, at the end of May. She was lying in shallow water and may be raised.

The Howe Sound Navigation Co's s.s.

Lady Evelyn, which was taken to Vancouver recently from the Atlantic coast, has been completely renovated and placed in the excursion service out of that port.

The Grand Trunk Pacific Coast Steamship Co's s.s. Prince George is now calling at Powell River, northbound, as well as southbound, and the calls at Swanson Bay have been cancelled.

An octagonal reinforced concrete lighthouse is being built at Carmanah light station, in the Juan de Fuca Strait, by the Marine Department. The site is immediately behind the existing lighthouse. While the existing lighting apparatus is being moved to the new structure, about July 15, a fixed white light of low power will be shown from the top of the old building.

The C.P.R. s.s. Princess Royal was placed in service, June 14, in conjunction with the s.s. Princess Adelaide, between Vancouver and Victoria, replacing the s.s. Princess Alice, which has been transferred to the Alaska service, after having been overhauled. The s.s. Princess Maquinna made a special cruise via the west coast to Rivers Inlet, in the latter part of June.

The steamships Sylvia Victoria and Willdomino, formerly named War Cavalry and War Convoy, were to be offered for sale in London, Eng., recently. They were built by J. Coughlan & Sons, Vancouver, B.C., in 1919, for the British Government, under orders from the Imperial Munitions Board, and on delivery, were allocated by the British Ministry of Shipping, to private firms for operation. The s.s. Sylvia Victoria has the following dimensions: Length, 410 ft. 7 in.; breadth, 54 ft. 1 in.; draft, 24 ft. 2½ in.; depth moulded, 29¾ ft.; tonnage, 5,757 gross, 4,199 net, 8,750 d.w. capacity, 479,652 cub. ft. grain capacity. She is equipped with two steam turbines geared to one screw shaft, 2,500 shaft h.p., 3 single-ended boilers, 14 ft. 9½ in. x 11 ft. 3½ in., 190 lb. working pressure, forced draft, 9½ knots an hour on 42 tons Welsh coal and 10 knots on 36 to 40 tons Pocohontas coal, electric light and wireless. The s.s. Willdomino has the following dimensions: Length, 410½ ft.; breadth, 54 ft. 1 in.; depth moulded 29¾ ft.; draft, 27 ft. 5 in.; tonnage, 5,755 gross, 4,173 net; 8,750 d.w. capacity, 479,652 cub. ft. grain capacity. She is equipped with two steam turbines geared to one shaft, 2,500 shaft h.p., 3 single-ended boilers, 14 ft. 10 in. x 11 ft. 3 in., 190 lb. working pressure, forced draft; speed, 10 knots on 40 tons Welsh coal, telemotor steering gear, electric light and wireless. The first-named is at London, Eng., and the latter at Glasgow, Scotland.

Lake Temiskaming Boat Co., Ltd. has been incorporated under the Ontario Companies Act, with \$40,000 authorized capital, and office at Haileybury, Ont., to own and operate steamships and boats on Lake Temiskaming, and other waters in Ontario, and to carry passengers and freight. The provisional directors are: A. L. Herbert, W. Shortt, G. Poppleton, E. Bucknall and A. Herbert.

Revillon Freres Trading Co., Montreal has bought the schooner Maxwell III, built by Thomas Rawding, Liverpool, N.S., for use, with its other ships, purely for its own business, in the transportation of supplies to various trading stations. The name of the ship has been changed to Captain Albert Revillon, and she has been equipped with a Densil semi-Diesel engine.

United States Merchant Marine Affairs.

The recent delivery of the s.s. Western World to the Emergency Fleet Corporation completed its wartime shipbuilding programme.

The Board reports that the cabin bookings on its ships for May, June and July totalled 2,384 first class passengers, 1,193 second class, and 3,335 third class.

The U.S. Shipping Board has sold 202 unassembled 1,400 h.p. triple expansion marine engines, located in various parts of the U.S., by auction, realizing \$222,860. They were sold in lots where they were located, the highest individual price received being \$1,260, the lowest \$805, and the general average \$1,103.

In April, the total expenses incurred in excess of income from ship operations, including overhead, repairs, insurance and lay-up expenses, were \$2,977,246.72. This is the most favorable result yet attained. The excess of expenses over income for March was \$3,704,155.22. The total voyages reported were 185 for April, and 188 for March.

The Emergency Fleet Corporation's Comptroller Department has stated that the 23 steamships formerly known as the "State" ships, the names of which have been changed to those of different U.S. Presidents, were built at a total cost of \$130,554,297.28. Seven of these are 502 ft. long and the balance 518 ft. long. The tonnage is not given.

The Board has authorized the settlement of 286 claims of the shipbuilding contractors, totalling \$19,919,660.54, but after deducting offsets by contractors the amount payable from the treasury is \$448,320.42. The cash amounts actually allowed and accepted were about \$2,150,000, against which contractors admitted owing the shipping board nearly \$2,000,000 in excess of their claims.

United States foreign and waterborne trade for March showed an increase of 20% over February for dry cargoes, and 31% in tank ship movements, the gross increase being 23%. The Shipping Board states that despite this increase in total trade, the percentage carried in U.S. bottoms was far below what it should be, being approximately 35% of both import and export trade in dry cargo, and 89% inward and 38% outward of the tanker trade.

R. B. Maucham, Manager, Kiangnon Dock and Engineering Works, Shanghai, China, who arrived in England recently, on a business trip, is reported to have stated that his company had turned out four of the largest steamships ever built in a Chinese yard—viz., 14,750 tons displacement. They were built for the U.S. Shipping Board, at \$195 a d.w. ton, and had been sold to the Canadian Robert Dollar Co., at £6 10s. a d.w. ton, showing a loss on the building cost of approximately \$135 a d.w. ton.

The Shipping Board during 1920 sold to the Lloyd Belge, 22 ships, totalling about 56,000 tons gross, for approximately \$16,500,000, on the understanding that certain adjustments would be made as to the deadweight and condition. Negotiations for settlement of this question have been proceeding during the past year, and an agreement has been reached, by which the Board receives slightly over \$12,000,000, of which about \$10,500,000 has been paid in cash, the balance to be paid in 5 equal annual instalments.

Washington, D.C. reports indicate that

there is considerable opposition to the amendments to the Merchant Shipping Act, which provide subsidies for the operation of U.S. steamships in foreign trade. It is stated that organized labor, seamen, and the agricultural interests are against the proposals. The bill providing for the exemption of U.S. ships from Panama Canal tolls remains in statu quo. It is stated that it is not favored by the Administration, and that there are strong prospects of indefinite delay, some regarding the bill as dead.

A service of four ships a month has been placed on the route between North Atlantic and Brazilian ports, two fast passenger ships and two freight ships. The Brazilian ports used are, Santos, Rio and Victoria, and for the present, only New York and Boston in the North Atlantic, but should business develop, Baltimore and Newport News and other ports will be included. The service is being given by the Munson Line and the International Freighting Corporation. A service between Gulf of Mexico and Brazilian ports is also being operated by the Mississippi Shipping Co.

In giving evidence before the joint congressional committee, on the merchant marine, recently, D. H. Cox, naval architect, New York, stated that an investment of \$400,000,000 would be necessary to overcome the present deficiencies, and to afford a well balanced fleet capable of carrying half of the foreign trade. He stated that ships of the following types were lacking,—passenger and mail ships of 15,000 gross tons and up, with speeds of 18 knots and over; passenger and cargo ships of 10,000 to 15,000 gross tons, with speeds of 14 to 16 knots; fast cargo ships of 9,000 d.w. tons and up, with speeds of 12 knots and over; refrigerating ships of 8,000 to 12,000 gross tons, with speed of 14 to 15 knots, and ships equipped with Diesel engines or Diesel-electric drive.

New rates were put into effect recently on the passenger ships operated out of New York, by Lamport & Holt, to South American ports. The fares from New York to Rio de Janeiro were reduced from \$415 to \$315, to Montevideo from \$475 to \$360, to Buenos Aires from \$490 to \$370, and northbound rates were reduced in proportion. Two lines run on this route, viz.: the U.S. Shipping Board's ships operated by the Munson Line, and those operated by Lamport & Holt, the latter ships being British. The Shipping Board takes the view that this is a declaration of a rate war between the two lines, stating that while it was about to adjust the rates between these

ports, the new rates announced do not constitute merely an adjustment, but have been made in a way as to attempt to discourage the Board's operations. It is stated that Lamport & Holt intended withdrawing their four ships on this route during June, and placing them in the trans-Atlantic service.

The following details of operation for February and March have been issued by the U.S. Shipping Board:—

	February	March
Excess of expenses over income	\$3,089,459.41	\$3,704,155.22
Round trip voyages.....	155	188
Excess of expenses on voyages	\$ 593,290.80	\$1,019,860.00
Excess income on tanker voyages	\$ 534,481.45	\$ 290,868.16
Charter hire receipts.....	\$ 65,411.50	\$ 88,139.03
Repairs	\$1,050,000.00	\$1,313,299.88
Insurance premiums ..	\$ 320,355.53	\$ 391,565.84
Lay up expenses	\$ 413,076.60	\$ 381,038.27
Salaries and wages	\$ 477,546.93	\$ 477,410.58
General expenses	\$ 300,601.05	\$ 210,120.68

Overhead, repairs, insurance and lay up expenses are included in the above figures, but no account is taken of capital charges, and several forms of insurance which the Board carries itself. The omission of these figures is stated to be in line with established government practice. The Board feels that the inability to include proper proportions for capital charges in the monthly statements, does not give a true picture of the losses, such as all commercial statements should reflect.

Ship Plate Contract Settled.—The Dominion Iron and Steel Co's claim for \$10,964,000 under a contract made with the Dominion Government in 1919, for 250,000 tons of steel plates for shipbuilding, has been settled for \$4,500,000. Under the contract, the company was required to erect and equip a modern ship plate mill and accessories, the cost of which is stated to have been \$5,500,000. After about 50,000 tons of the plates had been rolled, the Government cancelled the contract, but acknowledged its obligation to pay the loss actually incurred. The matter was referred by the Minister of Justice to the Exchequer Court, and the Government paid \$3,000,000 on account of the loss. An order in council was passed May 20, authorizing the payment of a further \$1,500,000 in settlement of the claim, the settlement being confirmed by the Exchequer Court.

Bernard Tug Co. Ltd. has been incorporated under the British Columbia Companies Act, with \$25,000 authorized capital, and office at Vancouver, to carry on a general tug, towing and steamboat business, and to own and operate ships.

Ships Added to and Deducted From the Canadian Register During March, 1922.

Added.	Steam.—Tonnage—			Sailing.—Tonnage—		
	No.	Gross	Net	No.	Gross	Net
Built in British Possessions	9	131	95	10	1,033	966
Purchased from foreigners	6	5,990	3,562	.....	.....	.....
Registered anew	1	20	20	.....	.....	.....
Other ships .....	.....	.....	.....	1	16	16
Totals.....	16	6,141	3,677	11	1,049	982
Deducted.						
Wrecked or otherwise lost	3	1,282	1,024	4	468	378
Broken up or unfit for use	5	1,840	1,114	5	574	568
Sold to foreigners	2	3,302	2,162	1	232	232
Registered anew .....	.....	.....	.....	1	46	46
Totals.....	10	6,424	4,300	11	1,370	1,274

Dominion Wreck Commissioners' Enquiries and Judgments.

Enquiries have been held, and judgments delivered in connection with the following casualties:—

Stranding of the s.s. Canadian.

An investigation was held at Collingwood, Ont., May 5, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. F. R. Basset and F. G. Moles, as nautical assessors, into the stranding of Canada Steamship Lines s.s. Canadian, on Minos Bank, Georgian Bay, April 17. The master, Capt. H. A. Patterson, testified that his information was, that all lights were in operation, and relying on this, he proceeded on his course, with the Midland ranges astern, and verified his compass course. Not seeing the Brebeuf range lights, he altered his course north-east, and shortly after checked his speed, and simultaneously gave an order full speed astern, and the ship struck. Soundings were taken, lifeboats placed in readiness, and the engines run full speed astern. Shortly after, a storm sprang up from the southwest, which prevented the adoption of any methods to clear the ship, and caused extensive damage to 54 plates. Had the Brebeuf range lights been in operation, the accident would not have taken place, and he considered them of great importance. He stated he had taken bearings of Giant's Tomb light, with the help of some contrivance attached to the binnacle. This statement was not, however, confirmed by the wheelsman, who did not appear to have noticed such action.

The court found that the master was not justified in proceeding at full speed, especially when he noticed that the range lights were not visible. He had no knowledge of the exact speed of his ship, except from hearsay, and had no instruments to register the speed. It was therefore most necessary to navigate carefully. While his compasses appeared to be correct on the range course, he had no proof that they would prove accurate on other points, hence, if he did take a bearing of Giant's Tomb lights, he could not rely on it implicitly. There were ships ahead of him, and there is no information that any of them came to grief, and while recognizing the importance of the Brebeuf range lights, their nonvisibility does not seem to have affected the navigation of the four or five ships which were ahead. It should be understood by all navigators, that aids to navigation are only to help in negotiating dangerous narrow stretches, and cannot be implicitly relied on, and the navigator has at times to resort to other means to bring his ship safely to its destination. The master is a young man and apparently has not had the opportunity to use his resourcefulness, and was partly led astray by the information that all lights were in operation, and when he realized the absence of the aid he expected, combined with the little stretch of water that lay before him, he was unable to take action. The court felt that in this instance, leniency was justified, and though it found the master to blame for the grounding of the ship, took into account the failure of the range lights, and did not deal with his certificate, but reprimanded him most severely for lack of judgment and resourcefulness, and warned him to be more careful in future. It also decided to draw the

attention of the Marine Department to the failure of the lights.

Stranding of s.s. Mapledawn.

Held at Montreal, May 23, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Lapierre and A. Lefebvre, as nautical assessors, into the stranding of Canada Steamship Lines' s.s. Mapledawn, near Isle aux Vaches, River St. Lawrence, Apr. 24, when bound from Halifax, N.S., to Montreal, with sugar. The ship was well equipped and manned, and had two compasses, both of which had been adjusted this spring and were almost correct magnetic. The master stated that he was on the bridge until 10.30 p.m., when he went to his room, under the bridge, and was asleep when the ship stranded at 11.15 p.m. On being called, he went on the bridge immediately and tried to free the ship by various movements of the engine, while soundings were being taken in the tanks and outside. The ship was refloated at 7 a.m., the following day, with the help of three tugs. The pilot, G. Arcand, stated that he had had three previous accidents. The night was clear, though there was some mirage and smoke, and high water had partially submerged some of the islands, and he attributed the accident to these causes, and also to the fact that the buoys had not then been placed in that locality. He had not used the glasses to look for the spar buoy, nor at any time prior to the accident. All the leading lights were plainly visible and in operation, and were not obscured by smoke. The wheelsman stated that there was no smoke, the weather being perfectly clear and all lights plainly visible, and that half a minute before the ship grounded, the pilot ordered the wheel a port.

In summarizing the evidence the court noted the discrepancy between the evidence of the pilot and the wheelsman in respect of smoke, but as it agreed regarding the visibility of the lights, the conclusion was drawn that smoke was not a cause of the casualty. The pilot knew, when leaving Quebec, that the water was high, and with his long experience he must have known that some of the islands would be submerged, and he also knew, or should have known, that the gas buoys in that neighborhood were not then in position. While of the opinion that it is difficult to observe spars at night, yet knowing the spar's position with respect to the opposite light below Isle aux Vaches the court stated that if the glasses had been used, it is possible that it could have been discerned. Having mentioned mirage, smoke and high water as cause of the accident, the pilot should have used greater vigilance and prudence. On this point, Marsden says: "Where, to keep a good lookout, glasses are necessary, it would probably be held negligence not to use them. In an American case the use of night glasses on board a steamship coming into harbor was held to be necessary." The pilot would have shown prudence if he had reduced the speed of the ship. The court therefore found that he did not exercise proper vigilance, the omission of the use of the marine glasses being recognized by high authorities as an indifferent lookout, and also erred in maintaining full speed when, to his mind, objects did not appear as he expected. Owing to the fact that the buoying of the narrow stretch had not been completed,

his license was not dealt with, but he was fined \$100, to be paid by June 30. The master, Capt. J. P. Dufour, was exonerated from any blame for the casualty, but the court looked with disfavor on his absence from the bridge, and therefore reprimanded him, questioning whether, as pilotage is not compulsory, it is advisable for the master to retire to his room when his ship is being navigated in narrow stretches.

Grounding of s.s. Senator Derbyshire.

Held at Montreal, June 6, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Lapierre and A. Lefebvre, as nautical assessors, into the grounding of the George Hall Coal Co's s.s. Senator Derbyshire, April 28, at Isle aux Vaches, in the St. Lawrence River, when bound from Salmon Bay, Saguenay River, to Ogdensburg, N.Y., with pulpwood. The evidence showed that at the time of the grounding, the weather was clear, there was no wind, and all lights were plainly visible, and the master was below, away from the pilot house, the second officer being on duty. The pilot, S. Perron, stated that he had had some previous accidents, and that this grounding occurred through misjudging his distance from land, owing to high water, and when he found his mistake, he ordered the helm to starboard, but gave no order to the engine room. The second officer stated that when the master came on deck, the engines were put full speed astern, and when the ship refloated she was found to be leaking.

The court, while admitting the possibility of error in judgment which renders some mishaps excusable, considered that in this case, as in the case of the s.s. Mapledawn, the pilot knew the state of the water, and that he could expect some land bordering the channel to be submerged, and should therefore have given greater attention. Whether water is low or high, there is but one course to follow, and guiding objects, aids to navigation, etc., are placed at various distances, to help in directing ships, and as the pilot has frequently taken ships with greater draft up and down the river safely, under less favorable conditions, this grounding cannot be attributed to an error in judgment, but if so, it is of a culpable nature. The light draft of the ship, her slow speed, and the height of water, no doubt attributed to the lack of vigilance, which brought about the grounding, and which, while not of a serious nature in respect of damage and delay, is nevertheless detrimental to the reputation of the St. Lawrence for safety of navigation. As there was no attempt on the part of the pilot to make any false representation, the court imposed the minimum fine of \$50, to be paid by June 30. The master, Capt. J. B. Gamache, was reprimanded for being away from his post, the court considering that the slight regard he showed of his responsibility, was aggravated by the fact that it was his watch on deck.

Trevisa-Iocoma Collision.

Held at Montreal, June 5, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Lapierre and A. Lefebvre, into the cause of the collision between the s.s. Trevisa, owned by Export Steamships, Ltd., Montreal, and the s.s. Iocoma, owned by Imperial Oil, Ltd., Toronto, in the Welland Canal, May 4. The evidence was contradictory

as to the speed of both ships, and also as to how and where the actual collision occurred, and the court, omitting the contradictory evidence, found that on the admission of the s.s. Iocoma's master and mate, their ship swerved to port, when they were expecting the reverse effect through the movement full speed astern, and that in view of the manner in which the impact took place, and the damage inflicted, the Iocoma was responsible, but attributed no culpability to the master or other officer, and exonerated them from blame. Whether the swerving was due to an error in judgment in approaching too near the bank, or to the current which caught the starboard bow, was not determined, but probably the latter was the cause.

A Proposal to Secure Canadian Government Merchant Marine Steamships.

T. M. Kirkwood, President Kirkwood Steamship Co., Montreal, wrote the Minister of Marine and Fisheries on June 7 from England, as follows:—"As a member of the Quebec Board of Trade for some years, I am aware that the Government Merchant Marine steamers and the Transcontinental Railway are losing millions each year, and I also am aware that 80% of the Canadian western grain is shipped for export via the American ports, instead of via Quebec, and it is no secret that the port of Quebec has not shipped any grain for export for some years, unless it was the overflow of grain that Montreal could not handle. I am a shipbuilder and vessel owner. I built ships at Three Rivers for the Imperial Government, and I have operated, and am yet operating, vessels between Quebec and Montreal for some years. I bought a steamer here last April for the Quebec and Montreal route, and have returned for another one.

"I have talked with a strong group of financiers here with reference to taking over and operating all your Government Merchant Marine steamers, and they are inclined to form a large company to take over and operate the vessels and to build elevators in Quebec, Halifax, England, France and Italy, and a large flour mill at Quebec, providing you can induce your Government of Quebec or Ottawa to guarantee their interest on their issue of bonds, and will sell the vessels at a fair price, and that your Ottawa Government will lower the rate on grain from Winnipeg to Quebec to 12c. a bushel, and from Winnipeg to Halifax to 18c. a bushel, and your Government to hold first mortgage and insurance on the vessels.

"They propose to sell the bonds to the actual buyers of wheat and flour in England, France and Italy, so that the buyers will have their own line of steamers. This will, of course, send to Quebec the 80% tonnage that is now going via American ports for export to England, France and Italy. You can readily understand your port of Quebec will be the headquarters for the large fleet of steamers and will get the 80% export tonnage, because the grain will have to be shipped over the Transcontinental Railway and the steamers at Quebec, because the bondholders will be the buyers of the wheat, and will order it shipped to Quebec for export, or to be made into flour in their own mill at Quebec. You can understand that if a large flour mill is built at Quebec your Quebec farmers will get

cheap bran and shorts for their cattle; this will enrich your province. Kindly cable me what you think of the project, at London and Northwestern Hotel, Liverpool."

Mainly About Marine People.

John Allsop, General Agent for Canada, Royal Mail Steam Packet Co., Halifax, N.S., was entertained at dinner there by a number of friends, June 6, prior to leaving for England, to take up a new position in the company's head office.

C. S. Boone, President, C. S. Boone Dredging and Construction Co., Toronto, who died there, Apr. 11, left an estate of \$530,133.

W. E. Burke, who has been appointed General Traffic Manager, Canada Steamship Lines, Montreal, was born at Belleville, Ont., Sept. 23, 1881, and entered steamship service May 1, 1905, since when he has been, to Dec. 1, 1905, purser, s.s. Picton, Richelieu and Ontario Navigation Co., Montreal to Toronto; Dec. 1, 1905 to Dec. 31, 1906, Soliciting Freight Agent, same company, Toronto; Dec. 31, 1906 to Dec. 31, 1907, Travelling Freight Agent, same company, Toronto; Dec. 31, 1907 to Apr. 10, 1909, Travelling Freight Agent, Mutual Steamship Co., Toronto; Apr. 10, 1909 to Apr. 1, 1910, General Freight Agent, Merchants Mutual Line, Toronto; Apr. 1, 1910 to Jan. 1, 1914, Traffic Manager, same company, Toronto; Jan. 1, 1914 to March 1919, Assistant Manager, Canada Steamship Lines, Montreal; March 1919 to May 31, 1922, Director in Charge Transportation Department, same company, Montreal.

L. A. W. Doherty, who has been appointed Freight Traffic Manager, Canada Steamship Lines, Montreal, was born at Toronto, April 10, 1878, and entered transportation service in July, 1896, since when he has been, to 1887, clerk to Assistant Freight Traffic Manager, C.P.R., Toronto; 1887 to 1906, chief clerk to General Freight Agent, C.P.R., Toronto; 1907 to 1908, chief clerk to Assistant Freight Traffic Manager, C.P.R., Toronto; 1908 to 1910, Assistant Manager, Inland Navigation Co., Hamilton, Ont.; 1911 to Feb. 27, 1913, Traffic Manager, Inland Lines Ltd., Hamilton, Ont.; Feb. 27, 1913 to Jan. 1914, Freight Traffic Manager, Richelieu and Ontario Navigation Co., Toronto; Jan. 1914 to Apr. 23, 1917, Freight Traffic Manager, Canada Steamship Lines, Toronto; Apr. 23, 1917 to May 31, 1922, General Traffic Manager, same company, Montreal.

Frederick S. Isard, who has been appointed Manager, Canada Steamship Lines, Montreal, was born at Hamilton, Ont., Aug. 4, 1888, and educated there. He commenced his business career with the International Harvester Co. at Hamilton. He entered transportation service in 1911, and has been to 1913, Comptroller, Canadian Interlake Line, Toronto; 1913 to 1919, Comptroller, Canada Steamship Lines, Montreal; 1919 to May 1921, Director of Finance, Canada Steamship Lines, Montreal; May 1921 to May 31, 1922, Managing Director, same company, Montreal.

J. F. M. Stewart, Toronto, who has been elected a director of the Home Bank of Canada, is President of the West Coast Towing & Salvage Co., Vancouver, B.C., and of the Gidley Boat Co., Penetang, Ont. He is also a director of Colingwood Shipbuilding Co., and Halifax

Shipyards Ltd., and a member of the Dominion Marine Association's executive committee.

Discrimination in International Shipping.

At the United Kingdom Chamber of Shipping's recent annual meeting in London, the following resolution was discussed: "That His Majesty's Government be urged to direct the attention of the foreign governments which have recently adopted or threatened measures of flag discrimination, to the prejudicial reaction of such measures on the trade of the world, and to the unreasonableness of expecting a continuance of the free navigation and equal trading rights hitherto accorded by the British Empire in the face of measures hurtful to its shipping." During the discussion the various measures being adopted, or considered, by different nations, were dealt with, including the U.S. Merchant Marine Act. Specific mention was made of the U.S. proposal to include the Philippine Islands within the terms of its coasting laws, and it was understood that the British Foreign Office had the matter in hand, with the view of showing that such an act would be contrary to international law.

Sir Kenneth Anderson, who moved it, said, in part:—"It is imperative that we should with all possible emphasis, enter our protest and reaffirm our conviction that, not only in the interests of British shipowners, but in the interests of all shipowners, and also in the interests of the whole worldwide community, irrespective of nationality, trade or occupation, such a policy must prove ultimately injurious. Now more perhaps than ever before, it is the first essential of the world's well doing that its various ports should enjoy absolute freedom in the exchange of those goods and services which each part can most advantageously and, therefore, most abundantly produce. You cannot have cheapness without freedom, and without cheapness you cannot have either abundance or the demand which springs from it. Discrimination in the treatment of shipping must increase the cost of ocean transport, for a vast proportion of the world's trade is the sole means of exchange, and by increasing the cost of transport you increase the cost and reduce the supply of the commodities transported. It may be true, on a narrow view, that discrimination, if effective—and all discrimination however small and insidious in its beginnings, tends to become absolute prohibition—would constitute for the national tonnage thus favored in their home ports a solid advantage, but this on the assumption that they will continue as before to enjoy freedom to trade in the ports of other countries. That is a very large assumption, for it is plainly inconceivable that other countries should maintain an attitude of passive and philosophical acquiescence in the face of treatment which could not be considered as otherwise than unfriendly. Discrimination is not only impotent to achieve its object, but, since it is avowedly designed to injure other countries, it must inevitably give rise to protest and resentment. This resentment will grow with the growth of restrictions, and we deprecate them, not only because they will impoverish the world, but because they will embitter national friendship."

Canadian Notices to Mariners.

The Marine Department has issued the following:—

11. March 23.—23, Ontario, Lake Huron, Goderich harbor, new edition of chart. 24, Ontario, Lake Huron, Georgian Bay, Parry Sound and approaches, new edition of chart. 25, Ontario, Lake Superior, Shaganash, lighthouse destroyed, temporary light. 26, United States, Lake St. Clair, Lake St. Clair lightship, characteristic of light to be changed. 27, United States, St. Clair River, Lake Huron U.S. ship channel, intended change in aids.

12. April 4.—28, British Columbia, Canadian list of lights and fog signals, new edition. 29, British Columbia, Burrard Inlet, entrance to Port Moody, off Carraholly Point, beacon erected.

13. April 10.—30, Ontario, Canadian list of lights and fog signals, new edition. 31, Ontario, Lake Erie, Port Stanley, character of breakwater light. 32, Ontario, Lake Huron, Georgian Bay, Notawasaga River, range lights discontinued. 33, United States, Lake St. Clair ship channel, intended change in buoyage. 34, United States, Lake St. Clair, St. Clair Flats canal, buoy to be discontinued. 35, United States, St. Mary River, Round Island light, characteristic to be changed. 36, United States, Upper St. Mary River, Cross Channel buoy to be moved. 37, United States, Lake Superior, Whitefish Bay, Point Iroquois light, characteristic to be changed.

14. April 24.—38, British Columbia, Vancouver Island, Baynes Sound, Courtenay River, channel cleared of obstructions. 39, British Columbia, Queen Charlotte Islands, Hecate Strait, Cumsheewa Inlet, Kingui Island, light established.

15. April 24.—40, Nova Scotia, Bay of Fundy, Minas Basin, Minasville, light to be discontinued. 41, Nova Scotia, Bay of Fundy, Port Maitland, color of light to be changed. 42, Nova Scotia, south coast, Lahave River, character of buoys to be changed, buoys to be established.

16. April 26. 43, Nova Scotia, Bay of Fundy, Grand Passage, character of buoy to be changed. 44, New Brunswick, Gulf of St. Lawrence, Chaleur Bay, Miscou harbor, range lights established, change in position of buoy, Harper Point light discontinued.

17. May 2.—45, Nova Scotia, Halifax harbor entrance, Sambro outer bank, light ship replaced by gas and whistling buoy. 46, New Brunswick, north coast, Miramichi Bay, Horseshoe Bar, rearrangement of buoys. 47, Quebec, Gulf of St. Lawrence, off Heath Point, light ship to be placed. 48, Quebec, St. Lawrence River, between Quebec and Montreal, Contrecoeur course, change in position of front range light.

18., May 2.—49 Ontario, Lake Ontario, sailing directions for Canadian shores published. 50, Ontario, Lake Ontario, Toronto harbor, improvements in progress, caution. 51, Ontario, Lake Superior, Oiseau Bay to Copper Island, new edition of chart.

19. May 9.—52, Canada, seaplane stations, description of distinguishing flag. 53, Ontario, Lake Huron, Manitoulin Island, south shore, Providence Bay, change in character of buoy. 54, Ontario, St. Mary River, Sault Ste. Marie, dredging, buoys established.

20. May 9.—55, Canada, seaplane stations, description of distinguishing flag.

56, British Columbia, Juan de Fuca Strait, Swiftsure Bank lightship vessels, characteristic of submarine bell to be changed. 57, British Columbia, Queen Charlotte Islands, Masset Sound and Inlet, new edition of chart. 58, United States, west coast, Umatilla reef lightship, characteristic of submarine bell to be changed.

21. May 19.—59, Canada, seaplane stations, description of distinguishing flag. 60, New Brunswick, Bay of Fundy, Petitcodiac River, wreck, buoy established.

Transportation Conventions in 1922.

Aug. 15 to 17.—International Railroad Master Blacksmiths Association, Chicago, Ill.; W. J. Mayer, 15 Hotel Sherman, Chicago, Ill.

Aug. 23 to 25.—American Association of Railroad Superintendents, Kansas City, Mo.; J. Rothschild, 400 Union Station, St. Louis, Mo.

Sept. 12 to 15.—Traveling Engineers Association, Chicago, Ill.; W. O. Thompson, 1177 East 98th St., Cleveland Ohio.

Sept. 19 to 21.—Roadmasters and Maintenance of Way Association, Cleveland, Ohio; P. J. McAndrews, Chicago and Northwestern Ry., Chicago, Ill.

Sept. 20 to 22.—American Railway Association, Telegraph and Telephone Section, Colorado Springs, Col.; W. A. Fairbanks, 75 Church St., New York.

Oct. 2 to 6.—American Electric Railway Association, Chicago, Ill.; J. W. Welsh, 8 West 40th St., New York.

Oct. 10, 11.—American Association of Passenger Traffic Officers, Louisville, Ky.; W. C. Hope, Central Rd. of New Jersey, 143 Liberty St., New York.

Oct. 17 to 19.—American Railway Bridge and Building Association, Cincinnati, Ohio; C. A. Lichty, 219 North Waller Ave., Chicago, Ill.

Oct. 17 to 20.—American Association of Dining Car Superintendents, San Francisco, Cal.; L. A. Stone, Chicago and Eastern Illinois Ry., Chicago, Ill.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities—Canadian Counsel, W. D. Lighthall, K.C., Montreal.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—D. N. Gill, Comptroller, Ottawa Electric Ry., Ottawa, Ont.

Canadian Freight Association (Eastern lines)—G. C. Ransom, Chairman, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western lines)—805 Boyd Block, Winnipeg.

Canadian Passenger Association—Eastern Lines, G. H. Webster, 54 Beaver Hall Hill, Montreal; Western Lines, E. J. Stone, 306 Union Station, Winnipeg.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club—W. A. Booth, 53 Rushbrooke St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Canadian Traffic League—R. J. Fitzgerald, 93 Wright Ave., Toronto.

Dominion Marine Association—F. King, K.C., Counsel, Kingston, Ont.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, Des Moines, Iowa.

Niagara Frontier Summer Rate Committee—James Morrison, Canadian National Rys., Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, General Secretary, 263 St. James Street, Montreal; Western Operating Committee, E. J. Stone, 306 Union Station, Winnipeg.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.

Transportation Club of Toronto—W. J. Hotrum, 595 Runnymede Road, Toronto.

Transportation Club of Vancouver—C. A. Dorffler, 450 Hastings St. West, Vancouver, B.C.

Winnipeg Traffic Club—A. J. Barber, 114 Cadomin Bldg., Winnipeg, Man.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Canadian Car and Foundry Co., Montreal, has issued Bulletin F7, Steel Pit and Depressed Center Flat Cars, 160,000 lb. capacity, and P.4, Steel Combination Mail and Baggage Cars built for C.P.R.

Canadian Ingersoll-Rand Co., Sherbrooke, Que., has issued a booklet, "The lubrication of air compressors," containing the practice recommended by the Compressed Air Society. It has also issued circulars of air receivers, pressure tanks, moisture traps and aftercoolers; deep-hole and submarine drills, and air tools.

Canadian Steel Foundries, Montreal, has issued bulletin TW.1, Street Railway Track Work.

The Ohio Brass Co., Mansfield, Ohio, has developed two new rail bonds, for arc weld application, viz., type AW-7, for base of rail application and type AW-8, for ball of rail application. The AW-8 bond consists of 2 copper strands formed into a U, and welded into steel terminals which, in turn, are welded to the rail. The AW-7 bond is the same in principle. It has a single strand, of any desired length, welded into suitable steel terminals. It is stated that steel to steel is the easiest kind of electric welding and that the new bonds conform to this principle. The steel terminals are slightly rounded and provide a wide angle or scarf in which to build the weld. The steel is heavy and will not be burned through by the arc. A copper sleeve, which surrounds the strands at the terminal, shields the wires and absorbs vibration.

Orton and Steinbrenner Co., Chicago, manufacturers of locomotive cranes, grab buckets and coal crushers, have moved their offices from the 11th to the 19th floor of the Transportation Building, 608 South Dearborn St., in order to secure larger space.

Stafford Roller Bearing Car Truck Corporation, Lawton, Mich., has issued a folder containing a report by J. T. Downs, Superintendent of Rolling Stock, Michigan Central Rd., on the performance and service of Stafford roller bearings under test on three M.C.R. cars, between Dec. 15, 1920, and March 31, 1922, in which he says, in part: "These bearings have given no trouble whatever, no hot boxes have developed, and no repairs have been found necessary, either on the bearings or the journal boxes."

Vapor Car Heating Co. of Canada, Montreal—A. D. Bruce has been elected a Vice President, succeeding J. A. Smith, resigned. S. P. Harriman, Assistant Treasurer, having resigned to engage in other business, L. Gerard Smith, who has been with the Safety Car Heating & Light Co., for several years, has been appointed to succeed him.

Canadian National Railways Annual Report, for year ended Dec. 31, 1921.

Object and Scope of Report: This report of the operations of the Canadian National Railways for the calendar year 1921 has been prepared by order of the Board of Directors with the object of presenting in convenient form the combined operating results of the three groups of lines which have been placed by the Dominion Government in the hands of the Board for administration.

While this is the first report of the System as a whole, it covers what may be regarded as the third year in the life of the National System. Reports have been submitted on behalf of this Board covering the operations of the Canadian Northern Railway System since its acquisition by the Dominion Government, and the usual reports have been compiled under the Board's direction for the Canadian Government Railways since the operation of these lines was placed in the hands of this Board. These reports, together with the returns of the Grand Trunk Pacific Railway since the date that the latter railway was placed in the hands of the Minister of Railways and Canals as Receiver, have formed part of the Minister's Annual Statement as to the operation of Government railways, and have been included in the Dominion Government's Annual Blue Book of Railway Statistics. In view of the unified operation of the three groups of railways it is considered proper that the results of the system as a whole should be reviewed. In order that the record for the first two years may be available in this form the statistical comparison covers the three year period 1919-1921 and the conditions affecting the first two years' operations are also referred to briefly.

The Canadian Northern Railway purchase was as from 30th September, 1917, and although the Government had representatives on the Board of Directors through the previous acquisition of a certain amount of Capital Stock, actual control of the Company was not taken by the Government until the completion of the arbitration proceedings in September, 1918, when the new Board of Directors was appointed.

On 20th November, 1918, the jurisdiction of the Board was extended over the Canadian Government Railways.

From 1st September, 1920, the management of the Grand Trunk Pacific Railway, of which Company the Minister of Railways had in March, 1919, been appointed Receiver, was placed in the hands of the Board, under Order-in-Council of 12th July, 1920. Under this arrangement the Board acts as Manager for the Receiver.

Mileage: The operated mileage as at 31st December, 1921, was made up as follows:—

	Miles
Canadian Northern Railway System	9,773.70
Canadian Government Railways	
Intercolonial Railway and Branch Lines	
National Transcontinental Railway	4,509.95
St. John & Quebec Railway	172.07
Grand Trunk Pacific Railway	2,756.38
Total Railway—Steam Operated	17,212.10
Canadian Northern Railway System Electric Lines	126.20

Total Mileage Operated 17,338.30

Operating Results: The results of operation for the year were as follows:—

	1921
Gross Earnings	\$126,691,455.72
Operating Expenses	142,784,357.48
Loss in Operation	\$ 16,092,901.76
The figures for the previous year were:—	
	1920
Gross Earnings	\$125,641,752.31
Operating Expenses	162,484,722.48
Loss in Operation	\$ 36,842,970.17

It will be seen from the above that the loss in operation in 1921 compared with 1920 was cut down by \$20,750,068.41.

Gross Earnings: The increase in gross earnings in 1921 over 1920 of \$1,049,703.41 is remarkable for the reason that in reporting an increase in gross the National Railway System stands alone as the only railway on the continent of anything like transcontinental character that had greater revenue in 1921 than in the preceding year. While all lines had the benefit of increases in freight and passenger rates, yet in nearly every instance additional earnings from this source were more than offset by the drop in the volume of traffic handled.

The Directors consider that the improvement in the relative position of the National Railway System as a carrier of Canadian business, which the above and other figures indicate, is largely due to the improved condition of the Railways' property as a whole, and to the better services which this condition has permitted, as well as better acceptance by the public generally of the definite place which the National System has secured in the economic life of the country.

Passenger traffic receipts decreased by 10½%, and freight revenue increased by 3.12%.

Reduced Expenses and Improved Net Situation: With the decline in car loadings which occurred after the middle of April, 1921, and as the business depression showed signs of continuing for some time, the management took action to reduce operating expenses as far as this could be done without impairing the physical condition of the Railways' lines, structures and equipment. A policy of rigid economy was continued throughout the year with the result that Operating Expenses were reduced as compared with 1920 by \$19,700,365, being a reduction of 12.1%. This reduction in expenses together with the increase in Gross Earnings already referred to of \$1,049,703.41 makes up the improvement in the net situation of \$20,750,068.41 as compared with the previous year.

A wage adjustment became effective from 16th July, 1921, and was therefore in effect for 5½ months of the year; it was spoken of as a 12½% reduction but has worked out at about 0½%.

Earnings and Expenses: A distribution of the earnings and expenses for the three years is as follows:—

	1921	1920	1919
Gross Earnings			
Canadian Northern Railway	\$ 69,088,474.16	\$66,695,398.80	\$53,562,177.57
Canadian Government Railways	40,964,303.92	44,537,803.85	40,179,380.93
Grand Trunk Pacific Railway	16,638,677.64	14,408,549.66	11,294,617.87
Total	\$126,691,455.72	\$125,641,752.31	\$105,036,176.37
Operating Expenses			
Canadian Northern Railway	\$75,564,385.30	\$82,953,978.60	\$60,034,023.92
Canadian Government Railways	46,551,602.67	54,987,680.28	47,728,205.73
Grand Trunk Pacific Railway	20,668,369.51	24,543,063.60	17,587,567.37
Total	\$142,784,357.48	\$162,484,722.48	\$125,349,797.02
Operating Deficit			
Canadian Northern Railway	\$ 6,475,911.14	\$16,258,579.80	\$ 6,471,846.35
Canadian Government Railways	5,587,298.75	10,449,876.43	7,548,824.80
Grand Trunk Pacific Railway	4,029,691.87	10,134,513.94	6,292,949.50
Total	\$16,092,901.76	\$36,842,970.17	\$20,313,620.65

General Conditions Since the Board's Appointment: In order that the variation in the above figures may be understood it is necessary to give a brief outline of the conditions affecting railway operation in each of these years. It may first be stated that when the Board was appointed in September, 1918, the resources of the country were being severely taxed to maintain the nation's participation in the Great War. A survey of the wartime requirements of the railway system was not completed before the Armistice brought on all the problems of reconstruction. The McAdoo Award, which Canadian railways under arrangement with Dominion Government had adopted generally from 1st August, 1918 (although earlier in the case of some branches of the service) was just beginning to show a serious effect on operating results. It was known before the close of that year that the freight rate increases that were granted with the object of offsetting these McAdoo wages increases and other rises in operating expenses were absolutely inadequate for the purpose. When the U. S. Government decided to treat the railways' losses under Federal control as war expenditure it was official recognition in that country of the disproportion between Expenses and Earnings. As freight rate adjustments had generally, at least in recent years, been made in the two countries practically simultaneously, many through and international rates being interlocked and dependent on joint action, and as there had existed for years a general level between freight rates and passenger fares on both sides of the international boundary, to have attempted to disturb all this by raising rates and fares in Canada without an adjustment in United States would have been a step which might have had very serious consequences. At all events no further increase was granted to offset the exceptional increases in operating expenses until the United States railways were handed back to their owners. In the meantime Canadian railways had to operate under conditions which it was beyond the power of the managements to control, revenue and expenses both being fixed, and the two factors bearing an admittedly improper relationship. In United States the railways, as corporations, were not affected by the losses which necessarily resulted from the disproportion between expenditures and receipts because the Government guaranteed to them a return based on their pre-war performance. The operating losses of the U. S. railways assumed by the U. S. Government for the period of Federal control amounted to \$1,443,810,000, and in addition to this sum the U. S. Government advanced for betterments the sum of \$1,144,000,000 to roads they do not own.

1919: This was a year of transition, the first after war year, during which it was necessary to spend a larger sum than usual on maintenance. The expenses were naturally higher due to the McAdoo award and many of its supplements being effective throughout the year. Material and supply costs were also high.

The Directors having definitely adopted the

policy of building up of the various lines owned by the Government a National Railway System in all respects equal to the Canadian Pacific Railway in its ability to give good and adequate railway service, it followed, as the lines were brought up to proper standard and as suitable equipment could be provided, that improved train services were established with a view to securing for the National System a greater participation in the movement of competitive traffic. During this year a number of wage increases were granted, and yet no relief was afforded the railways in the way of freight or passenger rate increases.

1920: In this year the operating difficulties of the railways became still more acute. The railways entered the year carrying the accumulated burden of the McAdoo Award and all its oppressive supplements. The cost of materials continued to rise. In July the United States Railroad Labor Board announced a general wage increase which the Canadian railways were in September forced to adopt, and that involved the payment of five months' back time, which for the Canadian Northern and Canadian Government Railways amounted to approximately \$6.-

000,000, making a yearly increase in the pay roll of \$12,773,200, and which increase of about 23½% put the average wage of employees up to a point 135% higher than the 1914 level.

When the after war boom was at its height the car shortage in United States resulted in a large number of Canadian railways' cars being held across the line, causing a loss of traffic to Canadian railways in which respect the Canadian National Railways were affected with other lines. The cost of living was high; the supply of labour was not equal to the demand, and labour was intractable and therefore inefficient. Material was difficult to obtain at any price. Such conditions naturally made very costly the work with which the management had to proceed in taking up deferred maintenance. The expenditures for improvements and betterments were also made higher. This year saw the peak costs for both labour and material.

The U. S. railways were turned back to their owners on 1st March, 1920, but the Government continued their guarantee till 1st September of that year. Rate adjustments designed to give the railroads a return on their property investment of from 5½% to 6% were made effective in United States from 26th August, 1920. These freight rate and passenger fare adjustments were substantially followed in Canada from 13th September, 1920. Shortly afterward the post-war boom burst, and in the face of falling traffic the rate adjustments proved entirely inadequate to meet the expenses they were designed to more than offset. The rate adjustments made no adequate provision for taking care of the large item of back time wages involved in the adoption of the so-called Chicago Award. Under all these circumstances it is not surprising that Canadian railways generally show a high operating ratio for the year. The railways in United States earned in 1920 but 32/100 of 1% on their property investment. It is worthy of note that old established systems such as the Pennsylvania Railroad experienced enormous deficits.

1921: The business depression which began to make itself felt early in 1921 seriously affected the operations of the National System in common with all other railways until August. In that month an upward tendency commenced that continued through to the end of the year due to the usual seasonal crop movement which was substantially heavier than that of the previous year.

Labour forces, as already referred to, were reduced as traffic fell away and a reduction in wages was effected from 16th July. Labour was also more efficient. There were reductions in costs of materials and supplies. The many improvements made to the Railways' property commenced to be favourably reflected in the operating statement, particularly when the seasonal movement of grain was under way. While maintenance forces were reduced, this was possible without impairment to the property because most

of the deferred maintenance had been taken up in 1919 and 1920. The maintenance forces employed in 1921 were able to fully maintain the physical condition of the property and in fact at the end of the three year period the System is in better condition than ever before.

Finance: During the year ending 31st December, 1921, advances were made by the Dominion Government to the Railways in the National System, as follows:—

Canadian Government Railways	\$ 5,792,896.48
Canadian Northern Ry. \$64,649,245.24	
Less repaid from proceeds of Securities.....	27,927,119.40
Grand Trunk Pacific Ry.	9,270,500.33
Total.....	\$51,785,522.65

The advances for the year were applied on Construction and Betterments, Equipment, Repayment of Loans (Including Equipment Trust Obligations) Operating Deficit and Fixed Charges.

The total advances to Canadian Northern Railway Company and Grand Trunk Pacific Railway Company to 31st December, 1921, are as follows:—

	Total Advances to Dec. 31, 1920	Total Advances During Year 1921	Total Advances Dec. 31, 1921
Canadian Northern Railway Company.....	\$214,366,123.04	\$36,722,125.84	\$251,088,248.88
Grand Trunk Pacific Railway Company.....	73,209,803.33	9,270,500.33	82,480,303.66

Attention is directed to the fact that the advances made were largely for the purpose of Capital Betterments, Improvements to Property, New Equipment and Refunding of Loans, as well as providing for Deficits and Fixed Charges. The total Net Advances to Canadian Northern Railway have been distributed, as follows:—

Refunding of loans, including principal of equipment securities.....	\$ 32,306,952.49
New Construction	29,804,673.62
Betterments	21,962,955.31
Railway Equipment	42,339,483.81
Rails, Accessories and Other Material	19,212,656.94
Capital Contracts Payable	1,973,820.00
Fixed Charges and Operating Deficits	103,487,706.71
	\$251,088,248.88

The equipment included under advances to Canadian Northern Railway covered equipment for the National System.

The above figures represent cash advances only and do not include accrued interest. For accrued interest it would be necessary to add \$35,191,210.81 on advances to Canadian Northern Railway and \$14,729,238.80 on advances to Grand Trunk Pacific Railway.

It is submitted, inasmuch as large sections of the System's lines serve the newer parts of the Country and thus assist in their development, and furthermore, as a considerable portion of the advances made by the Government have been for maintaining the property and carrying it over what might be called the pioneer stage, that it would be in order for the Government to refrain from charging the Railways with interest on such advances for a certain definite period. It is further submitted that the Fixed Charges be limited to interest payable to the Public.

During the year an issue of \$250,000,000 Canadian Northern Railway 6½% twenty-five year Sinking Fund Bonds guaranteed by the Dominion of Canada was sold in New York, the proceeds being paid to the Receiver General in repayment of advances by the Dominion Government. There were also retired during the year \$2,000,000 five per cent. Duluth, Rainy Lake & Winnipeg Railway Bonds guaranteed by the Canadian Northern Railway Company and £3,650,000 Canadian Northern Railway 5% guaranteed Notes. These were provided for out of an issue of Canadian Northern Railway 7% twenty year Bonds, sold in the New York market in December, 1920. As advantage was taken of the low price of Sterling a very large saving in exchange was made in connection with the refunding of these Sterling loans.

Betterments: It is not possible in a report of this size to deal in detail with the improvements made to the physical properties of the National System in the last three years. The programme of improvements has included work of all kinds. Heavier rail has been provided for trunk lines; ballasting on an extensive scale has been undertaken on lines not previously up to standard; terminals have been enlarged; yards have been improved and extended, sidings have been lengthened; sections of double track have been provided. New buildings of all kinds have been erected to meet traffic requirements and to provide accommodation for employees. Extensive improvements have been undertaken to provide an adequate supply of water for locomotive. Shops have been equipped and much labour saving machinery has been installed. Many temporary structures have been replaced with permanent work. Some line revisions have been undertaken to obtain better gradients and improved river crossings, etc. Telegraph communication has been improved and some additional telephone train dispatching circuits have been installed. It is said in general that the work undertaken

as the above will indicate has affected all branches of operation, and all parts of the System.

In carrying out the improvement programme, proposed expenditures are submitted to an investment examination to see whether the work under consideration will return not only interest on the money to be expended in the way of reduced operating or maintenance expenses, but that it will also show a sufficient return to be a source of profit. This policy with respect to improvements was faithfully followed for the three years, and in the Autumn of 1921 the accumulative effect of the many improvements began to show quite favourably in the operating results. As traffic increases and reaches a volume more nearly equal to that which the main lines were designed to handle, greater benefit will come from the improvements made in carrying out the Betterment Programme.

Rolling Stock and Motive Power: During 1919 and 1920 extensive additions were made to the System's equipment. The Board found on taking office that the rolling stock and motive power were insufficient to meet traffic requirements and that due to war conditions repairs to equipment were in arrears. The improved services which it was found proper to operate required new roll-

ing stock. The new equipment purchased and received in the last three years and the total number of units of each class now available for service are shown in the following table:—

Motive Power and Rolling Stock Additions and Inventory.		
Class	New Equipment Received 1919-1921	In Service 31st Dec., 1921
Motive Power		
Locomotives	163	1,973
Passenger Equipment		
First Class Cars	20	477
Second Class Cars	—	230
Combination Cars	—	195
Colonist Cars	150	342
Dining Cars	21	73
Parlour Cars	—	67
Sleeping Cars	50	222
Postal Cars	20	55
Baggage and Express Cars	100	565
Business and Pay Cars	2	66
Other Cars in Passenger Service	12	83
Total	375	2,375
Freight Equipment		
Box Cars	3,750	55,833
Flat Cars	500	9,586
Stock Cars	1,150	3,825
Coal Cars	2,300	8,259
Tank Cars	—	71
Refrigerator Cars	750	1,800
Other Cars in Freight Service	—	1,595
Total	8,450	80,969
Work Equipment		
Gravel Cars	84	479
Derrick Cars	—	187
Caboose Cars	155	1,049
Other Road Cars	—	3,419
Total	239	5,134
Total Cars	9,064	88,478

Construction: Prior to the war a number of Branch Lines were under construction in Western Canada. During the war work on these lines was discontinued due to the limitation on spending capital moneys, and on account of the scarcity of labour and material. After the Armistice urgent requests for railway facilities were renewed by settlers along the uncompleted lines and it was considered that the situation warranted the adoption of a programme providing for the completion of certain partly constructed lines and for some extensions of branch lines which would serve new districts where settlement had preceded the railways and where the settlers were suffering most through lack of service.

The present position with reference to lines under construction is, that there still remain 534 miles of grade without track.

Branch Lines Acquired: During the three year period the Management at the request of the Dominion Government has taken over as additions to the Government's Railway System a number of small lines, and of these the following particulars are given as a matter of record:—

Name of Railway	General Location	Mileage	Capital Expenditures to 31st March, 1921
Quebec & Saguenay Railway.....	Quebec	67.61	* \$7,708,325.24
Lothiniere & Megantic Railway.....	Quebec	29.59	346,715.00
Caraquet & Gulf Shore Railway.....	New Brunswick	80.01	229,600.00
Cape Breton Railway.....	Nova Scotia	30.64	103,753.42

From Government Blue Book.

In addition to these lines the Hudson Bay Railway was by Order-in-Council turned over, to the Board for operation.

Co-ordination: The first step that may be placed under this head was the re-organization which took place as a result of the combination for operating purposes of the Canadian Government Railways and Canadian Northern Railway System in the closing months of 1918. These two groups were each constructed with an entirely different object in view, and in some particulars with the idea of competition rather than co-operation. The situation from an administrative point of view required a re-arrangement of jurisdictional territories and a general re-organization of all departments with a view to providing a management adequate for the requirements of such a large system as was constituted by the combination of these two groups of railways.

Recognized principles of railway organization were followed and the consolidation of official personnel was satisfactorily arranged.

The second step came in September 1920, when, following Government authorization of 12th July of the same year which appointed the Board of Directors Managers of the Grand Trunk Pacific Railway acting on behalf of the Receiver, an amalgamation of staff took place and the various Grand Trunk Pacific lines were incorporated into territorial units of the Canadian National Railways.

This co-ordination affected only Western Lines, yet on account of the fact that the lines being amalgamated served much common territory the consolidation for operating purposes involved a general re-arrangement of train service to secure the shortest and most suitable routes. Arrangements were also made for the joint use of terminals and other facilities. A number of duplicate offices were abolished, and certain stations, freight sheds and roundhouses have been closed. A number of rail connections were required and have been put in; others have yet to be constructed. The carrying out of this co-ordination programme has of course resulted in substantial savings in operating expenses. The changes made have also enabled passenger train services to be improved, permit of short routings of freight, and in general have resulted in giving the National System a greater capacity to handle business and give good service to the public. When the full programme is completed further advantages of this kind will be secured.

In the case of both the staff amalgamations special effort was made to give fair representation to the officers of the groups of lines being brought together, and the best proof that this object was attained is found in the general good feeling which prevails in all departments and the loyal co-operation which one department receives from another. Our Vice-Presidents are unanimous in reporting that a proper spirit of rivalry exists as to the competition with the large privately owned system, that as much enthusiasm exists among the officers and employees as on any privately owned railway, and that there is no evidence of slackness in the service rendered to the public, but on the other hand, a determination to secure results by close attention to the wants of patrons.

Grand Trunk Railway Co-ordination: On 8th March, 1920, an agreement was reached between the Dominion Government and the Grand Trunk Railway in respect to the acquisition of that Company's lines, and subsequently through a joint committee a certain measure of co-ordination has been arranged between the Grand Trunk System and the Canadian National Railways with a view to securing improvement in service and reduction in cost of operation. Duplicate offices and services have to a large extent been eliminated. This has necessitated certain track connections and other facilities. The co-ordination has been generally helpful from both traffic and operating points of view and through it the position of the Nationally owned lines including the Grand Trunk Railway has been materially strengthened.

Train Service: Undoubtedly one of the greater handicaps placed on the National System is the necessity of operating—and consequently maintaining—duplicate main lines which generally may be said to have been designed as competing routes. In all there are 8,000 miles of main line in the National Railways not including what are recognized as trunk lines. This main line mileage is 47% of the total, whereas the single main line of the privately owned competitor of the National System forms but 27% of the total mileage. This situation, with the low traffic density existing on the National System and the general demand made by all communities for service has made it a matter of great concern to the Directors and management as to just how far they should go to meet these conditions in the way of train service. The problem is not confined

to main lines, but is one that comes up in connection with every locality served in every Province. Under the circumstances existing, it is considered that the results of operation in the latter months of 1921, when the business then being handled more than carried the service, indicated that the relationship between service and expenditure was not much out of line. Although freight and passenger rates have since been reduced it is considered that the better price conditions now prevailing and wage adjustments which reasonably may be expected, when made, will under normal traffic conditions enable an even better showing to be made provided that the railways' revenues are not depleted by further rate reductions.

It will be noted from the Train Mile Statistics that the average train service performed in 1921 was less than in either of the two preceding years. For all trains the average was just over 23½ trains each way per day for each mile of line operated.

Freight Train Loading and Density of Traffic: Notwithstanding the drop in density of traffic the freight train loading was improved. The following figures show a steady improvement with respect to this important feature of operation:

Freight Train Loading	1919	1920	1921
Average number of tons of revenue freight per train mile	359	377	409
Freight Density			
Ton miles per mile of line	478,523	632,959	530,339

When the relatively light traffic movement is considered, the average freight train load of the National System may be considered satisfactory. In fact there is no comparable case on record where a train load as heavy as shown above has been obtained with such a relatively light traffic movement. The freight train service on the National System in 1921 averaged one and a half freight trains each way per day for every mile of operated line, so that it is difficult to see how heavier train loading could be obtained under present traffic conditions as the situation could hardly be met with less frequent service.

Rates and Fares: Through a decision in the so-called Western Rates case announced 6th April, 1914, and effective 1st September, 1914, Canadian Railways may be said to have entered the war period with a reduced scale of freight rates. This cannot however be regarded as a war time adjustment, as it was an adjustment based on peace conditions. This adjustment established a rate structure which continued until 1917 and may be regarded as the pre-war level. Rating this level as 100% the freight rate levels which have existed since may be compared with this base as follows:—

Freight Rates Applicable to Canadian National Railways.		Index
1. Pre-war level, 1914-1917.....		100.00
2. March, 15, 1918.....		115.00
3. Aug. 12, 1918.....		129.96
4. Sept. 13, 1920.....		174.01
5. Jan. 1, 1921.....		168.28
6. Dec. 1, 1921.....		156.08

Passenger Fares Applicable to Canadian National Railways. Passenger fares have been subject to certain adjustments as shown below. In this case the pre-war level is also shown as 100% and the effect of the adjustments in percentages of the pre-war level is shown for information.

	Index
Pre-War level, 1914-1917.....	100%
March, 15, 1918.....	115
Sept. 13, 1920.....	133.4
Jan. 1, 1921.....	126.5
July 1, 1921.....	115.0

From the above it may be noted that the highest level attained by freight rates was 74% above the pre-war level, and the highest level of passenger fares 33.4%. During 1920 wholesale prices—as an index of the cost of material and supplies used by the railways—were up as high as 164% above 1914 level, and wages of railway employees were by the 1920 scale placed 135% above the 1914 scale. No better evidence can be produced of the disparity between rates and operating costs with which the Railways have recently had to contend.

Wages: References have been made to the labour situation since the Canadian National Railways were established, and it is perhaps desirable to show the general relationship which wages have borne to gross revenue.

Year	Gross Revenue	Operating Labor	% of Operating Labor to Gross Revenue
1919	\$105,036,176.37	\$78,676,923.50	74.90
1920	125,641,752.31	98,767,720.16	78.61
1921	126,691,455.72	82,381,597.87	65.03

Telegraphs: The Canadian National Telegraph system embraces 23,169 miles of pole line and 109,672 miles of wire, and is the medium through which all the National Railways' telegraph lines are constructed and maintained. A commercial telegraph business is operated over practically all the National Lines including the Grand Trunk Railway System in Canada, also over the Michigan General Railway (Canadian Division) the Great Northern Railway, (in Manitoba) the Central Vermont Railway (in Canada) and other smaller railways, as well as over certain mileage of lines on highways.

The Canadian National Telegraph System embraces the lines of the Great North Western Telegraph Company, the Canadian Northern Telegraph Company and Grand Trunk Pacific Telegraph Company. The Canadian National Telegraph System has exclusive connections with the Western Union Telegraph Company.

Express: On 1st September, 1921, the Canadian National Express Company (owned by the Canadian Northern Railway Company) and the Canadian Express Company (owned by the Grand Trunk Railway Company) were co-ordinated and one organization was formed from the staffs of the two companies, which now provides the express service over the Canadian National Railways and also over the lines of the Grand Trunk Railway System, operating as the Canadian National Express Company. The net earnings of the Company after allowing to the railways their contract divisions for train and other privileges, are divided between the Canadian National Railways and the Grand Trunk Railway on an agreed basis. The results for the four months ending December 31st, indicate the favorable effect of co-ordination, the figures being as follows:—

Express Coy's Results	1921	1920	Dec. or Incr.
Gross Earnings	\$4,380,794.31	\$4,475,061.51	\$94,267.20
Less Express Privileges.....	1,924,247.49	1,980,830.69	56,583.20
Operating Revenue	2,456,546.82	2,494,230.82	37,684.00
Operating Expenses	2,199,732.10	2,424,258.06	224,525.96
Net Operating Revenue.....	256,814.72	69,972.76	*186,841.96

*Increase.

Steamers: G. T. Pacific passenger and freight steamers are operated between Seattle, Victoria, Vancouver and Prince Rupert. Car ferries are also operated between Victoria and Vancouver, between Cape Tormentine, N.B., and Borden, P.E.I., and between Mulgrave, N.S., and Pt. Tupper, C.B.

Land: Land Sales for the years ending 31st December, 1919, 1920 and 1921 were as shown in the following table. This table also shows the sales which had previously been entered into and which were by mutual arrangement cancelled

Canadian National Railways.		Decision, etc.
15% case.		
25% case designed to offset McAdoo Award practically absorbing 15% increase.		
Increase of 40% East and 35% West with exceptions.		
Reducing increases in item 4 to 35% East and 30% West.		
Reducing increases in item 4 to 25% East and 20% West.		

during corresponding periods.

Year	Actual Sales	Average
1919	79,053,303 acres	\$1,535,608.44
1920	84,002,172 "	1,738,801.46
1921	17,031.15 "	321,042.08

Decision, etc.
Increase 15%.
Increase 20% with 4c maximum.
½ of 20% increase of 13th Sept., 1920, removed.
Balance of increase of 13th Sept., 1920, removed.

Year	Cancellations	Average
1919	32,403,299 acres	\$467,370.15
1920	31,188.76 "	412,457.19
1921	17,032.08 "	273,720.56

It will be seen that the actual sales for 1919 and 1920 were greatly in excess of the sales for the year 1921 and at higher prices. This condition is accounted for by the fact that during the War period and also during the years 1919 and 1920 prices of stock, grain and all farm products were very high and land prices increased accordingly. During the year 1921, however, the conditions changed, prices of farm products fell rapidly with the result that any sales that could be made were based on the lower prices of farm products.

As at December 31st, 1921, there remained un-

sold 719,496 acres. As it is important from a traffic standpoint that the Company's lands tributary to the Railway should be occupied, it is felt that the terms and conditions of sale should be modified and special inducements will be offered to bona fide settlers.

Elevators: Terminal elevators with modern equipment are owned at Port Arthur and Fort William.

Canadian Northern Ry.....Port Arthur
Capacity 8,350,000 bushels.
Grand Trunk Pacific Ry.....Fort William
Capacity 5,750,000 bushels.

Drydock: A modern ship yard, dry dock and ship repair plant at Prince Rupert is owned by the Grand Trunk Pacific Development Co.

Conclusion: In submitting this report the members of the Board desire to direct attention to the modern character and general excellence of the physical property of the National System. The Main Lines of the Canadian National Railways were constructed to standards generally superior to those adopted by railways built in earlier years. Consequently in the matter of grades and curves there are no other transcontinental lines built throughout their length to the standards adopted for the Main Lines of the Canadian National Railways.

The Improvement and Betterment Programme followed during the last three years and has been developed with a view to bringing up to standard any facilities or sections of line which by experience were found to be limiting factors from an operating point of view.

While the amount of money advanced by the Government in the last three or four years is of itself a large sum, yet it forms but a relatively small percentage of the capital investment of the

National System, nor is the sum expended out of line with the expenditures made by other great railway systems during the period of their physical improvement. In considering this feature it should be remembered that the amount of expenditure has been considerably augmented by the exceptionally high levels reached by material and labour costs during the three years in which this work has had to be done on the Canadian National Railways. These same conditions have made the purchase of necessary equipment and motive power run into very high figures.

In regarding the annual expenditures the magnitude of the National System should be kept in mind. It may be seen from the Balance Sheets included in this report that the physical assets of the National System total \$1,280,000,000. The importance of maintaining the property in first class condition for the traffic movement which may reasonably be expected may be referred to. As a means of indicating this, it may be pointed out that if this great investment were permitted to deteriorate to the extent of 5% it would involve a shrinkage in value of \$63,750,000 or approximately four times the loss in actual operation sustained in 1921.

The three year period during which the present Board has administered the Canadian National Railways has been full of operating difficulties and most disturbed economic conditions. In this period three separate groups of railways have been organized into one smooth working system. The physical property of the railways which, due to the War, was in an exhausted condition has been improved, many facilities have been added, proper rolling stock and motive power have been provided. The relation of the various lines to the main service under the co-ordination programmes has been worked out.

The system must be regarded as still in its probationary period. The main lines of the Canadian Northern, National Transcontinental and Grand Trunk Pacific Railways were not completed until 1915 and over 35% of the System's mileage has been taken over for operation since the outbreak of the War. Since 1914 there has been practically no immigration and there has been little industrial or other commercial development. Under these circumstances the performance in 1921, when rates were admittedly low measured from a cost of service point of view, and when expenses were exceptionally high, may be regarded as creditable. The Directors knowing the general excellence of the territory served by a large percentage of the System's mileage, and with the knowledge that in many respects the System's lines are in premier position to reach the future traffic resources of the Dominion, are confident that sufficient traffic to sustain the National System can be developed within a reasonable period of normal progress. In the meantime the System has a carrying capacity considerably beyond the present volume of traffic.

Improvement of the System's relative position may be expected when the completion of the co-ordination programme provides short line con-

nections that will expedite the movement of business and reduce operating costs. As the System develops its services and facilities, a larger proportion of the better grade commodities will be routed by its lines with a consequent improvement in the average ton mile rate. It may be expected that the Government will at an early date formulate a plan for the encouragement of proper immigrants to the country, in which

no doubt the Canadian National Railways will be asked to co-operate. From this much benefit may be expected.

The Directors wish to record their appreciation of the loyal and efficient services rendered by officers and employees. There is every reason to believe that the employees fully participate in the spirit that dominates the official personnel in all departments and that the entire organization is

a unit in its endeavour to secure a fair share of the Country's transportation business for the National Lines. Loyal support to the consolidated management has been given and the best possible relationship exists with all classes of employees.

For the Directors,
Toronto, April, 1922. D. B. HANNA,
President.

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

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Rates for advertisements set in uniform style in six point under

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Allow five words where replies are to be sent to a box number. Minimum order—\$1.

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DEPARTMENT OF MARINE AND FISHERIES.

Ottawa, June 2, 1922.

Sealed proposals will be received at this office until 12 o'clock noon, on Wednesday, the 5th day of July, 1922, for furnishing the materials and labour of all kinds necessary for the construction, completion and delivery at the Port of Quebec, in the Province of Quebec, of one Steel Single Screw Hopper Barge of the following leading particulars:—

Length B.P., 210 feet 0 inch.
Breadth Mld., 35 feet 0 inch.
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Hopper Capacity, 950 cubic yards.
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Forms of proposals, plans and specifications, showing what is required, can be had or seen by applying to the Department of Marine and Fisheries, Ottawa.

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THE DEPUTY MINISTER,
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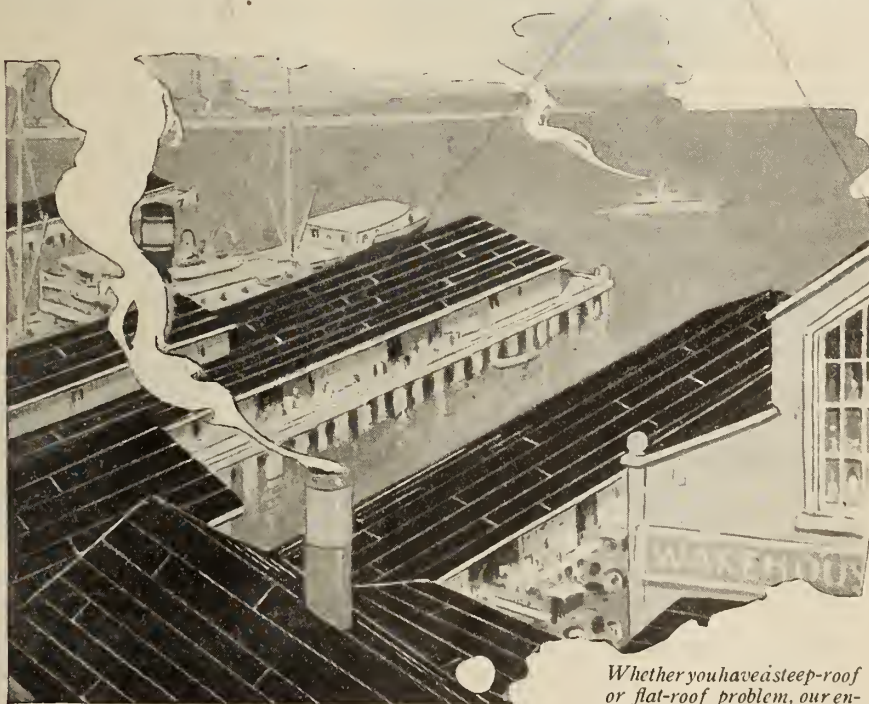
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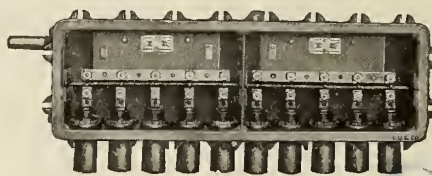
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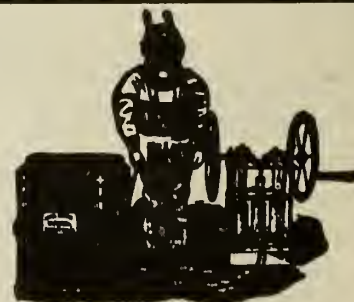
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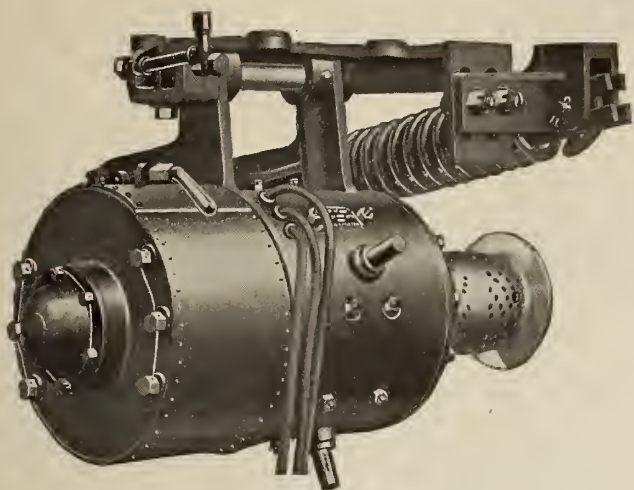
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Complete Car Lighting Electric and Pintsch Gas Systems; Steel Lighting Fixtures; Electric Water Heaters for Washrooms; Electric Water Coolers for Coaches; Electric Ceiling, Bracket and Exhaust Fans; Train Lighting Storage Batteries.

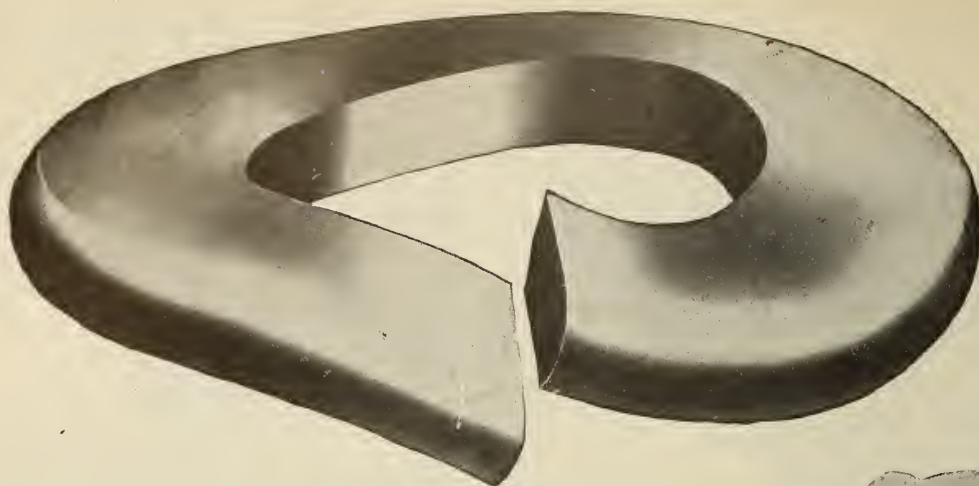


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Quick passenger interchange is the reason why the Peter Witt Front-Entrance Center-Exit type car appeals to railways having to provide service in the heavy traffic districts. The wide front-entrance and center-exit permit passengers to enter and

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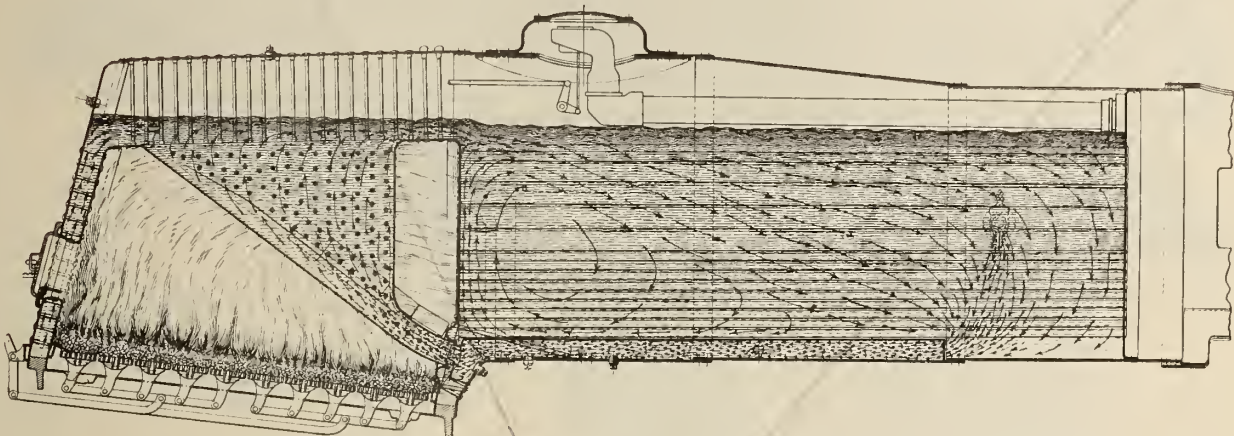
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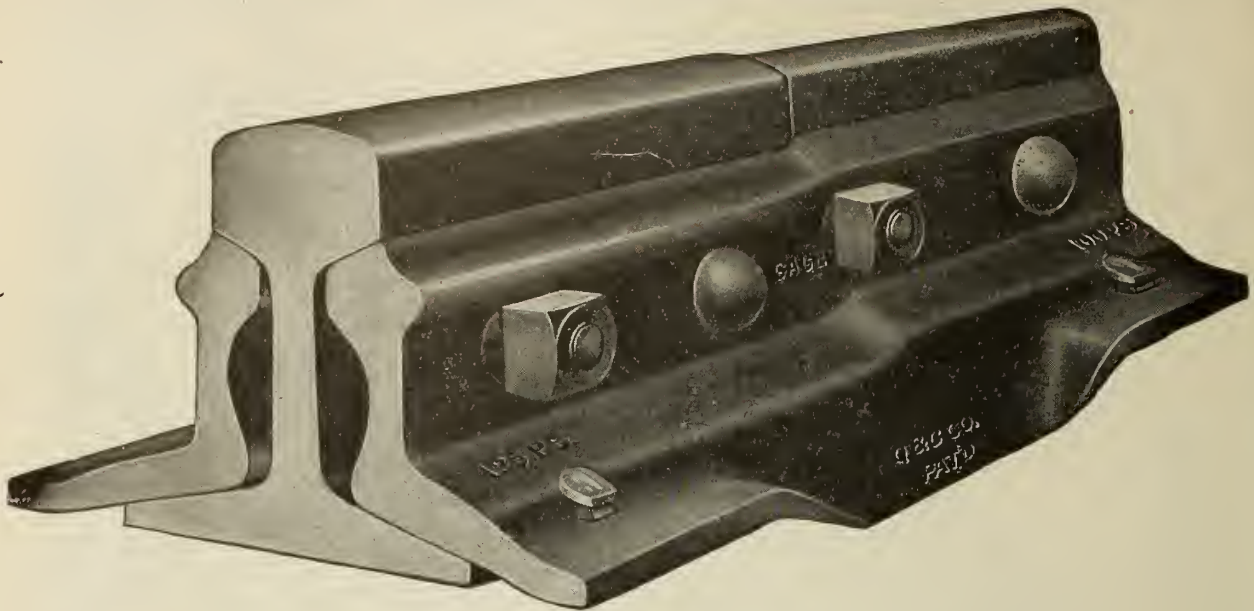
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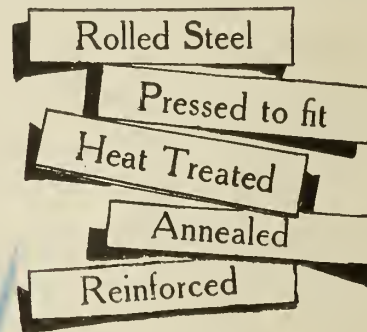
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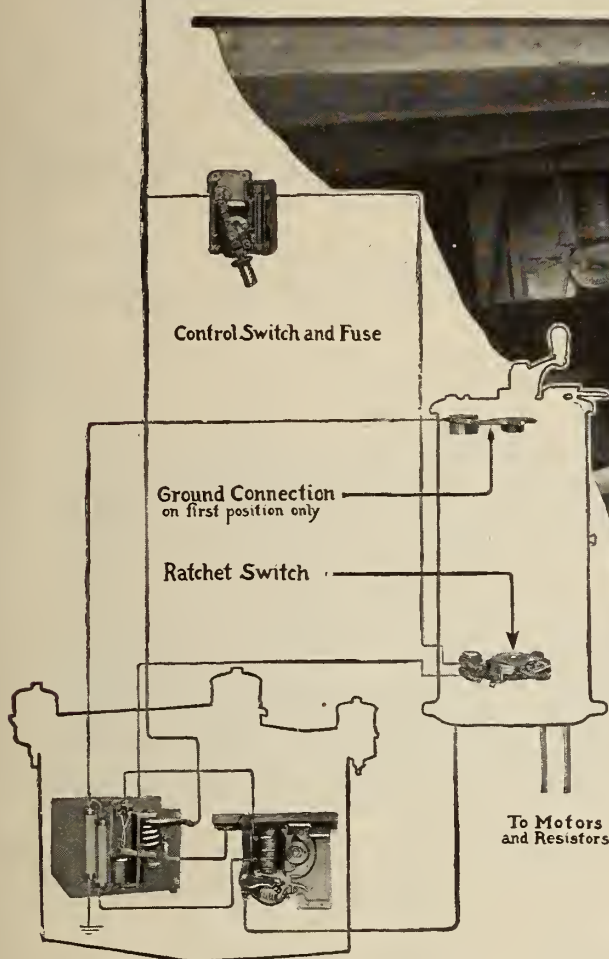
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Consists of Overload Relay and Contactor
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On the first point of the controller, a ratchet switch closes the motor circuit through the line breaker. The least backward motion of

Under the Car Out of the Way

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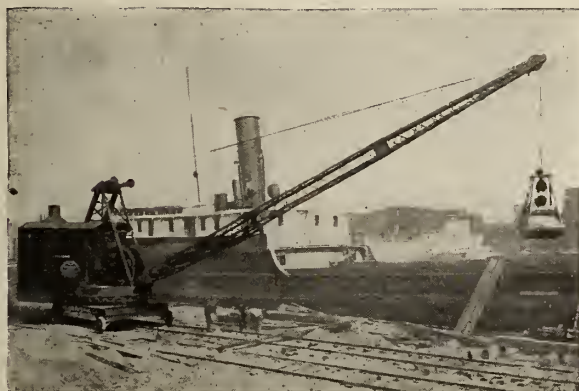
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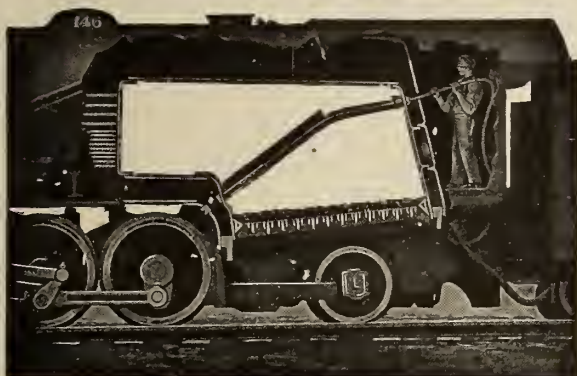
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Lagonda Arch Tube Cleaner



Lagonda Cleaner Removing Scale from Arch Tubes.

Lagonda Arch Tube Cleaners

Scale forms in the Water Arch Tubes of locomotives, and it must be removed, as Government Inspection requires that these tubes be absolutely clean.

The Lagonda Arch Tube Cleaner will remove these scale deposits easily and quickly. They are built for all sizes of tubes and can be driven by either water, air or steam. Send for Catalogue W-1 describing the construction and operation of these Cleaners.

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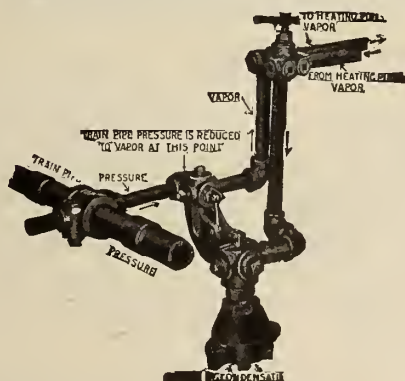
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VAPOR CAR HEATING CO. of Canada, Limited

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AT



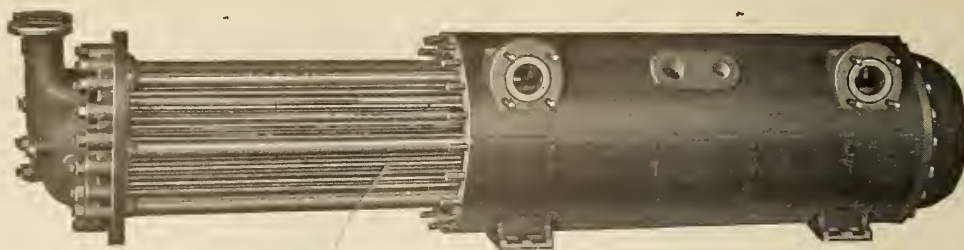
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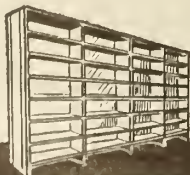
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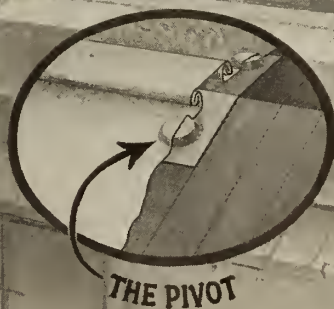
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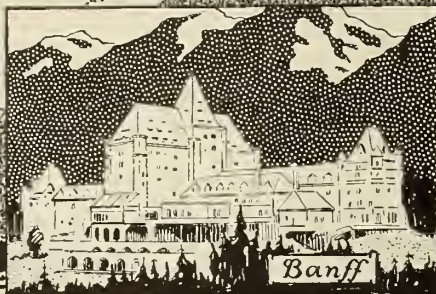
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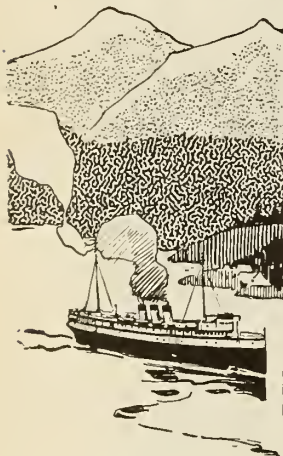
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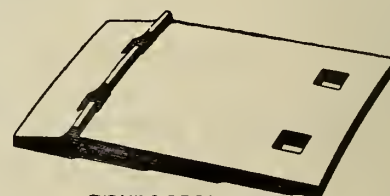
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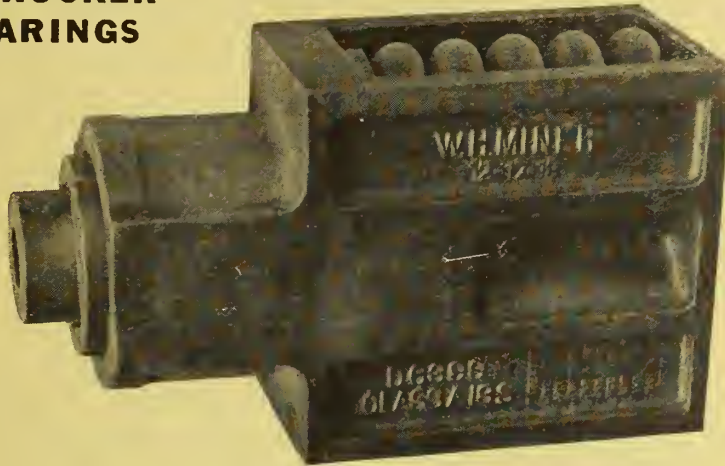
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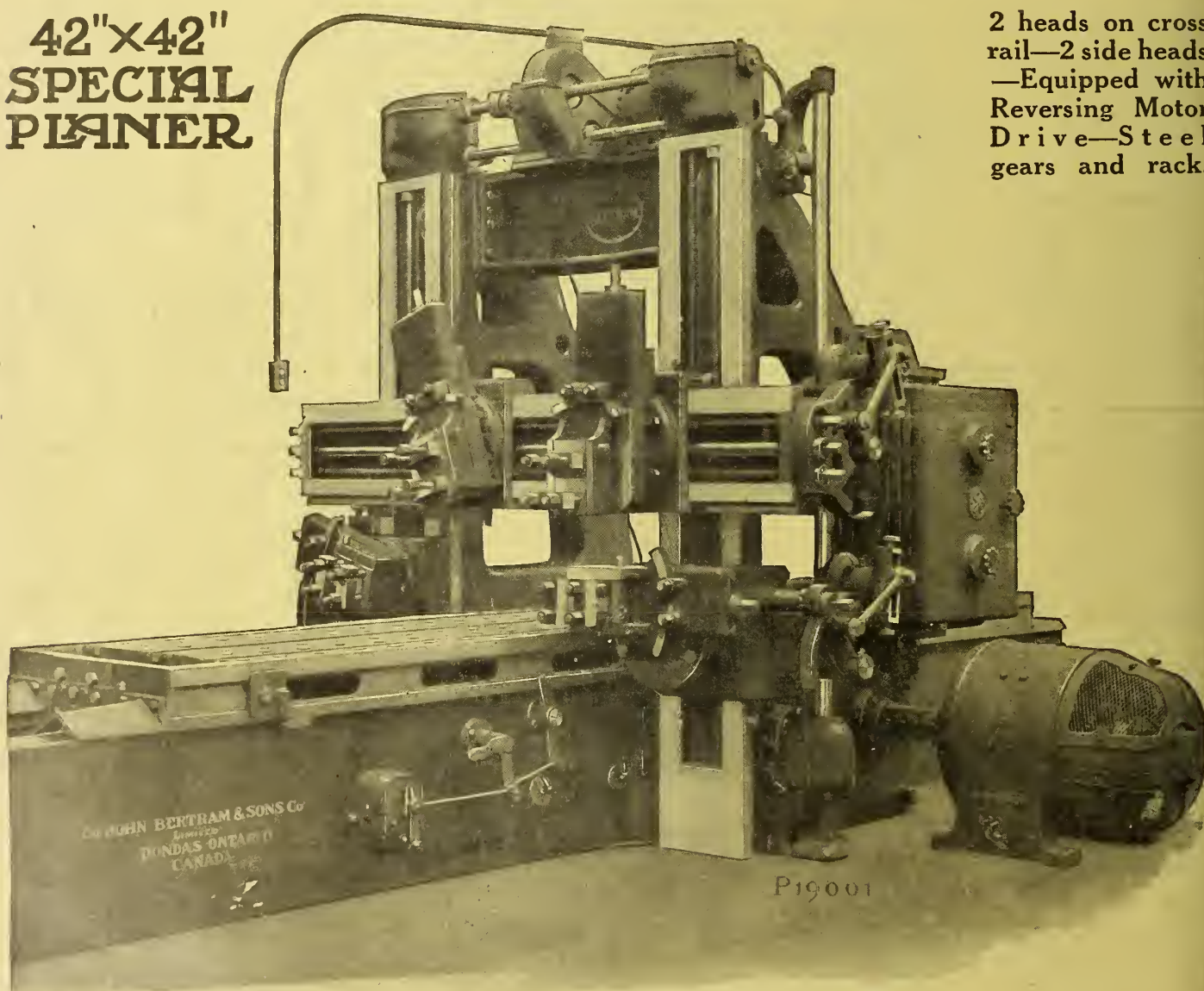
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Founded in 1898 by Acton Burrows.

Number 294.
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TORONTO, CANADA, AUGUST, 1922

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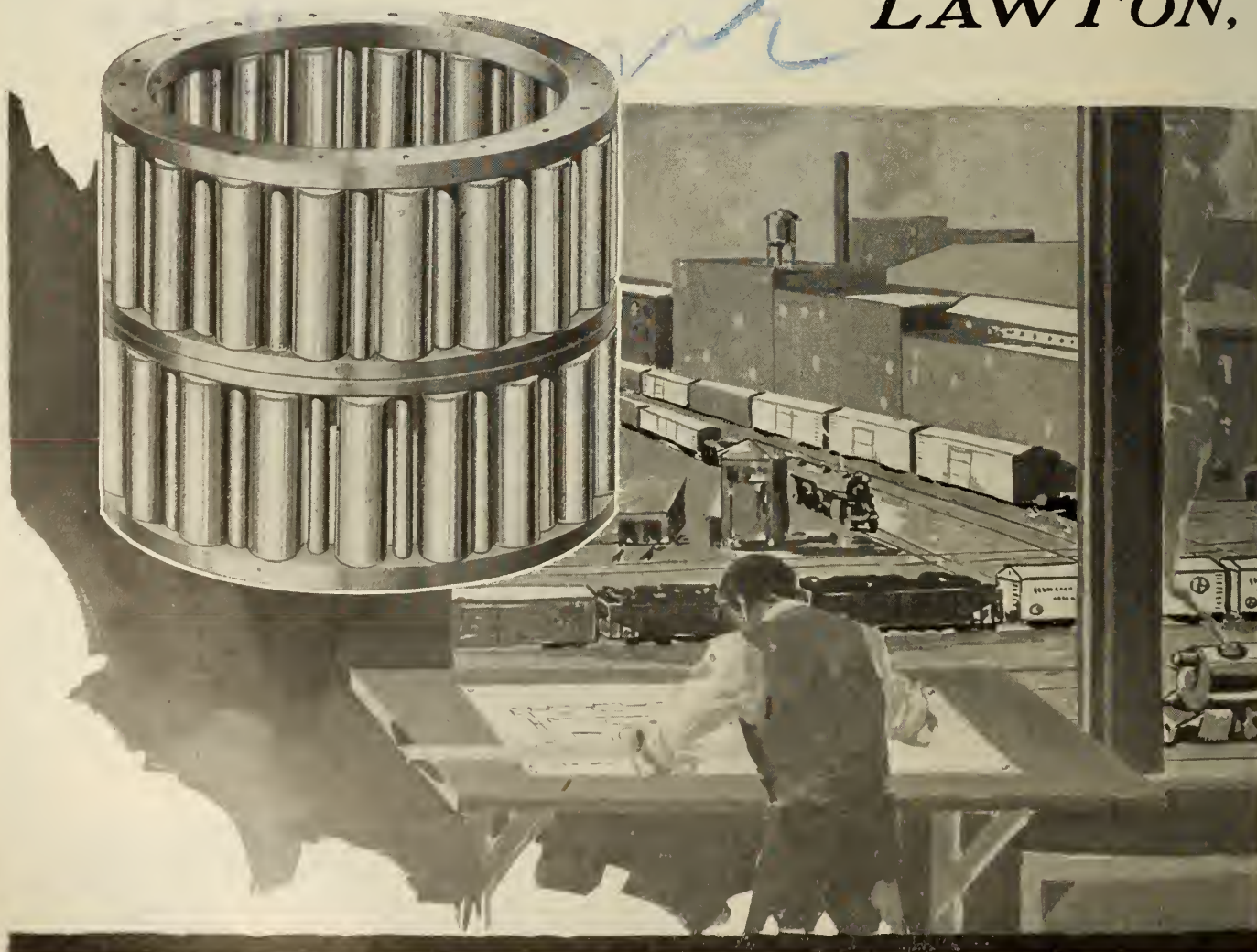
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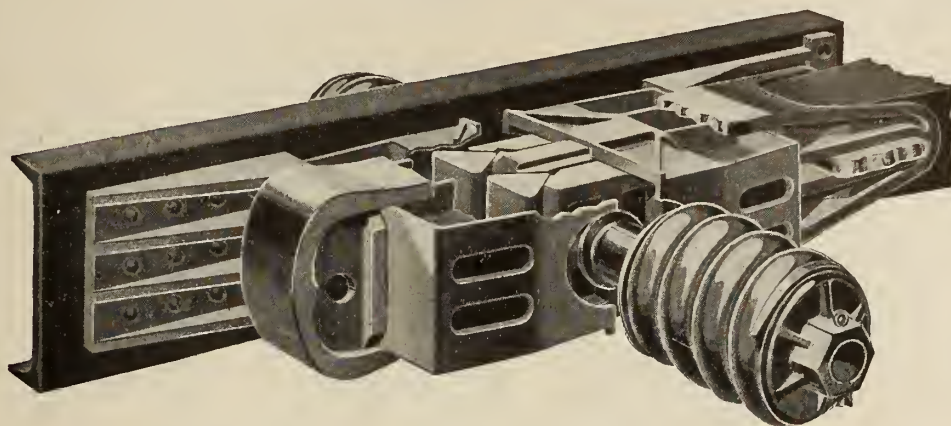
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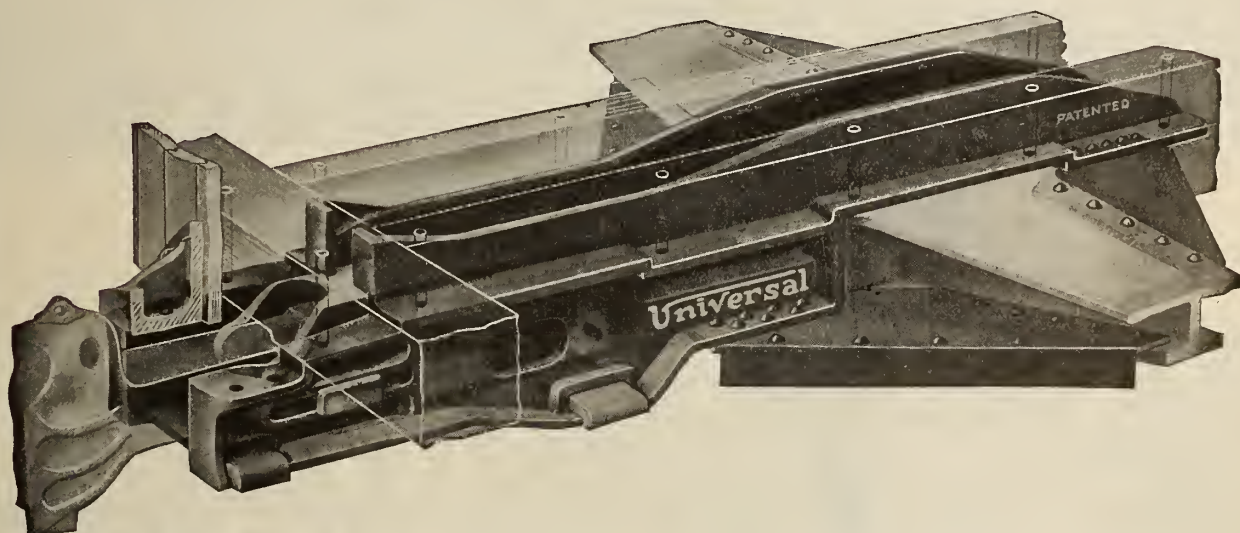
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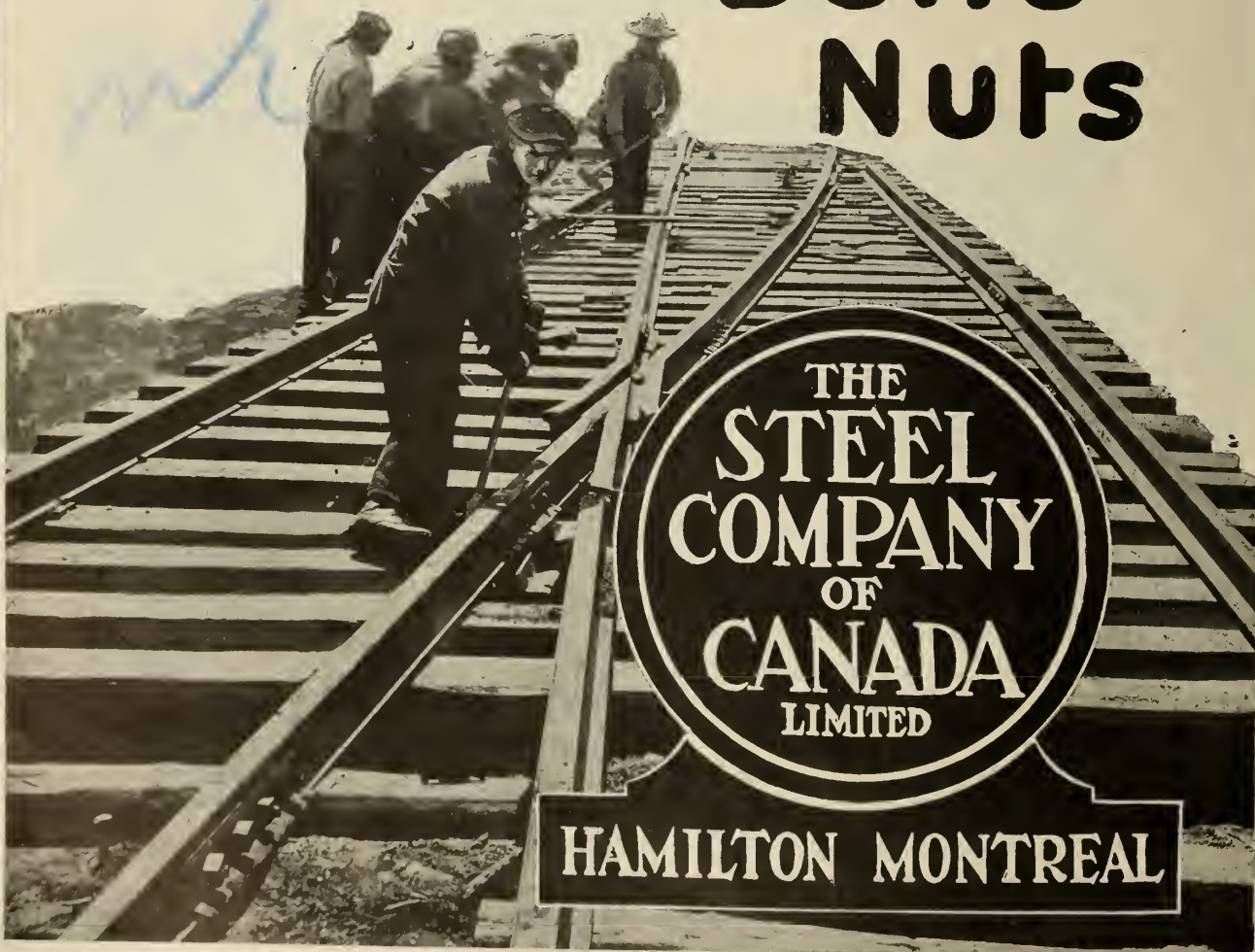
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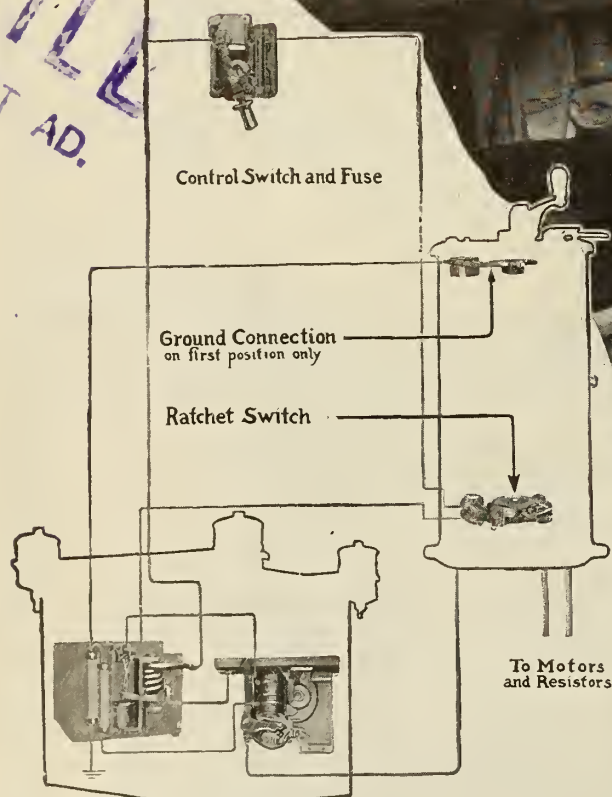
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Main Office and Works: Mansfield, Ohio. U.S.A.

Products: Trolley Material, Rail Bonds, Electric Railway Car Equipment, High Tension Porcelain Insulators, Third Rail Insulators.

Remote-controlled Line Breakers Protect and Save Your Equipment

**KILL
LAST AD.**



Line Breaker under the Car
Consists of Overload Relay and Contactor
with powerful magnetic Blowout

C.G.E. Line Breakers are designed to break the heavy currents and protect the motors from improper acceleration. They reduce arcing, with its consequent wear on controller fingers and segments, and have the additional advantage of removing from the sight of passengers objectionable flashing on the platform.

On the first point of the controller, a ratchet switch closes the motor circuit through the line breaker. The least backward motion of

Under the Car Out of the Way

the controller handle opens the ratchet switch and, in turn, the line breaker contacts. Then the circuit can be closed again only by starting from the "off" position.

C.G.E. Line Breaker Equipment replaces the hand-operated breaker and puts the flash and noise under the car. It cuts controller maintenance costs, especially for companies with overloaded conditions.

Let the nearest C.G.E. Sales Office explain further.

Canadian General Electric Co., Limited

HEAD OFFICE  TORONTO

Branch Offices: Halifax, Sydney, St. John, Montreal, Quebec, Sherbrooke, Ottawa, Hamilton, London, Windsor, Cobalt, South Porcupine, Winnipeg, Calgary, Edmonton, Vancouver, Nelson and Victoria.

BIRNEY SAFETY CAR

Universal Service

KILL

LAST AD.



The operation of Birney Safety Cars in Petropolis, Brazil, is another indication that the popularity of this light-weight, one-man car is becoming world-wide.

Ever since its introduction over five years ago the success of the Birney Safety Car has led to its operation in cities all over the world. Canada, United States, South America, Australia, Holland and China have seen it in service, and our experience has always been

that the first introduction to a country is quickly followed by others. The Birney Safety Car represents the latest development in street railway rolling stock. It is truly the most modern car adapted to universal service.

CANADIAN BRILL COMPANY, LIMITED
PRESTON, ONTARIO

Affiliated in the construction of all types electric railway cars with

The J. G. Brill Company, Philadelphia, U.S.A.
American Car Company, St. Louis.

The G. C. Kuhlman Car Co., Cleveland.
Wason Mfg. Company, Springfield, Mass.

Q & C Rolled Steel Step Joints

Like the blows of a colossal sledge hammer—each click of the speeding wheels passing over the rail gap, means a tremendous bending strain exerted on the joint.

To successfully resist this great crushing force, The Q & C Rolled Steel Step Joint was designed with the gusset type vertical depending flange—a design that fulfills the fundamental law in beam design—the strength varying directly as the square of the depth.

This factor of strength, together with the Thompson patent of metal distribution in the vertical section, makes the Q & C Rolled Steel Step Joint a stiff-rigid-inflexible joint—a joint that spells economy in joint maintenance costs.

It will pay you to investigate. Write for the facts.

We also manufacture, Derails, Replacers, Rail Braces, Rail Benders, Rail Saws, Guard Rail Clamps, Guard Rail Braces, Rolled Steel Step Joints, Bonzano Thomson Joints, Electric Snow Melters, Snow Flangers, Snow Plows.

OUR BRANCH OFFICES SPAN THE DOMINION

The General Supply Co. of Canada, Limited

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356 Sparks Street, Ottawa

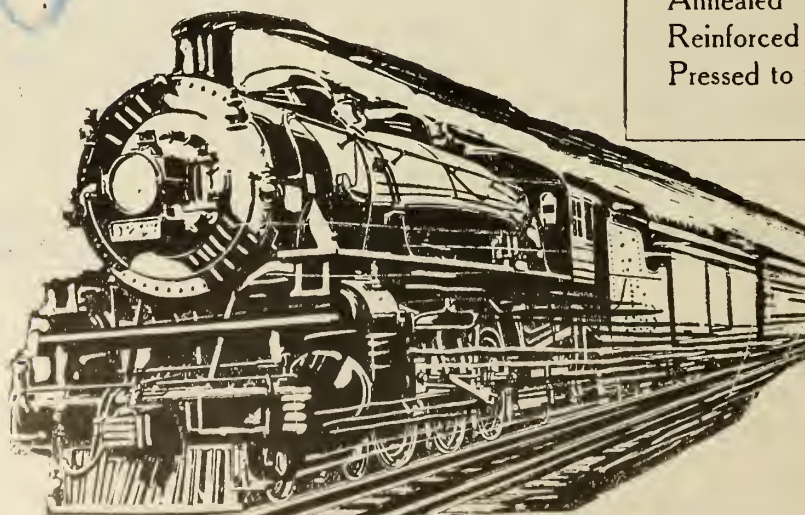
Winnipeg

Toronto

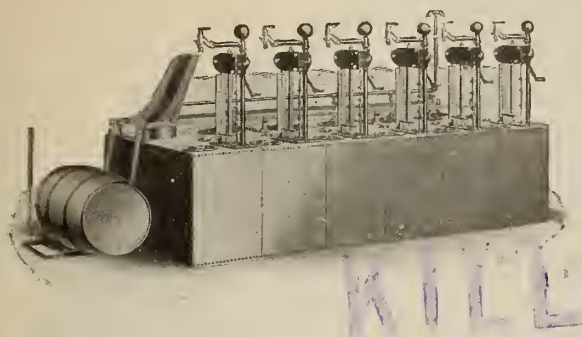
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Rolled Steel
Heat Treated
Annealed
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Pressed to fit



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Bowser Equipment is MADE IN CANADA by

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BOWSER
ESTABLISHED 1865
ACCURATE MEASURING PUMPS

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For Handling Gasoline and Oils Wherever Sold or Used	
Filling Station Pumps and Tanks for Gasoline.	Carload Oil Storage Tanks.
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Power Pumps.	

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To use a file after it has begun to get dull is to waste effort.

Don't do it! A few cents spent on a new file means dollars saved in labor-time.

Maximum service from every file is assured when you buy one of these standard brands.

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Great Western
American
Arcade
Globe

NICHOLSON
FILE COMPANY
PORT HOPE ONTARIO



THE map above shows the location of the 49 foundries in the United States and Canada, represented by the Association of Manufacturers of Chilled Car Wheels.

Chicago, 3
St. Louis, 2
Buffalo, 4
Pittsburgh, 2
Cleveland, 2
Amherst, N.S.
Montreal
Mich. City, Ind.
Louisville
Mt. Vernon, Ill.
Ft. Wayne, Ind.
Birmingham
Atlanta
Savannah
Boston
Detroit
St. Paul
Kansas City, Kan.
Denver
Tacoma
Rochester, N.Y.

Sayre, Pa.
Berwick, Pa.
Albany
Toronto
New Glasgow, N.S.
Madison, Ill.
Huntington, W. Va.
Wilmington, Del.
Houston, Tex.
Hannibal, Mo.
Reading, Pa.
Baltimore
Richmond, Va.
Ft. William, Ont.
St. Thomas
Hamilton
Ramapo, N. Y.
Marshall, Tex.
Los Angeles
Council Bluffs

American Railroad Association Standards

650 lb. wheel for 60,000 Capacity Cars
700 lb. wheel for 80,000 Capacity Cars
750 lb. wheel for 100,000 Capacity Cars
850 lb. wheel for 140,000 Capacity Cars

The Standard Wheel for Seventy-One Years.

ASSOCIATION OF MANUFACTURERS
OF CHILLED CAR WHEELS
1847 McCormick Bldg., Chicago

CHILLED IRON WHEELS



Canadian Pacific Roundhouse, Winnipeg, Manitoba.

20 below zero is not uncommon here.

In Midsummer or Midwinter

With the temperature below zero or ninety in the shade, a Sturtevant Heating and Ventilating System will keep the air in your buildings clean and comfortable.

Fog, steam and smoke are readily cleared from the roundhouses; locomotive shops, machine shops and offices are all kept cool in summer and warm in winter by this reliable, trustworthy system.

A Sturtevant system is low initial

cost, low in operating cost and low in maintenance cost; it will do all that you demand of it day in and day out, with little or no attention. Naturally it is a Fan system which is far and away ahead of any other type of system that can be installed.

The C. P. R., N. Y., N. H. & H., Pere Marquette, N. Y. Central, Grand Trunk, Chicago & Northwestern, as well as many other representative roads are using the sturdy Sturtevant Heating & Ventilating Systems.

Our engineers will gladly look over your proposition, without the slightest obligation to you.



B. F. Sturtevant Co. of Canada, Ltd.

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Galt

Toronto

TERRITORIAL REPRESENTATIVES

Empire Engineering and Supply Co., Edmonton, Alberta.
Kipp-Kelly, Ltd., Winnipeg, Man.



IN railroading a short cut is never considered without counting the cost. The advantages to be gained in time saving and increased operating efficiency are carefully weighed against the expense. A tunnel is never bored through a mountain without knowing exactly where it is to come out.

Attempting to cut lubrication costs by purchasing cheap lubricants—without consideration of the effect on fuel consumption and wear of equipment—means simply that you have not “counted the cost.” The cost of oils cannot be construed as the cost of lubrication. On the contrary, every extra ton of coal, every dollar spent for repairs, made necessary through inferior lubrication, is a part of lubrication costs. Not theory, but fact—in which every authority on lubricating engineering concurs.

Weighed in the scales of service GALENA OILS not only render the highest type of lubricating efficiency, but are found to be the most economical as well. The fuel saving accomplished through their use amounts alone to much more than the price difference between “Galena” and any other railroad lubricants. Equipment is protected and preserved by their lasting high quality film; repairs and replacements of bearing parts are reduced to a minimum and maximum mileage is obtained. A comparison of lubricating conditions on roads under Galena lubrication with those where other oils are used, is a sure and reliable method of distinguishing service value. It has never failed to furnish convincing evidence of the actual economy of Galena lubricants.

*“More miles to the pint,
Better service to the mile!”*



Galena-Signal Oil Company

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Toronto

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Wire Rope

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Suitable For

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COALING TOWERS—TOWING—MOORING ETC.

We know the best rope to recommend for each particular requirement.

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OTIS DUMP CARS

(PATENTED)

THE MOST
PRACTICAL CAR
FOR ALL
BULK FREIGHT.

DUMP THE
MATERIAL AND
SAVE TIME
AND MONEY.
ALWAYS READY
FOR USE.



THERE ARE
THOUSANDS OF
OTIS CARS IN USE
IN COAL AND
GENERAL SERVICE.
A SIMPLE EASY
OPERATING
LEVEL FLOOR
GONDOLA CAR
THAT DUMPS
THE ENTIRE LOAD.

Made in All Sizes and
Capacities for Regular
or Special Require-
ments.

The HART-OTIS CAR CO., Limited, MONTREAL

—SOLE PATENTEES FOR GENERAL SERVICE CARS FOR CANADA—

"Industrial" Crawling Tractor Cranes

This Crane has been developed to meet the need for a full revolving crane which can be operated independently of rails.

Ideal for handling coal, sand, gravel and slag with grab bucket.

Equipped with gasoline engine.

One man operated.



This Crane, with half a century of crane building success behind it, is pre-eminently adapted to the needs of many.

The utmost care has been taken to combine the necessary strength and light weight.

We would be glad to tell you all about this outfit.

We can furnish "Industrial" Locomotive and Wrecking Cranes of all Capacities
Pile Drivers—Pillar Cranes—Buckets.

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F. H. Hopkins & Co.
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Head Office :
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The Star Brass Works

Largest Exclusive Trolley Wheel Makers in the World.

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Steel Ships, Engines, Boilers, Castings, and Forgings

PLANT FITTED WITH MODERN APPLIANCES FOR QUICK WORK



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and
Shops
EQUIPPED TO
OPERATE
Day or Night
on
Repairs

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MARINE and LAND

Improved — “Clothel” System — Patented
(ETHYL. CHLORIDE)

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C.O₂. Plant “Princess Louise” C. P. Ry. Co.

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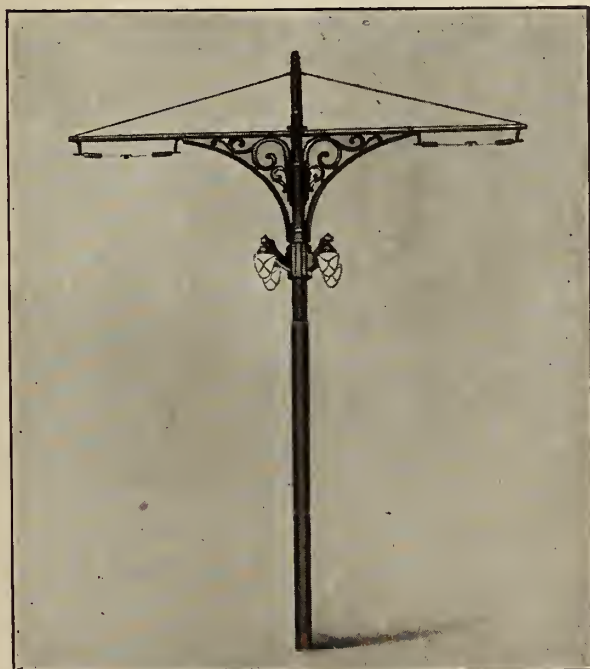
The Canadian Clothel Refrigerating Co., Limited

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MADE IN CANADA

FROM P&H PIPE



All sizes and weights
for the various purposes required and
to suit all styles of fittings.

NEAT — UNIFORM — ORNAMENTAL
DURABLE — STIFF — STRONG
ENDS CHAMFERED TO SHED
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ELECTRIC LIGHT—POWER
TELEPHONE—TELEGRAPH
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Westinghouse Safety Car Equipment

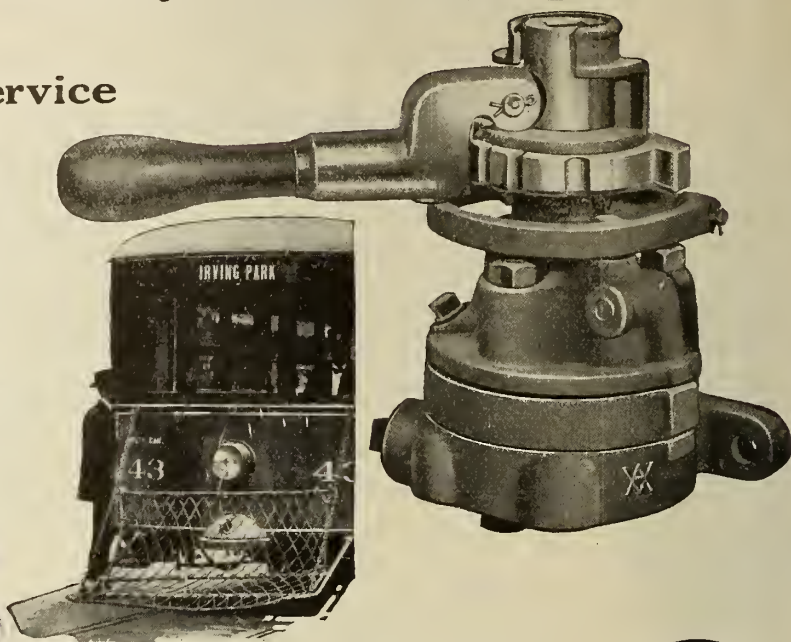
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Many traction officials refer to the present as the "Safety Car Era," because of the revolutionary effect this type of car has had on the entire street railway industry.

Safety cars mean more car miles, less power consumption, increased revenue, decreased operating expenses.

The name "Safety Car" is properly applied only when the car is equipped with Westinghouse standard automatic laborless apparatus so interlocked that, in an emergency, regardless of the illness or distraction of the operator, the power will be cut off instantaneously, the air brakes and sander applied, and the door unlatched for safe and easy exit.

Furthermore, it is a Safety Car only when the doors must be closed and step folded before the car can start, and when the air brake must be applied before the doors are opened and the step lowered in bringing the car to a service stop.



Canadian Westinghouse Company, Limited, Hamilton Ontario

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CALGARY, Canada Life Bldg.

MONTREAL, 285 Beaver Hall Hill
ST. WILLIAM, Cuthbertson Block
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WINNIPEG, 158 Portage Ave. E.
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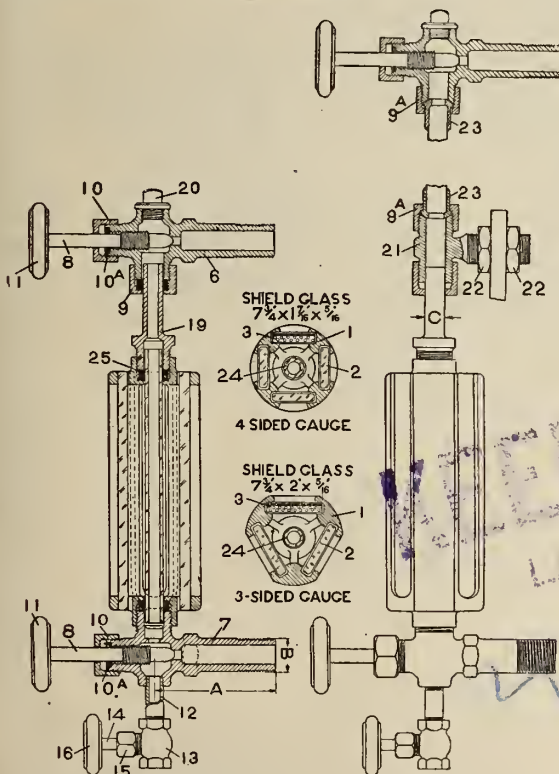
Through All-Steel Compartment-Observation-Library Car; Standard and Tourist Sleeping and Dining Cars; Colonist Cars and Coaches.

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Daily in either direction between Toronto and Winnipeg

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Tickets and full information obtainable from nearest Canadian National or Grand Trunk Railway Agent.



Nathan "Delco" Safety Water Gauge

This gauge is made four or three sided whichever may be preferred as illustrated in sectional views.

*Descriptive Material Mailed
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Hay fever is unknown in this clear, pine-and-balsam scented air. Unlimited territory to choose from; wide valleys of woods and streams and wild flowers; turquoise lakes with sandy beaches; the restful relaxation of camp life or the luxury of the finest hotels.

In Canada your Ideal Vacation is realized; Algonquin Park—Muskoka Lakes — Georgian Bay — Lake-of-Bays — Kawartha Lakes and Timagami. Fishing, boating, bathing, golf. A summer playground in the great out-of-doors.

For full information and illustrated literature write

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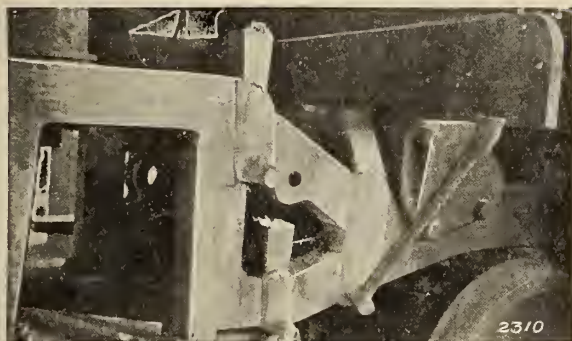
Railway Supplies

RAILWAY & POWER ENGINEERING CORP., IMITED

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New frame sections forged, machined and Thermit-welded to frame. View before removing risers and pouring gate metal.

We have found that by reducing the size of the collars or reinforcements of Thermit steel, also by narrowing the gap and changing considerably the proportions of gates and risers, it is now possible to weld the smaller locomotive frame sections, such as 2 in. x 3 in. up to 4 in. x 6 in., with very much less Thermit than was ever believed possible before. For instance, a weld on a 2 in. x 3 in. section for which 40 lb. of Railroad Thermit used to be recommended, now can be made with only 10 lb. of Thermit.

Let one of our expert operators demonstrate these improvements to you in actual practice.

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New Improvements In



Reduce Cost of Material for Weld- ing Locomotive Frames Over 10%

Whereas 75 lb. of Thermit was previously recommended for the average locomotive frame section, which is believed to be about 4 in. x 6 in., the new method will weld it with only 65 lb., or a saving of 13 1/3 per cent.

Along with these reductions in cost of material, the Thermit Process has been improved to such an extent by the perfection of a new grade of molding material, which will definitely eliminate blow-holes in welds.

COLUMBIA PYRAMID BRUSHES *for motors and generators*

Uniform in Structure
Uniform in Capacity
Uniform in Size
Uniform in Performance

**KILL
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There is the one *best* type of Columbia Pyramid Brush for your generator or motor, whatever its make... Tell us what your machine is, and we will put on exactly the brush it needs.

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Ship by Boat—The Quick and Economical Way

Canada Steamship Lines Freight Service

From Montreal, Toronto and Hamilton, connecting with C.P.R. at Fort William and C.N.R. at Port Arthur for all points in Western Canada—two sailings weekly.

Between Montreal, Toronto and Hamilton—two sailings weekly.

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Between Toronto and Niagara Ports—2 sailings daily.

Between Montreal, Sorel, Three Rivers and Quebec—sailings daily.

Between Quebec and Saguenay River Ports—4 sailings weekly.

Between Hamilton and Toronto—2 sailings daily.

Through bills of lading issued in connection with all Ocean Liners via Montreal.

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(Canadian National-Grand Trunk Route)

S.S. "Hamonic," S.S. "Huronie" and S.S. "Noronic" leave Sarnia Tuesdays, Thursdays and Saturdays, delivering freight to both Canadian National

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Canada Steamship Lines Limited

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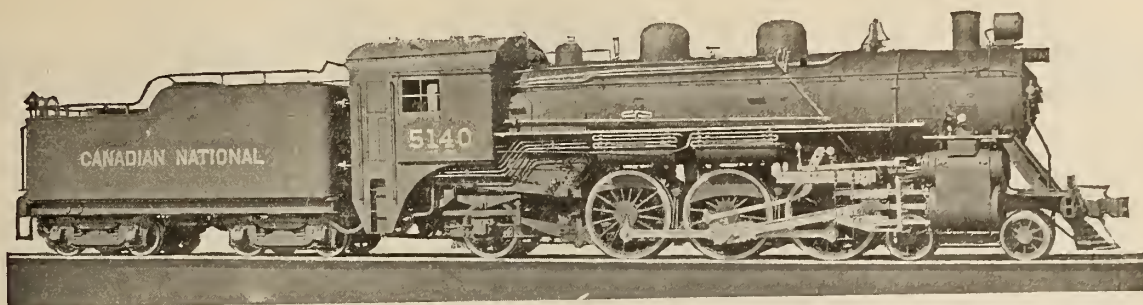
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Full Summer Schedule now in effect between Toronto, Niagara River Ports, Hamilton, Grimsby, 1,000 Islands, Montreal, Quebec and the Saguenay River.





4-6-2 TYPE LOCOMOTIVE

Built for the Canadian National Railways

We are specialists in building locomotives.

We build all types and sizes, also all kinds of spare and repair parts for locomotives and tenders.

Our experience puts us in a position to give you expert advice as to what particular type and size of locomotive is best suited to your needs.

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We Can Take Care of Your **FUEL SUPPLIES**

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Brake Beams for all Classes of Cars, Locomotives and Electric Equipment

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CHASE "CHASE" MATERIALS



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CHASE GOAT BRAND CAR PLUSH: This product, made from the fleece of the Angora Goat, has been the choice of railroads and steamship lines for over thirty years. It is DURABLE—FAST IN COLOR—RICH APPEARING—MOST SANITARY.

Recently there was exhibited a car seat upholstered with our Mohair Plush, and the seat had already been in service twenty-five years.

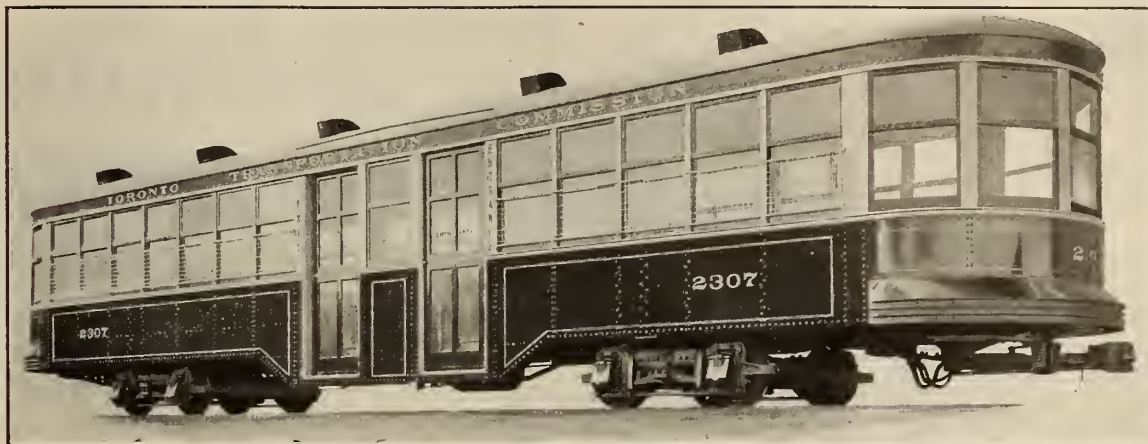
CHASE LEATHERWOVE: The modern, leather-like upholstery material for use where flexible toughness is the one thought.

For cleaning Plush and other upholstery fabrics choose CHASE PLUSH RENOVATOR—That remarkable liquid cleanser which does not start the dyes or injure the fabric. GUARANTEED effective but NOT HARMFUL. Write for samples.

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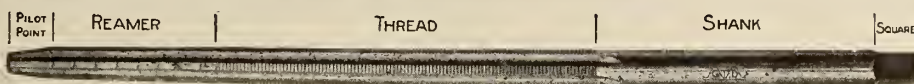
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Steel-Frame Trailer Car. One of sixty built for Toronto Transportation Commission.

Canadian Car & Foundry Company, Limited

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Trouble with Staybolt Taps? You can end it with the "Maxi Tap"

Recently 12" "Maxi Taps were tested out on repair work in an American railroad shop. *Every single one tapped 1,700 holes or more.* And note that this was *repair work*, the hardest kind of tapping a staybolt tap has to face. Do you want to get this production? Then try the "Maxi Tap." The "Maxi Tap" can give such astonishing results because it has five exclusive features not found in any other staybolt tap. These are the result of years of study and experimentation

under actual shop conditions and have made the "Maxi" the longest lived and most free cutting staybolt tap you can buy.

These are the features:

- Pilot Point
- Chip Breaker (on the reamer)
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- Long Tap (on threaded section)
- Special Relief (on cutting teeth).

Send for our bulletin on the "Maxi Tap" and learn just why these special features give you the results outlined above.



GTD Screw Plates, Taps, Dies,
Drills, Reamers, Pipe Tools

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Tell me what "Maxi" Staybolt
Taps have done in actual use.

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Company.....

City.....Province.....

C. R. & M. W., 2.

CARTER'S

The First Coat Should Always Be Carter's Genuine Dry Red Lead

In painting steel or wooden hulls, steam pipes, metal-work, etc., the first coat of paint is all important.

Carter's Genuine Dry Red Lead furnishes the ideal undercoating. Mixed with pure Linseed Oil it flows on easily, providing a durable and an economical protection against rust or corrosion.

Write for prices and ask about the other Carter products—Genuine Dry White Lead, Genuine Orange Lead and Litharge.

GENUINE DRY RED LEAD



The Carter White Lead Co.
of Canada, Limited
91 Delorimier Ave., Montreal.

Northern Electric Company LIMITED

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QUEBEC

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Dragline derrick handling dry sand. Operated by 80 H.P. electric hoist.

Derrick Equipment

The most profitable equipment you can use is that which stands up best. Mead-Morrison equipment has a record of years of reliable service. We supply steam or electric hoists and complete derrick equipment, including wire rope, wire rope blocks and fittings, grab buckets and skips.

Information and prices gladly furnished on request.

HARVARD TURNBULL & CO.

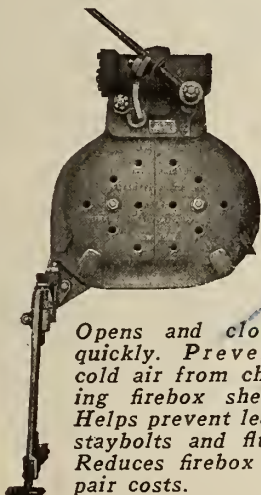
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London Concrete Machinery Co. Ltd.
The Peck Rolling Mills Ltd.

WILL
LAST AD.

Otherwise A Hole Would Do



Opens and closes quickly. Prevents cold air from chilling firebox sheets. Helps prevent leaky staybolts and flues. Reduces firebox repair costs.

You couldn't stand in front of an open firedoor longer than a second or two—the heat is too great.

In addition to this escaping heat, cold air, of sufficient volume and speed to pull coal off a scoop held in the opening, is rushing into the firebox.

In 15 seconds, with the firebox open, the firebox temperature drops 250°.

Franklin Butterfly Firedoor is open only just long enough to get the coal into the firebox.

With this quick opening and closing, it combines simplicity in design and dependability in operation—factors that mean low costs.

Franklin Railway Supply Company

of Canada, Limited

Transportation Bldg., Montreal

WILL
LAST AD.

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Canadian Railway and Marine World

August, 1922

Whither Are We Drifting?—An Analysis of Wage Schedules.

By O. E. Fisher, Comptroller, Kettle Valley Railway, Penticton, B.C.

The underlying basis of wage schedules, salary, rates of pay, and, at the present time, so called "working conditions," or whatever term we may apply, is, however it may be camouflaged by ambiguous terminology, a fair and reasonable remuneration for an honest day's work. To this principle both employer and employee can subscribe without reservation, but an examination of present day schedules, particularly as applying to train and locomotive men, shows that we have wandered far afield from the controlling factors mentioned. The same situation is also true to a considerable degree with wages of shopmen and station service employees.

The basic principle of payment for services rendered is, that for a certain specific unit of labor a certain amount stated equally specific shall be paid as remuneration, but to illustrate how far we have drifted from this principle I shall take the actual figures for the year 1921 for passenger locomotive men on one road, which are fairly representative of other classes of train service employees and are also very close to the average for all roads for the year. On the road in question the rates in effect were \$6.12, \$6.20, \$6.28, \$6.60, \$6.68, \$6.76, \$7, \$7.08, \$7.16, \$7.48, \$7.56, and \$7.64 a day, or per 100 miles, an average of about \$6.88, but to show how misleading and meaningless the schedule rates quoted are, the actual rate paid during the year was \$1.36 an hour worked and \$9.14 per 100 miles run. Taking the average figures for all roads in Canada for 1920 (the latest complete year available) we find that the actual rate paid passenger locomotive men was \$1.24 an hour and \$7.83 per hundred miles run, notwithstanding the schedule rates naming amounts about 40% less than these figures, and also that for every hour passenger locomotive men were paid a passenger locomotive was moved a fraction less than 16 miles.

In wage negotiations, public statements by organizations, etc., we hear the oft repeated statement, that \$6.20 a day, or whatever the schedule rate may be, is not unreasonably high rate for a passenger locomotive man. This is granted, but the statement is only a half truth, as in the case cited under the average schedule rate of \$6.88, the actual rate paid, after dealing with ramifications, interpretations, conditions, additions and variations to the rate, was \$9.14 per 100 miles. The absurdity of the situation becomes apparent when we note that there is no possible condition of actual practice where a locomotive man could receive only the rate quoted in existing schedules for a day's work, although he might work only 4 hours or less, as there is a multitude of additions to the day's pay, such as preparatory time, terminal detention, switching, etc., all of which is added to the day's pay, although the trip may have been completed in much less than 8 hours. Two days' pay, at schedule rate, is frequently paid for 7 or 8 hours' work, and it is quite possible to draw 3 days' pay for one trip or working day.

The question then is, what is the reason for this chaotic condition and what is the remedy? The reason, perhaps, is that present schedules are the result of a process of evolution under which, little by little, various clauses and conditions have been added, each in itself seeming insignificant, and added as a compromise after a long and tiresome deliberation, until from their aggregate is evolved the present impossible situation. Like Topsy, they "just grewed," and we have perhaps, by slow stages, become accustomed to the vagaries of the schedules until their inconsistencies are not so apparent as they otherwise would be.

Assuming the dozen or so rates quoted were bona fide units of the measure of remuneration, it should not require any elaborate schedule to quote or set forth such rates of pay, yet I find it requires a book of 23 pages of closely printed matter to quote the "Rates of pay and rules governing service of locomotive engineers, firemen and hostlers." Taking one page at random, in the schedule referred to, I find, under alleged "conditions," four separate clauses whose only purpose is to add to the amount of pay and which have not the remotest connection with conditions, and this is true all through the long and ambiguous document. To properly check time slips requires an expert, and the time of 40 men is about the maximum that can be handled by one timekeeper. A time ticket may contain five different computations and rates of pay for the same day's work, and have to be split up into preparatory time, switching, road mileage, road hours, junction switching, terminal detention and so on ad infinitum.

It is possible for two crews to handle trains between the same terminals, in approximately the same number of hours, and with the same tonnage, and yet owing to a manipulation of conditions, such as unloading way freight, switching, etc., one crew may receive a considerably greater amount of pay than the other.

To appreciate fully the present situation let us imagine a superintendent's schedule of rates and pay and "working conditions" constructed along the same lines, it would read about as follows: Superintendents will be paid \$300 a month in valley territory and \$375 in mountain territory. If their duties comprise service in both mountain and valley territory they will be paid pro rata, according to the service performed in each. These rates apply for working at a standard desk, 36 x 57 in., and for any work performed at a larger desk an arbitrary of \$5.37 a month will be added for each 12 sq. in. of desk surface added, to be computed on minute basis for time worked at different size desks. Superintendents will be allowed 45 minutes preparatory time, before going to work in the morning, to open their personal mail, sharpen their pencils and discuss schedules with other superintendents. If a superintendent shall finish a particular piece of work, such as meeting grievance committees, checking car loading per-

formance on the division, etc., before 2 p.m. and start a new job, a new day will commence. If a superintendent is interrupted, while dictating letters, more than five times, by answering telephone, or three times by callers, or a combination of four times by both, he will be paid an arbitrary of 86c for the entire day. If necessary to stop more than one hour at any station to settle claims, address public bodies, or inspect stations or facilities, detention time will be allowed in addition to the day's pay. Superintendents will not be required to meet the public at stations where regular agents are employed, all matters will be handled at such stations by the agent's staff. If, however, a superintendent is detained at a station, while an agent is handling negotiations on any question, he will be paid time for detention, in addition to the regular day's pay; and twenty or thirty similar "conditions." The foregoing is not irony, but is quite as consistent as the average train service schedule in existence today.

Almost everyone is fundamentally honest, and under ordinary conditions would remain so, but given a condition where the amount of their remuneration can be largely influenced from day to day by adapting performance to schedule provisions, I have no doubt that even the superintendent, under a similar schedule as outlined, would eventually add a few arbitraries, or a little unnecessary detention, etc., until the habit became so fixed that a large part of his time and energy would be devoted to originating new and devious confusions to the schedule.

What then, is the remedy, for the time must surely come when rates of pay will be clearly stated, and mean exactly what they purport to mean, and I am convinced that such a schedule can be applied that will be equitable to both employees and employer, and with a little education be quite as acceptable to the train service men as the present ones? I have discussed this question with many trainmen, and practically all of them would prefer to have the schedules simplified, but, of course, without reducing the amount of pay received at present.

I have before me a payroll covering a full normal month's work for a passenger locomotive man, the amount being \$281.12; 20 days' work being required on this run during the month. Four different rates were used, ranging from \$6.20 to \$7.18 a day or 100 miles, yet the actual rate paid was \$1.35 an hour and \$8.52 per 100 miles. The schedule provides that 100 miles or less, 5 hours or less, in valley territory, or 6 hours and 40 minutes in mountain territory, shall constitute a day; the average being about 6 hours, which works out to practically the same relative basis as the rate actually received in the case in point, i.e., 6 hours at the actual rate of \$1.35 would be \$8.10.

We may assume that the total amount of compensation paid under the present schedule is reasonable and fair in the main, as it is the result of negotiation and agreements between employees and

railways. This being so, it must follow that the actual rates paid of \$1.35 an hour, or \$8.52 per 100 miles, are fair and reasonable, and this being the case, why not so state the rates instead of making them \$6.20 to \$7.18, with "57 varieties" of additions? Or make a schedule reading substantially as follows: Locomotivesmen will be paid the following rates: Passenger, \$8.52; freight, work, switching, mixed, whatever the actual rate is at present, per 100 miles, or per day of 6 hours, in passenger service, or 8 hours

in freight and other service. Time, or miles run, whichever is greater, to be computed from the time on duty at beginning of work until tied up. This to be the complete and entire provisions relative to rates of pay or amount of pay received, and whatever "conditions" it might be found necessary to establish be conditions only and in no way relate to pay.

Monthly guarantees could be provided, with the provision that full service with any different class of train, if necessary,

would be required. No reasonable man could object to this. This would provide the same amount of compensation as under the present planless arrangement. It would save a large amount of clerical work, and eliminate a world of misunderstanding, and vastly greater harmony and co-operation between the management and employees would be promoted, as the main source of contention would be removed. There would be nothing left to argue about, in so far as rates of pay and "conditions" are concerned.

Changes in Districts, Divisions, and Subdivisions, Canadian National Railways' Western Lines.

Changes made by the Canadian National Rys. management in the names and composition of the Maritime and Quebec districts, divisions and subdivisions on the Eastern Lines, were given in Canadian Railway and Marine World for Nov., 1921, pg. 594. A number of changes have been made recently on the Western lines, as follows:—

Manitoba District.—The name of the Central District has been changed to Manitoba District. It extends from Armstrong and Port Arthur, Ont., on the east, to Brandon, Man., Melville, Watrous and Canora, Sask., on the west, with branches; the total mileage being 2,962.3. A. Wilcox is General Superintendent, at Winnipeg.

Fort William Division.—R. S. Richardson, Fort William, Ont., Superintendent; Rainy River Division, W. T. Moodie, Port Arthur, Ont., Superintendent; Winnipeg Terminal Division, M. B. Murphy, Winnipeg, Superintendent, and Melville Division, I. A. McPherson, Superintendent, Melville, Sask., retain the same names. Manitoba Division, W. I. Munro, Fort Rouge, Man., Superintendent, has been changed to Portage Division.

Changes in subdivision names have been made as follows: Fort William Division, Armstrong Subdivision, from Armstrong to Sioux Lookout, Ont., 139 miles, changed to Buckle Subdivision. Lake Superior Subdivision, from Mission to Superior Jct., Ont., 189.4 miles, changed to Graham Subdivision. Sioux Lookout Subdivision, from Sioux Lookout to Redditt, Ont., 123.2 miles, changed to Quibell Subdivision. Redditt Subdivision, from Redditt, Ont., to Transcona yards, Man., 121.8 miles, changed to Minaki Subdivision. On the Rainy River and the Winnipeg Terminal Divisions there have been no changes. Portage Division, Emerson Subdivision, from Emerson to Portage Jct., Man., 63.4 miles, changed to Morris Subdivision. Neepawa Subdivision, from Muir to Neepawa, Man., 33.1 miles, changed to Hallboro Subdivision. Yorkton Subdivision, from Wroxton to Willowbrook, Sask., 41 miles, changed to Tonkin Subdivision. Melville Division, Canora Subdivision, from Melville to Canora, Sask., 56.4 miles, changed to Yorkton Subdivision.

Saskatchewan District.—The name of the Prairie District has been changed to Saskatchewan District. It extends from Brandon, Man., Melville, Watrous and Canora, Sask., on the east to Kindersley, Biggar, and North Battleford, Sask., on the west, with branches, the total mileage being 3,450.1. B. T. Chappell is General Superintendent, at Saskatoon.

Brandon Division. G. A. Cunliffe, Brandon, Man., Superintendent; Dauphin Division, T. J. Brown, Dauphin, Man., Superintendent; Regina Division, M. D. Thompson, Regina, Sask., Superintendent;

and Saskatoon Division, A. E. MacDonald, Saskatoon, Sask., retain the same names.

Changes in subdivision names have been made as follows: Brandon Division, Kipling Subdivision, from Brandon, Man., to Kipling, Sask., 127.7 miles, changed to Maryfield Subdivision. Radville Subdivision, from Carlyle to Radville, Sask., 102.7 miles, changed to Lampman Subdivision. Regina Division, Moose Jaw Subdivision, from Bengough Jct., to a junction with the Riverhurst Subdivision near Moose Jaw, Sask., 87.3 miles, changed to Avonlea Subdivision. Dauphin Division, Kamsack Subdivision, from Dauphin, Man., to Kamsack, Sask., 100.9 miles, changed to Togo Subdivision. Humbolt Subdivision, from Kamsack to Humbolt, Sask., 146.4 miles, changed to Margo Subdivision. Swan River Subdivision, from North Jct. to Swan River, 98.4 miles, changed to Cowan Subdivision. Hudson Bay Subdivision, from Hudson Bay Jct., Sask., to Pas, Man., 87.5 miles, changed to Turnberry Subdivision. Saskatoon Division, Prince Albert Subdivision, from Hudson Bay Jct. to Prince Albert, Sask., 160.4 miles, changed to Melfort Subdivision. Battleford Subdivision, from Humbolt to North Battleford, Sask., 147.6 miles, changed to Langham Subdivision. Kindersley Subdivision, from Yorath to Kindersley, Sask., 122.3 miles, changed to Rosetown Subdivision. Delisle Subdivision, from Delisle to Beechy, Sask., 93.8 miles, has been changed to Conquest Subdivision. Brooksby Subdivision, from a junction with the Melfort Subdivision to Ridge-dale, Sask., 22.8 miles, has been added to the Saskatoon Division.

Alberta District.—The name of the Western District has been changed to Alberta District. It extends from Kindersley, Biggar and North Battleford, Sask., on the east, to Edmonton and Calgary, Alta., on the west, with branches, the total mileage being 2,158.7. W. A. Brown is General Superintendent, at Edmonton.

Edmonton Division. J. E. Nelson, Edmonton, Alta., Superintendent; Biggar Division, J. Irwin, Edmonton, Alta., Superintendent; and Calgary Division, R. King, Calgary, Alta., Superintendent, retain the same names.

Changes in subdivision names have been made as follows: Edmonton Division, Vermilion Subdivision, from Vermilion, Alta., to North Battleford, Sask., 124.5 miles, changed to Blackfoot Subdivision. Onoway Subdivision, from Peace River Jct. to Whitecourt, Alta., 72.2 miles, changed to Sangudo Subdivision. Turtleford Subdivision, formerly from North Battleford to Turtleford, 55.7 miles, has been extended from Turtleford to St. Walburg, 21.6 miles, making a total of 77.3 miles, and retains the same name. Red Deer Subdivision, from Red Deer to Red Deer

Jct., Alta., 6.1 miles, has been added to Edmonton Division. Biggar Division, no changes in the names of subdivisions have been made. Calgary Division, Big Valley Subdivision, from Big Valley to Munson Jct., Alta., 36 miles, has been changed to Rowley Subdivision. Hanna Subdivision, from Kindersley to Hanna, 136.4 miles, has been changed to Oyen Subdivision. Sherness Subdivision, formerly from Medicine Hat Jct. to Cessford, 46.4 miles, has been extended from Cessford to Steevehille, 12.5 miles, a total of 58.9 miles, and retains the same name.

British Columbia District.—The Mountain District, which included the Edson and Smithers Districts, and the Pacific District, which included Kamloops Division and Vancouver Island lines, have been combined into the British Columbia District, which extends from Edmonton, Alta., on the east to Vancouver and Price Rupert, B.C., on the west, with branches, and includes the Vancouver Island lines, the total mileage being 1,623.1. There have been no changes in the names of divisions. J. R. Cameron is Assistant General Manager at Vancouver, and N. B. Walton is Assistant General Superintendent, Edson and Smithers Divisions, at Prince Rupert, B.C. D. W. Steeper, Edson, Alta., is Superintendent, Edson Division, and L. F. Muncey, Kamloops Jct., B.C., is Superintendent, Kamloops Division. W. S. R. Cameron is General Agent, Vancouver Island lines.

Changes in subdivision names have been made as follows: Edson Division, Lucerne Subdivision, from Jasper, Alta., to McBride, B.C., 107.9 miles, changed to Tete Jaune Subdivision. Luscar Subdivision, from Leyland, a junction with the Mountain Park Subdivision, to the end of steel, 5.4 miles, has been added to Edson Division. Smithers Division, no changes in subdivision names. Kamloops Division, Blue River Subdivision, from Redpass Jct., to Blue River, 88.7 miles, changed to Albreda Subdivision. Boston Bar Subdivision, from Kamloops Jct. to Boston Bar, 125.6 miles, changed to Cisco Subdivision. Port Mann Subdivision, from Boston Bar to Vancouver, 131.8 miles, changed to Yale Subdivision. The Vancouver Island lines consist of the Patricia Bay Subdivision, from Patricia Bay to junction with Cowichan Subdivision, 16.9 miles, and the Cowichan Subdivision from Victoria to Cowichan Lake, 73 miles, under construction.

Duluth, Winnipeg and Pacific Ry., from Fort Frances, Ont., to Duluth, Minn., 168 miles. Rainy Lake Subdivision, from Fort Frances to Virginia, Minn., 94 miles, changed to Cusson Subdivision. Silver Lake Subdivision, from Virginia to Duluth, Minn., 74 miles, changed to Taft Subdivision. A. Wilcox, Winnipeg, Man., is General Superintendent, and J. H. McKinnon, Virginia, Minn., is Superintendent.

Board of Railway Commissioners' Judgment and Order Reducing Freight Rates, Etc.

The Board of Railway Commissioners issued the following judgment, June 30, "By the Board," over the signature of A. D. Cartwright, Secretary, it being concurred in by Hon. F. B. Carvell, Chief Commissioner; S. J. MacLean, Assistant Chief Commissioner; A. C. Boyce, J. G. Rutherford, and C. Lawrence, commissioners:—

Shortly after the promulgation of the Board's general order, being the order providing for the general rate increases known as the Thirty-five and Forty Per Cent. Case, effective Sept. 13, 1920, various bodies, among them the Province of Manitoba, appealed to the Privy Council asking that the order be rescinded for various reasons set forth. The matter was heard by the Privy Council, and, on Oct. 6, 1920, by order in council 2,434, the Governor in council dismissed the appeal, but, in doing so, stated as follows: "What constitutes a fair and reasonable rate should now be arrived at without reference to the requirements of the Canadian National System and your committee recommends that the order in this case be referred back to the Board, to be corrected in its findings in such manner as to determine what are fair and reasonable rates, without taking into account at all, for the time the order shall be in effect, the Canadian National System's requirements. Very strong representations were made at the argument on appeal, to the effect that the order continued, and indeed intensified, an unjust discrimination in rates, it being claimed that higher freight rates prevail generally in Western Canada, i.e., west of Fort William, than prevail in Eastern Canada, i.e., east of Fort William. It was strongly urged that the reasons, whatever they may have been, for this differential no longer exist, and that, as a matter of public policy, the principle of equalization of rates east and west should now be recognized. On the other hand, it was urged that the competition arising out of lake and river transportation, as well as out of lower competitive rates on eastern United States lines compelled a somewhat lower scale in Eastern Canada than in Western Canada. Whether or not these reasons now obtain in any substantial degree is a question which requires minute and expert investigation—such as can be best conducted by the Railway Commission itself and not by your Excellency's advisers, but the committee is strongly impressed with the very great desirability of bringing about, with the least possible delay, equalization of Eastern and Western rates. The committee of the Privy Council therefore further recommends that, as conditions have probably changed materially in recent years, tending more and more to make equalization practicable, an enquiry by the Board be directed to be held at the earliest date, with a view to the establishment of rates meeting to the utmost extent possible the above requirement as to equalization."

The Board thereupon started an investigation, primarily to ascertain whether or not conditions had changed as suggested by the order in council and as to whether the difference in rates, if any, thus existing in a general way between Eastern Canada and Western Canada amounted to undue discrimination against Western Canada. The first sitting was held at Ottawa on Nov. 22, 1920, when it

was arranged that the Board would hold sittings in Western Canada in the early spring, and, in pursuance thereof, sittings were held in all the principal cities of Western Canada in April, 1921, again in Oct. and Nov., 1921, and the final argument took place in Ottawa in Feb. and March last.

Very shortly after arrangements were made for such hearings, application was made by representatives of the provinces of New Brunswick, Nova Scotia, and Prince Edward Island, alleging that they were unfairly treated in that the arbitraries over Montreal, which they had enjoyed for many years prior to 1916, had been either abolished, or materially increased, and asked that the old arbitraries be re-established. Then the Province of British Columbia applied for the elimination of the mountain scale of rates, as applied to that province, asking that the prairie scale be extended through to the Pacific coast. At a later date, application was made by the Lumber Association of Canada and allied interests for a general reduction in the rates upon lumber commodities.

There have also been applications before the Board the Sault Ste. Marie Board of Trade and other business interests there, for the extension of Schedule A rates from Sudbury to Sault Ste. Marie, and, finally, an application by the Commercial Travellers' Association of Canada, alleging that the 20% increase upon excess baggage provided for by general order 308 should have been eliminated when passenger rates went back to normal on July 1, 1921, claiming that the excess baggage rate is based upon passenger rates, and, therefore, when passenger rates were reduced, the same principle should be applied to excess baggage. In addition to this, we have scores of applications from individuals, corporations, and municipalities, asking for a reduction of rates, either generally, or upon the traffic in which they were respectively interested.

No reference is made herein to the application of the Nova Scotia fruit growers and the Maritime Provinces potato growers, for a reduction in the export rate on their commodities, as these rates were increased, not by general order 308, but by general order 303, effective Aug. 26, 1920, and we understand the railway companies have already filed tariffs, effective July 1, reducing these rates by 10%, in accordance with the like reductions in the United States under the Interstate Commerce Commission's recent general order.

By the terms of general order 308, all increases therein provided for cease to exist on July 1, 1922, because of the fact that the amendment to the Railway Act, 1919, sec. 325, which had the effect of postponing the coming into effect of the Crowsnest Pass legislation for three years, expires on July 6, next. Shortly after Parliament opened in March last, the question of the further extension of the coming into operation of the Crowsnest Pass legislation was referred to a special committee of the House, which has reported, and legislation based thereon has been enacted, which, in effect, provides for the suspension of the operation of the Crowsnest Pass legislation for a further period of one year, upon all rates and schedules mentioned therein, with the exception of grain and flour, the

rates upon which latter products, on and after July 6, 1922, shall be those provided for in the original legislation, Statutes of 1897, chap. 5, and also providing that the Governor in council may extend the provisions of that act for an additional term of one year, if, in their judgment, it is considered advisable to do so.

Comparison of Canadian and United States Freight Rates.—It is considered advisable at this stage to give a comparison of the general rate structures of Canada at present, as compared with the rate structures of the U.S. as they will be on and after July 1, 1922, because, on account of the great similarity between railway operations and business conditions in the two countries, as well as the very large volume of international traffic, it is well to know as nearly as possible the exact relationships of the rate structures of both countries. Two or three years ago, and before the general increase in rates in the U.S., authorized by the Interstate Commerce Commission under ex parte 74, effective Aug. 26, 1920, a careful comparison was made between the general level of freight rates in Canada and the U.S., which showed, having regard to all the controlling conditions, that the general level was slightly in favor of the Canadian shipper.

Freight rates in Canada were not increased during the first four years of the war, but in 1918 and 1920 it was necessary, not only in Canada, but in other countries as well, to materially increase freight rates, so as to enable the privately owned railways, but not in full measure, to meet their advancing operating costs, which had increased by leaps and bounds, and in a manner entirely without precedent or parallel. The wage increases in 1918 and 1920, coupled with the increased cost of coal and other materials and supplies, resulted in such increases in railway operating costs that a substantial increase in freight rates was inevitable. Notwithstanding that the employees of Canadian railways were granted increases in wages equal to those in the U.S., and that increased costs and war conditions bore even more heavily upon railway conditions in Canada than in the United States, the increase in rates as authorized by this Board did not bear as heavily on the Canadian public as the increase authorized in the U.S. by the Interstate Commerce Commission, as will be clearly evidenced by the following. These general increases, commonly known as the forty per cent. increases, although in fact they averaged appreciably under that figure, became effective in the U.S. on Aug. 26, 1920, and in Canada on Sept. 13, 1920. There has been no general decrease in freight rates authorized in the U.S. since Aug. 26, 1920, although there will be a general decrease of 10% effective July 1, 1922. On the other hand, the increased rates effective Sept. 13, 1920, in Canada, were subject to a general decrease of 5% Jan. 1, 1921, and a further general decrease of 10% Dec. 1, 1921. The situation is illustrated below, taking in each case, for simplicity of illustration, a rate of \$1 per 100 lbs.:—

Canada.	East	West
Rate prior to Sept. 13, 1920.....	\$1.00	\$1.00
Sept. 13, 1920, Increased to.....	1.40	1.35
Jan. 1, 1921, Decreased to.....	1.35	1.30
Dec. 1, 1921, Decreased to.....	1.25	1.20

Interterritorial traffic—Percentage of increases in rates within territories east and west of Port Arthur applied to east and west factors thereof respectively.

United States	Rate prior to Aug. 26, 1920	Aug. 26, 1920, rate increased to	July 1, 1922, rate decreased to
Eastern Group.....	1.00	1.35	1.21½
Western Group.....	1.00	1.25	1.12½
Southern and Mountain Pacific Groups.....	1.00	1.33 1/3	1.20
Interterritorial traffic.....			

Further, under this Board's general order 308, Sept. 9, 1920, the railways were prohibited from increasing rates on crushed stone, sand, and gravel; minimum class rate scale; minimum charge per shipment; switching, interswitching, milling-in-transit, diversion, reconsignment, stop-overs, demurrage, weighing, etc. The increases allowed in rates on cordwood, slabs, edgings and mill refuse for use as fuel was limited to 10%. The increase in coal rates was limited as follows: in rates 0 to 80c a ton; 10c; in rates 80 to 150c a ton; 15c; in rates over 150c a ton; 20c. In the U.S., under ex parte 74, July 29, 1920, there was no similar limitation with respect to rates on crushed stone, sand, gravel, and coal and they were subject to the same percentage increases as authorized for other traffic; further, the percentage increase applicable in the group where the service is performed was made in the charges for switching, transit arrangements, weighing, diversion, reconsignment, lighterage, floatage, storage (not including track storage), and transfer, while no increases for those services were allowed in Canada.

The coal traffic is, of course, a very large and important movement, and the following illustrations show what the limitation in Canada meant as compared with the percentage increase in the U.S. The increases allowed were—

	In Canada Sept. 13, 1920		In U.S. Aug. 26, 1920		
	Eastern Group	Western Group	Southern and Mountains Pacific Group		
In rates 0 to 80c ton	10c a ton	40%	35%	25%	
In rates over 80 to 150c ton	15c a ton	"	"	"	
In rates over 150	20c a ton	"	"	"	
To illustrate:—					
	East	West	South & Mountains Pacific	In Canada	
A rate of 80c a ton became	112c	108c	100c	90c	
A rate of 150c a ton became	210c	203c	188c	165c	
A rate of 300c a ton became	420c	405c	375c	320c	
Under the reduction in rates in the U.S. to become effective July 1, 1922, the situation will be—					
	In U.S. July 1, 1922	In Canada Aug. 1, 1922	In Canada Aug. 1, 1922	In Canada Aug. 1, 1922	
Where rate prior to 1920 increase was—			on anthracite	on all other coal	
80c a ton now becomes	101c	97c	90c	80c	
150c a ton now becomes	189c	182c	165c	150c	
300c a ton now becomes	378c	365c	320c	300c	

Subsequent to the general increase in 1920, there have been a large number of substantial reductions in Canada, between various points, on different commodities. In Canada, among the more important reductions made by the railways, were the grain rates from Fort William and other lake ports to the Atlantic seaboard and Eastern Canada; on livestock, on which a reduction of approximately 25% was made in July, 1921, from the rates effective Sept., 1920; on hay in Eastern Canada; on lumber from the Pacific coast to eastern points; on wool and hides from western to eastern points; etc.

In the U.S. a reduction in carload rates on grain, grain products, and hay, in the western and mountain Pacific groups became effective in Jan., 1922; rates on livestock in the same groups in excess of 50c per 100 lb. were reduced 20%, but not below 50c in Oct., 1921; and carload rates upon products of the farm,

garden, orchard, and ranch were reduced 10% in Jan. 1922. These are the only three instances where reductions were made covering the entire country, or the

whole of any one or more groups, since the increases of 1920 became effective. These rates are not being further reduced in the U.S. on July 1, 1922.

Comparison between Canadian and U.S. Passenger Fares.—Immediately prior to Aug. 26, 1920, the standard passenger fare in the U.S. was 3c a mile. On Aug. 26, 1920, the Interstate Commerce Commission authorized an increase of 20% in all passenger fares, with a standard of 3.6c a mile. An increase, or surcharge, of 50% was allowed in sleeping and parlor car fares, an increase of 20% in excess baggage rates, and 20% increase in rates for carriage of milk in baggage cars, all effective on the same date.

In Canada, prior to Sept. 13, 1920, the standard passenger fare, east of and including Macleod, Calgary, and (Wolf Creek) Thornton, Alta., was 3.45c a mile; west of these points, 4c a mile. By general order 308, the passenger fares were increased by 20%, subject to a maximum of 4c a mile. The order did not, therefore, increase passenger fares in British Columbia. An increase of 50% was also allowed in parlor and sleeping car fares, and 20% in excess baggage charge, but no increase was allowed in rates for carriage of milk in baggage cars. On Jan. 1, by the same order, the standard passenger rate east of Macleod, Calgary, and Thornton was

rates in Canada should be confined to what they called "basic commodities", and E. W. Beatty, President C. P. R. stated as follows:—"It was apparent, however, that in 1921 certain industries felt the depression much more severely than others, and it was the opinion of the railway executives both in Canada and the U.S., an opinion which, I think, is shared by the U.S. Government, as expressed by the testimony of Secretary of Commerce Hoover, before the Interstate Commerce Commission, that inasmuch as the reductions were a matter of relief they should be first extended to those industries which most needed it. It was felt that more effective relief would be accorded in this way, and that it would bear less heavily on the companies' revenues, because of the exclusion from the reductions of numerous commodities in which the railway rate played a very small part. If the matter were one depending on the railways' judgment, this method would be followed, if the Railway Commission approved." Mr. Beatty furnished the following list of basic commodities on which he thought reductions should be made,—Grain and grain products, forest products, coal, building material, brick, cement, lime, plaster, potatoes, fertilizer, ores, wire rods, and scrap iron, to which, later on, were added pig iron, blooms, and billets. The same list was afterwards approved by the Canadian National Rys.

In the special committee's report to the House, it was stated as follows:—"basic commodities which may be afforded reductions should have the earliest possible consideration by the Board of Railway Commissioners." While the recommendation of the committee is to be treated with respect, it is not binding in law upon this Board, it is arguable that, in revising rates, the logical method to pursue is to redress antecedent necessary percentage increases by subsequent percentage decreases, thus minimizing the inequalities which the percentage increases had accentuated. As a matter of emergency action, however, revisions may be made on basic commodities in so far as is possible, consistently with other conditions now existing.

At a later sitting of the special committee, both the C.P.R. and the Canadian National Rys suggested that, in lieu of the coming into effect of the Crowsnest Pass agreement, the following percentage reductions from present rates should be made upon these basic commodities, viz.:—Grain and grain products west of Fort William 20%; forest products 20% east, and 16.66% west.

Coal, exclusive of anthracite coal, and coal from Fort William. Specific reductions. Rates 0 to 80c a ton, reductions 10c a ton; over 80c to \$1.50 a ton, reductions 15c a ton; over \$1.50 a ton, reductions 20c a ton.

Building material, brick, cement, lime, and plaster; potatoes, fertilizers, other than chemicals; ores; pig iron; blooms; billets; wire rods; scrap iron, western lines 16.66%; eastern lines 20%. This proposal was not adopted by either the committee or the House, as proposed, but, as before stated, the rates on grain and flour from the western provinces to the head of the lakes were reduced to the original Crowsnest Pass basis, and the question now arises as to what percentage of reduction the Board can reasonably grant upon these specific commodities under the changed conditions

United States: all territory, 3.6c. Canada: east of Macleod, Calgary and Thornton, 3.45c; west of above territory, 4c.

Sleeping and parlor car fares. United States: surcharge of 50%; Canada: surcharge of 25%. Excess baggage charge. United States: 20% increase; Canada: 20% increase.

Milk in baggage cars. United States: 20% increase; Canada: No increase.

Basic Commodity Reductions.—At the hearings by the House of Commons special committee referred to both the C.P.R. and the Canadian National Rys. proposed that, outside of the question of the rates on grain from the Prairie Provinces to the head of the Great Lakes, and decreases in freight

above referred to.

At a hearing by the special committee on June 20, W. B. Lanigan, Freight Traffic Manager, C.P.R., filed a statement showing what would be the reduction in the revenues of that company if the offer above referred to had been accepted, as follows:—

Grain and grain products	\$ 5,354,139
Forest products	1,765,147
Coal, exclusive of anthracite and coal from Fort William	476,619
Potatoes	115,358
Building material, brick, lime, cement plaster	353,415
Fertilizer, other than chemicals	18,621
Pig iron, billets, blooms, wire rods and scrap iron	132,466
Ores	122,704
	\$ 8,338,469
International and interstate traffic 10%	2,220,000
Grand Total	\$10,558,469

This showed a total, not including reductions on international traffic, of \$8,338,469, and, of this amount, \$5,354,139 was the estimated reduction on grain. Taking this from the total reduction leaves a balance of \$2,984,330 to be distributed among the other commodities. By the legislation hereinbefore referred to, granting the Crowsnest Pass rates on grain as therein provided, according to Mr. Beatty's evidence, assuming the C. P.R.'s grain traffic to be the same as in 1921, the adoption of the Crowsnest rates would reduce its revenue by \$7,159,537, which, taken from \$8,338,469, would leave \$1,178,932 still available for reduction in rates on the above list of basic commodities, and the Board, after very careful investigation, has concluded that this would be represented by a reduction of 7½% on the rates now in existence on those basic commodities, less than the increases authorized by general order 308, not, however, including therein any reductions heretofore made upon any of the said commodities upon domestic rates in Canada. This would leave increases on these commodities above the basis of Sept., 1920, at 12½% in Western Canada and 17½% in Eastern Canada. This reduction of 7½%, however, should not apply to coal other than anthracite, which was not increased on a percentage basis, but by flat rates as hereinbefore particularly described, and, therefore, it is felt that all the increases on coal other than anthracite, granted by the Board by general order 308 should cease and the rates go back to those immediately preceding Sept. 13, 1920. This reduction, however, not to apply to coal from head of lakes ports westbound.

These reductions in the C.P.R. revenues, together with reductions in international rates, and those hereinafter provided, for will amount to more than \$11,000,000 a year, and, considering that the net revenue for that company for the first five months of 1922 shows a falling off of \$2,393,000, compared with the same months for 1921, the Board does not feel justified in going further in the direction of rate reductions. The C.P.R. figures are given above, as that company is taken as the standard in rate discussions. An examination, however, of Canadian National figures, while showing some improvements over 1921, shows a deficit in operating alone for the first four months of 1922 of \$6,945,000, the only bright spot in the whole situation being the G.T.R., which shows a gain of \$2,591,000 for the first five months of 1922, compared with the like period of 1921.

Maritime Provinces.—With regard to rates between Maritime Province points and stations west of Montreal, the earliest

record is from a tariff published by the G.T.R. in 1874, naming rates from territory west of Montreal to St. John, N.B., and Halifax, N.S., which applied only via Portland, Me., and steamship, and were exclusive of marine insurance. From Toronto, the rates in this tariff were in cents per 100 lb., S. being for summer and W. for winter:—

	To St. John	To Halifax
Class 1, S.	100	100
" 1, W.	106	110
" 2, S.	84	84
" 2, W.	89	93
" 3, S.	67	67
" 3, W.	71	74
" 4, S.	50	50
" 4, W.	51	55

These rates are simply given as a matter of historical information, and, of course, play no part in the question, as at that time the all-rail route via Rivière-du-Loup was not in existence. Following the opening of the all-rail route, the rates between Maritime Province points and territory west of Montreal were constructed by the addition to the Montreal rate of a scale of arbitraries. The earliest record is a tariff of 1891-1894, showing the following rates:—

	Classes	Arbitrary over Montreal
	1	5
Toronto to Montreal 50c	25c	
" " St. John 80c	40c	30c 15c
" " Halifax 86c	43c	36c 18c

The record is not clear between 1894 and 1900, because the organization of this Board was only completed in 1904, and all tariffs then in effect were filed by the railways in that year. However, from 1900 to 1916, the arbitraries over Montreal were:—

		Classes	
To		1	5
St. John		20c	10c
Halifax		22c	11c

These arbitraries were, of course, advanced along with all other rates, arbitraries, or proportionals, under the various subsequent rate changes, and the situation is shown in the following table of arbitraries over Montreal:—

	St. John	Halifax
	Classes	Classes
	1	5
1891-1894	30 15	36 18
1900-1916	20 10	22 11
Dec. 1, 1916	24 12	26 13
March 15, 1918	27½ 14	30 15
Aug. 12, 1918	34 17½	37½ 19
Sept. 13, 1920	47½ 24½	52½ 27
Jan. 1, 1921	45½ 23½	50½ 25½
Dec. 1, 1921	42½ 21½	47 23½

The Toronto-St. John rate provides the key to the entire situation, so far as relates to the freight rate structure between Maritime Province points and Ontario territory, as the rates to and from the other Ontario groups are related to the Toronto rate, as fixed by the Board in the International Rates Order, and at the other end St. John is the pivotal point, the other groups bearing a fixed relation thereto. This system of rate-making between the territories in question was in effect long before the Board's creation and has since been carefully considered, particularly in the Eastern Rates Case in 1916, more extended reference to which is contained in the judgment in that case; it is an integral part of the whole class rate structure in Eastern Canada and could not be changed without involving disturbance of the entire rate fabric in this territory. As the class rate structure in Eastern Canada is not being disturbed at this time no change should be made in these arbitraries.

With reference to rates between Eastern Canada and points west of Fort William, a different situation is found to exist. Instead of territorial groupings

in Ontario, as in the case of the rates between Ontario and the Maritime Provinces, the rates are blanketed to and from the whole territory, Montreal to Windsor and Sarnia, inclusive, Sudbury to Niagara Falls, all intermediate points and all lateral lines. The reason is apparent, the water lines operate from Montreal, calling at intermediate points to Sarnia, at a common rate to the head of the Great Lakes, while the westernmost points, such as Sarnia and Windsor, can reach St. Paul and thence Western Canadian points with a short mileage via Chicago. From and to points east of Montreal it has been the practice to add an arbitrary to the Montreal rate. Montreal, through its geographical situation at the head of ocean navigation and as the terminal of the western river and lake routes, is a natural breaking point. This group, with its blanket rate, takes in a large area—Montreal to Windsor, 555 miles; Montreal to Sudbury, 444 miles; Niagara Falls to Sudbury, 337 miles; Windsor to Sudbury, 480 miles. The distance from Montreal, the most easterly point, to Fort William, the head of lake navigation, and the rate breaking terminal between Eastern and Western Canada, is 997 miles. From Windsor, the most westerly point, the distance is 1,032 miles. While, of course, the blanket rate covering this territory is justified by the governing conditions outlined, points east of Montreal are put to an undue disadvantage in comparison, by the addition to the Montreal rate of a scale of arbitraries that does not indicate an equitable continuation of a long haul rate.

Take, for instance, St. John, N.B., to Toronto, 810 miles, split up St. John, N. B., to Montreal, 466 miles, and Montreal to Toronto (C.P.R.), 334 miles, rate St. John to Toronto, \$1.25½ first class, Montreal to Toronto, 83c, difference east of Montreal, 42½c per 100 lb. Rate Montreal to Winnipeg, 1,417 miles, \$2.67½, first class, rate St. John to Winnipeg, 1,885 miles, \$3.08½, difference east of Montreal, 41c. In other words, the difference over Montreal for the long haul to Winnipeg is practically the same for a haul of 1,885 miles as for 810 miles. This does not indicate the tapering of a through rate that a long haul justifies, and is due to the application of a system of rate arbitraries. The rate from Montreal to Winnipeg is made up on an arbitrary from Montreal to Fort William of \$1.39½, first class, plus the regular first class rate from Fort William to Winnipeg of \$1.28. The regular first class rate Montreal to Fort William is \$1.99½. This shows that effect has been given to the tapering process on a long haul, by the addition of a reduced rate arbitrary east of Fort William to the full rate beyond. This process should not stop at Montreal. The first class arbitrary Montreal to Fort William of \$1.39½ for 997 miles is represented on the Eastern Schedule A Mileage Scale by a distance 450 to 475 miles, \$1.40, first class, or, in other words, by a constructive mileage roughly equivalent to one-half the actual distance. The differences over Montreal should be blanketed by natural divisions, i.e., on group Montreal to Megantic, Que.; a second, Megantic to St. John, N.B., and the difference should not exceed those that would exist under Schedule A were the actual mileage east and south of Montreal treated in the same manner as that between Montreal and Fort William. Thus the Megantic group would be 12c per 100 lb., first class, and 6c fifth class, over the Montreal arbitrary of \$1.39½,

while St. John would be 24c, first class, and 12c, fifth class, and Halifax 28c, first class, and 14c, fifth class, and other Maritime groupings proportionately.

While this Board has no jurisdiction over the Intercolonial and Transcontinental Railways, yet, if this principle were adopted on those roads, then, as Quebec, a distance of 1,352 miles from Winnipeg via the Transcontinental Railway, takes the Montreal rate of \$2.67½, first class, Moncton would naturally take the same arbitrary (as it is today) over Quebec rates as St. John, N.B., takes over Montreal rates. The St. John gateway provides via C.P.R. the short mileage to Montreal; from Halifax and other points this route and gateway should be maintained to shippers (with the option of Ste. Rosalie), so that the advantage of the short constructive mileage of the C. P.R. will continue to function as a rate factor. These arbitraries over Montreal, first class, should be scaled down on the usual relation between classes 1 to 10, and where commodity rates are published will apply as maxima over Montreal at the class of the commodity so treated.

Sault Ste. Marie Board of Trade's Application.—Schedule A was established as a result of the International Rate Case. Application was made at the recent hearings, on behalf of the S. S. M. Board of Trade, asking that the north-western boundary of the territory in which Schedule A applied should be extended to include the C.P.R. Sault Ste. Marie branch to the city of Sault Ste. Marie. The Board of Trade representative stated that he understood that the limits were Parry Sound and North Bay. In the discussion which took place, it was understood that while North Bay had been provided for in the original order, the territory had been extended to cover Sudbury. It appears from checking the rates that an error crept in, and that Sudbury is not enjoying the full advantage of the Schedule A rates, which equalized certain conditions of water competition and U.S. rail competition. Sault Ste. Marie is a water competitive point. It appears from checking the rates that both Sudbury and S. S. Marie have to a modified extent been given the advantage of the Schedule A rates. What has been done has been to give the advantage of the Schedule A rates to North Bay. This is something available under the tariff. Then for the mileage beyond North Bay to Sudbury and to S. S. Marie there has been given an arbitrary rate for the additional mileage, which is less than the full Schedule A rates would be for the same mileage; that is to say, what is done is not to give Schedule A rates on the through mileage, but Schedule A rates on the mileage to North Bay, and less than Schedule A rates on the mileage beyond. As already stated, the reduction is arbitrary. The tariffs do not disclose any exact percentage reduction. On consideration of the evidence submitted by the applicant and in view of the fact that the Schedule A territory has been extended to cover S. S. Marie in the way above indicated, it would appear to be justifiable to make provision for Schedule A rates applying as requested, but basing this on the through mileage. A similar adjustment should be made to Sudbury. Such additional mileage on the Schedule A scale as is necessary to cover the extension should be provided for.

Mountain Rates—British Columbia.—The judgment in the Western Rate Case set out that initial construction and railway operation through the mountains

were much more expensive than operation on the prairies. It was stated that "some difference in rates at the present time are not only justifiable, but necessary." It is not contended, on behalf of British Columbia, that operation through the Mountains is not much more expensive. The judgment held that these higher costs could not be "smeared" over the system, so that B.C. would have the same rates as those applying to the Prairie Provinces. In the present application, various additional contentions were advanced. Emphasis was laid upon the implications alleged to arise from the steps culminating in Confederation. What is involved in this is somewhat analogous to what was involved in Attorney General for British Columbia vs. C.P.R., 346, in which it was held that under the terms of the contract with the Dominion Government for the construction of the C.P.R., dated Oct. 21, 1880, 44 Vict., chap. 1, schedule, the only party who could make any complaint as to their non-observance was the Dominion Government. Reference was also made to the alleged better climatic conditions existing in B.C. as affects operating; and there was also set out the conditions which it was contended should be considered as a result of the construction of the Canadian Northern Pacific Ry.

It does not appear necessary to develop the question as to what implications, if any, are to be deduced from the finding regarding the Canadian National, as set out in the Privy Council order following the appeal from the Board's decision in the Forty Per Cent. Case. It would appear that the opinion of the late Chief Commissioner Mabey, which was quoted with approval in the Western Rate Case, by the then Chief Commissioner, Sir Henry Drayton, is applicable here. That opinion says: "The question for us to decide is what rates are fair, irrespective of how much any company is worth or is not worth." In view of what is said herein as to the controlling effect of water and U.S. rail competition in the portion of Canada east of the Great Lakes, the rates there existing cannot be taken as the necessary proper measure of what the British Columbia rates should be.

Under the Western Rate Case, a basis of 1½ for 1 was adopted on the Pacific standard tariff. This, with the appropriate mileage grouping in the tariffs applicable, worked out on the average 30% over the prairie standard. From 80 to 85% of the B.C. traffic is carried on commodity rates. In so far as these commodity rates are based on percentages of the standard rates, the effects of the standard rate adjustments are carried down, although in much less degree. In the movement on commodity rates of B.C. staples, the effect of the mountain scale is in many cases not apparent. It is admitted by counsel for the Province of B.C. that the costs are still higher on the B.C. division than on the prairie divisions. He refers, however, to costs east of the Great Lakes as supporting his contentions. As set out herein, it does not appear that deductions from the experience of other sections, whose rates are dominated by water and U.S. railway competition, can be controlling here.

Following the reasoning of the Western Rate Case, a revision in the mountain scale, as provided for in the Pacific standard, is justifiable. On careful consideration, the reduction hereinafter provided for should be made; the Board does not

feel justified in going any further. The rates of the new Pacific standard mileage tariff are to be constructed by applying to the prairie standard tariff for distances up to and including 750 miles (the approximate maximum haul in B.C.), 1¼ miles for 1 mile, and to the rates so produced the 25-mile difference of the prairie standard scale to be added for each 25 miles over 750, so as to produce standard through rates for part mountain and part prairie hauls. The distributing rates from recognized mainland distributing centers in B.C., other than Vancouver and New Westminster, as well as the tariff between Vancouver and New Westminster and points east thereof, will be constructed from the new standard tariff, in the same manner as at present, as prescribed in general order 125, May 30, 1914, and order 31,648 of Oct. 11, 1921, respectively. All commodity mileage rates applying locally between stations in Pacific territory, also on interchange traffic between Pacific and prairie territory, to be reduced so as to preserve the same relationship to the new standard mileage scale as they now bear to the present scale, such rates, of course, to be the maxima with regard to special commodity rates specifically published. Rates on grain and grain products from prairie points to stations in B.C., for domestic consumption, where now based on prairie mileage scale, but using constructive mileage of 1½ miles for 1 mile for the mountain haul, to be reduced by figuring on 1¼ miles for 1 mile for the mountain haul.

Lumber Rates.—As the rates on lumber and forest products, including pulpwood, logs, poles, posts, etc., are to be reduced by 7½% as hereinbefore described, it will be unnecessary to further consider the Canadian Lumbermen's Association's application.

Excess Baggage.—By general order 308, passenger fares were increased by 20% up to and including Dec. 31, 1920, and by 10% from that date until July 1, 1921, when the passenger rates reverted to the standard of 3.45c a mile, and, by the same order, the rates on excess baggage were increased by 20%. As the rates on excess baggage are built upon a percentage of the passenger fares, it is only logical that, when the passenger fares are reduced, excess baggage should bear the same reduction, and, therefore, it is considered that the rates on excess baggage should go back to the basis prior to Sept. 13, 1920.

Equalization between the Prairie Provinces and Eastern Canada.—In the reference to the Board by the Governor in council, in the appeal in the Forty Per Cent. Case, the Board's attention was directed to the advisability of conducting an investigation to see to what extent existing disparities of rates between different rate sections could be redressed. The reference was not based on the idea that the disparities were wrong per se. Under the Railway Act, not all discriminations or preferences are forbidden. As was developed with a plentitude of example, in the Western Rates Case, what is forbidden under the discrimination sections are preferences which are undue, or discriminations which are unjust. The burden, therefore, was on the Board, in the investigations made, to ascertain whether under existing conditions the discriminations in rates existing were discriminations which fell under the inhibitions of the Railway Act. Counsel for Manitoba and Saskatchewan very frankly and fairly stated, "I have never

at any time said otherwise than that I did not think that of necessity the rate for the same distance for the same commodity should necessarily be the same east as west or west as east. In my opinion, the equal treatment of unequal things is just as bad as the unequal treatment of equal things. I have never advanced, either in argument before this Board, or before any other tribunal, or by evidence adduced, anything which would lend itself to the suggestion that I have advocated that any particular rate must of necessity be the same for any particular distance east as west. There are many other factors besides mere distance." Counsel continued that longer hauls were important in the west; shorter hauls in the east. Counsel in thus defining the issue emphasized that conditions peculiar to each of the rate areas compared must be given weight in determining whether the low rate existing for a given distance in one section is to be taken as the criterion of discrimination in another. In so presenting the matter, he was but following the position so clearly laid down by the late Chief Commissioner Killam in the Board's early decisions, viz.: that mere mileage comparisons do not afford criteria of discrimination, but that all facts material must be given weight. In other words, under the body of regulation which is developed under the Railway Act, mileage is not a rigid yardstick of discrimination; discrimination, in the sense in which it is forbidden by the Railway Act, is a matter of fact to be determined by the Board.

In the course of argument, counsel for Manitoba and Saskatchewan emphasized the position that under his view of existing conditions there should be a reduction in grain rates, and, thereafter, there should be reductions on basic commodities, i.e., cattle, lumber, coal and the instruments of production, such as agricultural implements. A further submission was made that articles in classes 5 to 10, not now covered by commodity rates, should be afforded a reduction. This practically means narrowing down to classes 5 and 7, as class 9, which is concerned with cattle, is unimportant from a rate standpoint, cattle moving on a commodity rate. Coal, lumber, and grain also move on commodity rates. As already pointed out, a reduction, under statute, has been made in the rates on grain and flour. Through the Board's instrumentality, a reduction on cattle was made. Lumber and coal are dealt with specifically in the present judgment.

Reference has been made to the greater earning power of western lines, it being contended there is greater earning power both gross and net. At the same time, the larger mileage in the west, specific reference being made to the C. P.R. mileage, may be noted. The fundamental matter, however, in the present application, so far as the position of Manitoba and Saskatchewan is concerned, is in terms of the reference to the Board by the Governor in council, to ascertain whether there is an unjustifiable discrimination existing as between the rates applicable in Manitoba and Saskatchewan and the rates applicable east of the Lakes. Alberta was not represented by counsel; but what may be found in regard to the justification or otherwise of the difference between rates in Manitoba and Saskatchewan as compared with the section east of the lakes will have application to the situation in Alberta as well. While it is set out, as above, that Alberta was not represented by counsel, it may be said that counsel for British

Columbia dealt with certain phases of the situation concerned in his application, as if the interests of Alberta and British Columbia were more or less identical. At the same time, it is not set out in the record by any submission from the Province of Alberta that counsel for British Columbia was representing Alberta.

In dealing with the situation as between Manitoba and Saskatchewan on the one hand, and the section east of the lakes on the other, the very fair and candid statement made by counsel for Manitoba and Saskatchewan, which was in substance that mileage is not the fundamental criterion of discrimination, must be given weight. It is necessary to look to the particular facts affecting the rate adjustments in the particular sections. The Western Rates Judgment, in dealing with the establishment of special class rates from Lake Superior and Pacific Coast termini, stated inter alia, that as to lake termini between Port Arthur, Fort William and Westfort, and points west thereof, there should apply to and from points east of Winnipeg, the prairie territory town tariff basis, subject to the rates to Winnipeg and St. Boniface as maximum; that to and from Winnipeg and St. Boniface the rates should be no greater than those of the prairie standard tariff for 290 miles; that to and from points beyond Winnipeg within prairie territory the maximum first class rates were to be those of the prairie standard tariff for the through mileage, made up of actual distance beyond Winnipeg, added to the above mentioned assumed mileage of 290 miles east of Winnipeg. The judgment in the Western Rates Case sets out how this constructive mileage of 290 miles east of Winnipeg on the movement from the lake termini was arrived at. The essence of the arrangement is that the mileage from the lake to Winnipeg being 424 miles, there is a concession of 134 miles on the movement concerned. This was built up on rate conditions which had developed in the west. There is not the same arrangement existing on a movement from the east to Fort William. Here, again, the particular facts of the section in which the rate adjustment is made must be considered, and it does not follow that the arrangement herein referred to would be a criterion of discrimination in connection with a complaint as to a different rate adjustment east of the lakes.

Having in mind the special conditions of the territory west of the lakes, a special rate adjustment has been made on the very important commodity of agricultural implements. In the shipment of these from points in Eastern Canada, i.e., Hamilton to Montreal, inclusive, the rate to western points is on the Chicago basis, that is, the rate from Chicago to said points applies. In view of the system whereby the rates east of Montreal are built up on differences over that point, the effect of this rate reduction is carried further east in so far as originating points shipping to the prairie provinces are concerned. This, again, is based upon special traffic conditions, and would not necessarily afford a criterion of unjust discrimination in respect of a different treatment in the east in regard to similar mileages concerned.

In the presentation of counsel for Manitoba and Saskatchewan, reference was made to the difference in classification basis. In the east, the 5th class rate is one-half of 1st. In the west, the 4th class rate is one-half of 1st. Reference was made to this as showing, inter alia, a considerable difference as affecting the

important 5th class; and since the distributing rates are built up by taking a percentage off, it was contended that this difference was carried down into the distributing rates. In general, the apparent conclusion counsel had in mind was that the Board should construct a basis of its own. As special reference was made to the 5th class, some comments in this connection are necessary. In Eastern Canada, the 5th class is 50% below the 1st; in Western Canada it is 55%. It may be remarked in passing that in Eastern Canada the 4th class is 37½% below the 1st class rate, while in Western Canada it is 50% below the 1st class rate. Putting it in another way, if the 5th class rate is taken, and scaling is made up to the 1st, then in Eastern Canada the 4th class rate is 25% above the 5th class rate, while in Western Canada it is 10% above the 5th class rate.

It was suggested by counsel that the Board should construct a standard of its own, taking the foundation of the western American classification. If the western scale were constructed with the relationship between the classes in conformity with the eastern scale, starting with the 1st class rating in the western scale, and scaling down the other classes under the eastern plan, this would result in a large increase in the rates for all classes below the 1st. If one-half of the 1st class in the west were taken and put in the position of one-half of the 1st class in the east, this would mean taking the present western 4th class, which is one-half of 1st, and putting it in the position of the eastern 5th class, which is one-half of 1st, and then scaling the other classes on the eastern plan, the result of this would be to produce the same result as the other method just mentioned.

The question of the standardization of the western rate scales is dealt with in the judgment of the western rates case, in sec. 19, under the heading "Standardization." Reference may be made to this as bearing on the history of the development. The citation set out in the judgment, in the report of the Board's Chief Traffic Officer, the late James Hardwell, emphasizes the advances which would take place if the western rate scale were standardized on the Eastern Canada basis. Bound up to the difference in classification basis is the difference in one of the fundamental rules of the classification, viz.: that concerned with the mixing privilege. As a result of a compromise arising out of the strong position taken by the western jobbers, the more liberal mixing rule of the east is not applicable west of Fort William, where it is limited by the trade list principle, and, in general, favor is shown, judging from resolutions filed with this Board by representative trade bodies in the Prairie Provinces, to limiting the mixing rule to articles normally moving in carload quantities. This, again, emphasizes a difference in traffic conditions as between the east and the west.

At a meeting held in Winnipeg on April 26, 1921, at which there were present representatives of the Boards of Trade of Brandon, Calgary, Edmonton, Lethbridge, Montreal, Moose Jaw, Regina, Toronto, Vancouver, and Winnipeg and the Saskatoon Chamber of Commerce, as well as representatives of the Canadian Manufacturers' Association, there was under discussion the question of a change from the trade list principle in the classification; and the following resolution was passed: "1. That in the best interests of both Eastern and Western Canada rule 2 and the trade lists of

the present classification should be continued and substituted for proposed rule 10 of Canadian Freight Classification 17. 2. That a classification committee representing western boards of trade or other business organizations and railways be named to consult with the present eastern classification committee in connection with the provisions of the new classification. 3. It was the opinion of the meeting that there should be no disturbance at the present time in the present class rate relationships now existing in Eastern and Western Canada, as a result of the finding of the Board of Railway Commissioners in the enquiries conducted in the Eastern and Western Rate Cases and orders issued in relation thereto, and subsequent orders." It may be noted that the Saskatoon Chamber of Commerce dissented from paragraph 3, and the Vancouver Board of Trade's representative stated he could not vote in favor of the resolution, but would submit it to his board.

It thus appears on the records before the Board, that in regard to classification arrangements there are differences of traffic interest between the Prairie Provinces and the territory east of the Great Lakes. It appears that commercial conditions in the west emphasize a preponderating movement of traffic in carlots, and, consequently, any standardization which would effect an increase on the distinctly carload classes would bring about a serious dislocation of business. Here, again, the situation is that differing conditions have brought about different practices and rules, and the rule or practice existing in one section and giving a different treatment is not a necessary measure of discrimination in another section. Counsel for Manitoba and Saskatchewan stated that there was a difference in average hauls east and west, and while stating that in various cases the shorter hauls were at much lower rates in the west than in the east, he contended that the important matter in the west was the long haul. It is a legitimate deduction from this to say that the level of the rate in the east being, according to counsel's submission, concerned with an average short haul, affords no necessary criterion of what the rate should be on longer haul traffic in the west. It was testified by the C.P.R. Co. that its rates on building materials in the prairies were lower than in Eastern Canada, there having been taken into consideration the necessities in connection with supplying shelter. The examples given are illustrative of the fact that differing commercial conditions have brought about differing traffic rates and arrangements, and simply attract attention to the position that it is not in the abstract rates, but in the concrete conditions, that the measure of determining whether the rate structure is discriminatory or otherwise must be found.

In the Western Rate Judgment, after a very careful analysis of the Board's rulings in the matter of discrimination and searching analysis of traffic conditions, the Board found that water competition, generally speaking, was effective in the east. It found that, in the main, the rate structure of Eastern Canada was justified on the basis of water and rail competition; and the following language was used: "For the reasons stated, I am of the opinion that while discrimination exists between the rates charged east and west of Port Arthur, the discrimination is justified under the Railway Act and the decisions of the Board already

referred to. It is neither undue nor unjust."

In the hearings before the Board in the present case, considerable attention was devoted to the matter of water competition in its bearing upon rates in Eastern Canada. Counsel for Manitoba and Saskatchewan was disposed to minimize the importance of this water competition. It is true that on account of tonnage readjustments arising out of the war, and the incidents thereof, there have been fluctuations in the waterborne tonnage, yet this does not detract from the fact that, from the ocean well into the middle of the continent, there is a water highway on which ships are free to go and come, not tied down to any particular route, and not involving the large fixed investments which are essential to railway transportation. It is also true that adjacent to this section of Canada are the U.S. rail lines which are equally subject to the effect of this waterborne traffic; and it does not appear that any vital change in this respect has taken place since the decision in the Western Rate Case. While, as a consequence, naturally to be expected, from difference of conditions, many prairie rates have a spread over the eastern rates, the course of the Board's decisions, including the present one, has been to narrow this spread wherever possible.

The matter has been put in a succinct way in the evidence before the special committee appointed to consider railway transportation costs. Counsel who appeared before the Board, for Manitoba and Saskatchewan, represented these Provinces, as well as Alberta, before the committee. In dealing with the different scales, he said: "First, there is the eastern scale, which, I will develop later, is held down by maximums created by water competition, potential and otherwise, and by U.S. rail competition." Again, in summarizing the provisions of the Railway Act in regard to discrimination, he said: "The railways, when we replied that we were discriminated against in respect of eastern rates, answered and the Board has held it to be a good answer. True, there is a disparity, a discrimination, and I propose to give you the four or five decisions in all the rate cases to that effect, that there is discrimination, a disparity against us, but the railways have satisfied the onus of showing that it is not unjust nor undue, because railway rates in the east are held down by water competition and U.S. rail competition, something they cannot control, and therefore that excuses discrimination." The Board holds that the differences in rates as between the Prairie Provinces and Eastern Canada as referred to do not constitute an unjust discrimination or undue preference.

Conclusions.—All steam railways in Canada under the Board's jurisdiction shall file tariffs, effective Aug. 1, 1922, providing for the following reductions, viz.:—

(a) On the articles, other than grain and flour, hereinbefore referred to as basic commodities, viz., forest products, building material, brick, cement, lime, and plaster, potatoes, fertilizers (other than chemicals), ores, pig iron, blooms, billets, wire rods, and scrap iron, a decrease of 7½% from the increase given by general order 308 and any other orders affecting the said commodities issued since that date, which will hereafter leave the increase granted by general order 308, in Western Canada, at 12½%, and, in Eastern Canada, at 17½%; the

term "forest products" as set out in such list to be defined as follows: In the territory east of Port Arthur, Ont., in accordance with the list of commodities shown in C.P.R. Tariff C.R.C. no. E-3,818, as taking rate basis A; in the tariffs from British Columbia to prairie points on the commodities taking group A and group B rates, as shown in C.P.R. Tariff C.R.C. no. W-2,573; and from stations in Alberta and British Columbia to stations in Eastern Canada, in accordance with Canadian Freight Association Tariff C.R.C. no. 30; also on pulpwood west of Port Arthur, Ont. In cases where reductions heretofore granted or ordered upon these commodities have not amounted to 7½%, as above described, they shall be reduced to that point, and, where they exceed 7½%, they will remain as at present. These reductions are made upon the same basis in both Eastern and Western Canada, with the object of preserving the same spread between these territories as was provided by general order 308.

(b) On coal, other than anthracite and coal from the head of the lakes westward, all increases provided for by general order 308 to be rescinded.

(c) On commodities moving under class and commodity rates between points east of Montreal and points west of Port Arthur and Fort William, the establishment of arbitraries as provided for herein.

(d) On the territory between North Bay and Sault Ste. Marie, Schedule A rates to be applied.

(e) Mountain rates to be reduced to the basis provided for herein; and

(f) The increase in excess baggage rates, as provided for in general order 308, to be eliminated.

With the above exceptions, all tariffs now in effect, either under the provisions of general order 308, as amended by general order 350, or as the result of voluntary action by the carriers, shall remain in force.

The Board passed general order 366, June 30, requiring all railway companies operating steam railways, and subject to its jurisdiction, to forthwith file tariffs giving effect to the rates prescribed and authorized by the judgment given above, which was made part of the order; the rates to be effective Aug. 1, 1922.

The St. John, N.B., nail industry, and the Western Ontario beet root industry are reported to have applied to the Board to have their commodities put on the list of basic commodities on which reductions were granted by the order passed recently and given above.

Control of U.S. Railways.—W. Jett Lauck, on behalf of railway labor unions, stated recently before the U.S. Senate committee on interstate commerce that a group of New York bankers and financiers dominate the U.S. railways. The statement was directly denied by R. S. Lovett, Chairman of the Board, Union Pacific Rd.

Thefts by Railway Police.—Five members of the New York Central Rd's police department were convicted at Buffalo, N.Y., recently for stealing from freight cars. The judge said:—"I believe the New York Central Rd. would suffer fewer losses if it would discharge its entire police department."

The South Eastern and Chatham Ry. of England has applied for governmental authority to electrify its lines in inner suburban areas, the electrification to cover 94 miles of route.

Railway Wages and Working Conditions in Canada and the United States.

Shopmen.—As was pointed out in Canadian Railway and Marine World for July, pg. 361, the Railway Association of Canada notified the railway shop employees, members of American Federation of Labor Railway Employees' Department, Division no. 4, as follows: "In accordance with memorandum of agreement dated Jan. 13, 1922, notice is given of the Association's desire to revise the existing rates of pay of employees covered by wage agreement no. 4, by making the following reductions, effective 30 days from date: Machinists, boilermakers, blacksmiths, sheet metal workers, electrical workers (including linemen, groundmen, electric transfer table operators, coal pier elevator operators, and coal pier electric hoist operators), carmen (except freight carmen), moulders, including those with less than 4 years experience, all crafts, decrease of 7c an hour; freight carmen, decrease of 9c; regular and helper apprentices and helpers, all classes, decrease of 7c; car cleaners, decrease of 5c. Kindly advise as early as possible upon what date your committee will be prepared to meet the Association's wage sub-committee at Montreal, to discuss the foregoing."

The shopmen's representatives began negotiations with the Railway Association's wage sub-committee in Montreal on July 5. The C.P.R. was represented on the wage sub-committee by Geo. Hodge, Asst. Gen. Mgr., Eastern Lines, and R. A. Pyne, Sup't of Motive Power, Western Lines; the Canadian National Rys. by C. E. Brooks, Mechanical Assistant, Locomotive Department, to Vice President, Operation and Maintenance; and the G.T.R. by C. F. Needham, Assistant to General Superintendent, Motive Power and Car Dep't, and E. R. Battley, Superintendent of Motive Power, Eastern Lines. The shopmen were represented by R. J. Tallon, President, Division 4; Chas. Dickie, General Secretary; F. McKenna, Canadian Vice-President, Brotherhood of Railway Carmen; M. Rogers, Moncton, N.B., representing the machinists; J. Corbett, London, representing carmen; F. Harrison, Montreal, representing blacksmiths. At the start, the Railway Association's wage sub-committee proposed that the reduced rates of pay specified should be adopted without prejudice, pending further consideration, and subject to further negotiation on 30 days notice from either party to the other. This proposition was not acceptable to the employees' representatives. Negotiations continued between the two bodies till July 10, on which date the wage sub-committee submitted another proposition to the employees' representatives, substantially as follows: With every desire to make it possible to mutually agree with respect to the application of the decreases which the railways find it necessary to put into effect, pursuant to their notice, it is further proposed that the revision of rates of pay should be made effective on the basis mentioned, and that promptly upon notice from one party to the other, the representatives of both will confer further; and also that, except as may be otherwise mutually agreed, any rates of pay finally agreed upon will be effective as from July 16, 1922, and that adjustments will be made accordingly. Such an arrangement as that now proposed would have the effect of fully protecting the interests of both the employees and the railways pending the opportunity for further consideration of the railways'

proposals, and it is hoped that upon further reflection your committee will recognize its fairness to all interests affected, and decide to enter into an agreement which would have the effect of preserving the present relationships.

This proposition was also unacceptable to the employees, and in reply it was stated that nothing would be acceptable but a declaration from the Railway Association that the wage decreases would be postponed. If such postponement could not be made, the shopmen told the Association's wage sub-committee, on July 11, a board of conciliation would be applied for. On receiving this answer, the sub-committee, on July 12, told the shopmen that it had no authority to go beyond the proposal made, and would therefore submit the facts to the Association's operating committee. Upon being informed of developments, the operating committee, on July 13, addressed a communication to the shopmen's representatives in which it was pointed out that the last proposition submitted by the wage sub-committee would merely have the effect of withholding, under the terms stated, payments of the sums caused by the difference in the old and new rates of pay, pending negotiations which would probably make it possible for the shopmen's and railways' representatives to reach a mutually satisfactory agreement. It was also stated that the operating committee was advising the railways affected of the situation, in order that each of them would be in a position to make effective the changes in rates of pay, in accordance with the notice of June 14, and the proposal of July 10. Negotiations between the shopmen's representatives and the Association's wage sub-committee terminated on July 13.

While the negotiations were in progress, on July 8, a deputation representing the shopmen waited on Minister of Labor Murdock, in Ottawa, and informed him of the railways' intention in connection with wage reductions, and also discussed the possibility of securing a board of arbitration under the Industrial Disputes Investigation Act. On July 14 the shopmen asked for a board of arbitration. Coincident with the application to the Labor Department, a protest was issued against the action which the railways proposed to take. The shopmen contended that if the reduced rates of pay were put into effect on July 16, the railways would be violating the Industrial Disputes Investigation Act, clause 57, which states that no wage change shall be made till a dispute has been dealt with by a board. The railways, in answer to this, claimed that their action in enforcing the cut would amount only to a temporary withholding of a portion of employees' wages subject to further negotiation, that is, if further negotiation should show the cut to be unjustified, the employees could collect their back pay. The railways further pointed out that if the employees were paid at the old rates, and arbitration proved the cut justified, it would be difficult, if not impossible, to recover the amounts paid out.

On July 14, the railways posted notices of the intended cuts in all shops. The notices contained a repetition of the notice given the shopmen's committee on June 14, and a review of the negotiations which terminated on July 13. In addition, each notice said: "This company is in receipt of advice that the proposition submitted through the Railway Association of Canada on its behalf has not been

accepted by the employees' representatives. The railway is in fairness entitled to protect the effective date of any revision of rates of pay downward to be agreed upon or determined in the same way as employees have repeatedly been protected as to the effective date of revisions upward. Therefore, the company cannot consistently delay the application, on the basis stated, of the specified reductions in rates of pay, and they will be put into effect on the pay rolls commencing with the second half of July, with the understanding that adjustments as may be necessary will later be made as from July 16, in accordance with the proposals of the Associations' sub-committee as contained in their letter of July 10."

On July 15 the shopmen notified the Labor Department that their representative on the board of conciliation, if granted, would be Fred Bancroft, Oakville, Ont. On the same date a deputation from the shopmen's committee interviewed Minister of Labor Murdock at Ottawa, and a letter was sent to the Railway Association by the Deputy Minister of Labor, informing it that the shopmen had asked for a board, and requesting the Association to appoint a representative on it. On July 19, the Railway Association replied that, as had been previously pointed out, the Association does not represent member lines individually, or collectively, for the purposes of the Industrial Disputes Investigation Act, is not an employer within the meaning of the act, and could not be a party to proceedings under it. The railways indicated in the Association's reply, however, that they would be willing, in this instance, to join in the selection of an arbitrator to hear the dispute if they were served with individual notices to the effect that a board was desired. On receipt of this reply, the Deputy Minister wired the individual railways requesting them to join in the selection of an arbitrator, and we are informed at the time of writing, July 22, that the railways will likely do this. The withholding of a portion of the shopmen's pay will be commenced with the distribution of pay for the period beginning July 16.

On July 17 a meeting attended by C.P.R. shopmen was held in Toronto, at which the railways' action in enforcing the wage cut was spoken of as illegal. Strike ballots were distributed among shopmen on all Canadian lines, all ballots returnable to Division 4's executive committee by July 22. A meeting of the executive was called for July 24 in Montreal. At the time of writing (July 22) no clear expression of opinion as to what the employees are going to do about the railways withholding a part of their wages pending a determination of the dispute is obtainable.

On July 19, R. J. Tallon, President of Division 4, shopmen, and F. McKenna, Vice President, Division 4, and Vice President in Canada of the carmen's organization, waited on Premier King at Ottawa, and appealed to him against the railways' action in withholding pay pending the result of the arbitration proceedings asked for, claiming that the railways' action had aroused great hostility among the men.

Grand Trunk Ry. U. S. Lines.—When the shopmen's strike became effective in the U.S. on July 1, the shopmen in G.T.R. shops at Port Huron, Mich., and Battle Creek, struck. About 700 left their

work at Port Huron. They were paid off on July 15, and before receiving their pay were required to turn in passes and all company property. The shops are operating with reduced forces. At Battle Creek, Circuit Judge North granted the company an order restraining picketing of shops by strikers.

Michigan Central and Pere Marquette.—When the shopmen struck in the U.S., the men in Pere Marquette and Michigan Central shops at St. Thomas, Ont., decided, at a meeting at St. Thomas, to join the strike, 1,500 men being affected. It is stated that the railways had posted notices in their shops to the effect that wage reductions would be effective on the Canadian divisions as on the U.S. lines. Largely through the instrumentality of the Canadian Labor Department, the employees were shown that under the Canadian law it would be illegal for them to strike until their dispute with the companies had been heard by a board of arbitration, and on July 2, at a second meeting, it was decided not to strike, but to demand that the railways postpone the wage reduction, and to ask for a board of arbitration. Application for a board was made by the M.C.R. shopmen on July 5, and by the Pere Marquette shopmen shortly after. The employees on both roads naming W. D. Robbins, Secretary, Street Railway Employees' Union, Toronto, as their representative. On July 10, the Michigan Central, through its General Manager, H. Shearer, nominated H. T. Malcomson, Superintendent, Toronto, Hamilton & Buffalo Ry., as its arbitrator. The Labor Department recommended that the dispute as between both companies and their shop employees be heard by one board, to which the employees agreed. On July 11, Messrs. Malcomson and Robbins met to select a chairman, but were unable to agree, so on July 14 the Minister of Labor appointed J. M. McAvoy, K.C., as chairman. An Ottawa press dispatch of July 14 stated that the Minister of Labor had been assured by Mr. Shearer that the Michigan Central would not place the wage reductions in effect on Canadian lines pending the result of the board's investigation. The M.C.R. board will sit at St. Thomas, and it is expected that it will start very soon. A St. Thomas press report states that the Pere Marquette Rd. has agreed to postpone the decreases, and that a board of conciliation has been formed, consisting of A. Leslie, Kingsville, Ont., representing the company; W. D. Robbins, Toronto, representing the employees, and W. T. R. Preston, of Port Hope, Ont., chairman.

New York Central Rd., Ottawa Division.—Consequent on the shopmen's strike in the U.S. on July 1, the shop employees on the New York Central Rd. line running into Ottawa found themselves in a position similar to that occupied by the Michigan Central and Pere Marquette Canadian Division shopmen. They asked for an arbitration board under the Industrial Disputes Investigation Act, which was granted by the Labor Department. The employees named J. Y. Foster, of Montreal, as their representative, and the New York Central named M. Goodrich as its representative. A meeting between the railway's and the men's representatives was in prospect at the time of writing (July 22), to appoint a chairman, and it is expected that the arbitration proceedings will start without delay.

Maintenance of Way Men.—The following notice was given maintenance of way employees by the Railway Association of Canada, on June 10:—

"Pursuant to wage agreement made

between the Railway Association of Canada and the Brotherhood of Maintenance of Way Employees and Railway Shop Laborers representing respectively the railways specified in the agreement and the specified classes of employees, the required 30 days' notice for a revision of agreement was issued by the Association to the employees' representatives on June 10, 1922, as follows: 'In accordance with memorandum of agreement dated Nov. 26, 1921, notice is given of the Association's desire to revise the rates of pay of employees in the maintenance of way and bridge and building departments covered by Wage Agreement 5, by making the following reductions effective 30 days from date:

"Foremen of extra gangs, assistant foremen of extra gangs, bridge and building foremen, painter foremen, mason, concrete, bricklayer and plasterer foremen, pile driver, ditching and hoist engineers, decrease of 40c a day.

"Foremen of signal and interlocking construction gangs, decrease of 40c a day.

"Section foremen and assistant section foremen, snow plow and flanger foremen, decrease of 24c a day.

"Pumpmen, decrease of \$10.20 a month.

"Signalmen at interlocked crossings, decrease of \$10.20 a month.

"Carpenters, bridgemen or rough carpenters, painters, plumbers, pipe fitters, tinsmiths, blacksmiths, pump repairers, masons, bricklayers and plasterers, decrease of 4c an hour.

"Bridge and building laborers (west of Port Arthur and Superior Jct., decrease of 5c an hour.

"Track and bridge watchmen, signalmen or watchmen at highway or railway (non-interlocked) crossings, signalmen at highway or railway (half-interlocked) crossings, bridge tenders, decrease of 5c an hour.

"Signal and interlocking maintainers and repairmen, decrease of 4c an hour.

"Helpers to all classes of mechanics, decrease of 1c an hour.

"Sectionmen, decrease of 5c an hour.

"Shop laborers, unclassified (common) laborers, decrease of 5c an hour.

"Classified laborers, including employees used in lighting up locomotives, assisting at turntables, cleaning locomotives, putting supplies on locomotives, and assisting hostlers, decrease of 5c an hour.

"Ashpitmen, decrease of 5c an hour.

"The amount of \$125.60 mentioned in clause (b) of article 22, Supplement A, will be reduced by \$10.20. Rates of pay as specified in clauses (c), (d) and (g) of article 22, supplement A for certain classes under the conditions named will be reduced by the same amounts as provided herein for their respective classes. Rates of pay for electricians as specified in clause (n), article 22, supplement A, will be reduced by 4c an hour. Minimum rate of pay for bridge tenders (mechanical operation) as specified in clause (o), article 22, supplement A, will be reduced by 5c an hour.

"Kindly advise as early as possible upon what date your committee will be prepared to meet the Association's wage sub-committee at Montreal to discuss the foregoing."

Negotiations between a wage sub-committee of the Railway Association of Canada and the employees' representatives began in Montreal on July 7, and the sub-committee made a proposition similar to that made to the shopmen. This was not acceptable to the employees' representatives, who suggested that the

proposed wage cut be suspended for three months, pending further negotiations. On July 12 the railway wage sub-committee proposed that the wage cuts be put into force on July 16 and that if further negotiations proved them unjustified, the employees would be paid the wages thus held back. This also proved unacceptable to the employees, who claimed that the cuts should not go into effect as ordered. Thereupon the wage sub-committee informed the Association's operating committee of the failure to come to an agreement, the negotiations came to an end on July 13. Notices worded similarly to those notifying the shopmen of the reductions to be made were posted by all railways on July 14, notifying the maintenance of way men that the wage cuts would go into effect on July 16. On July 15, A. McAndrew, Chairman, International Brotherhood of Maintenance of Way Employees and Railway Shop Laborers, central committee for Canada, and W. Aspinall, Secretary, applied for a board of arbitration, naming David Campbell, of Regina, as their representative. It was learned subsequently that Mr. Campbell would be unable to serve, and the employees, on July 18, announced that J. G. O'Donoghue, Toronto, would replace him. The Railway Association was informed of the step, and asked to name a representative for the railways, but stated in reply to the Labor Department that it had no authority to do so. At the time of writing (July 22) it is expected that the Labor Department will ask the railways to get together and appoint a man.

Clerks, Freight Handlers, etc.—On June 22, clerks, freight handlers, stationary employees, etc., employed on the Canadian National Rys. and G.T.R. were notified of wage reduction, to take effect 30 days from that date, as follows: Chief clerks, foremen, sub-foremen, and other employees filling similar positions, decrease 3c an hour, or \$6.12 a month; clerks (including checkers), crew supervisors, assistant station masters, train announcers, gatemen, baggage and parcel room employees, 3c an hour, or \$6.12 a month; station, platform, warehouse, transfer, dock, pier, store-room, and team track freight handlers, or truckers, and others similarly employed, 4c an hour, or \$8.16 a month (present differential for stowers, loaders and sealers to be maintained); janitors, elevator operators, station attendants, station porters and other employees similarly occupied, also station and warehouse watchmen, employees engaged in sorting waybills and tickets, operating appliances or machines for perforating, addressing envelopes, numbering claims and other papers, gathering and distributing mail, adjusting dictaphone cylinders, and similar work, 4c an hour, or \$8.16 a month; stationary engineers, firemen and oilers, 2c an hour; laborers employed in and around shops, and locomotive houses, such as cleaners, fire-builders, ashpit men, flue borsers, coal passers and engine watchmen, 5c an hour. Common laborers in and around shops and roundhouses, 5c an hour; common laborers in and around stations, storehouses, warehouses and baggage rooms, 4c an hour.

On July 7 the railways received a letter from C. E. Cole, General Chairman, C.B.R.E., to the effect that the employees were unanimous in rejecting any further reductions. On July 18, at Toronto, the Canadian National Rys. Committee, on which were A. E. Crilly, Assistant to General Manager, Eastern Lines, G. E. Smart, Mechanical Assistant, Car Department, to Vice President, Maintenance

and Operation, and W. N. Rippey, Superintendent of Transportation, Maritime District, met the C.B.R.E. committee, on which were C. E. Cole, General Chairman, Moncton, N.B., C. H. Minchin, Calgary, Alta., R. Dykes, Winnipeg, P. A. Larkin, Toronto, and W. A. Hardacre, Edson, Alta. The C.N.R. committee proposed to the men's committee that the wage reductions be put in force as per notice given, and that if, after further negotiations, it was found the decreases were unjustified, the employees would get the back pay lost. This proposition was not acceptable to the men, and the negotiations came to an end. The C.N.R. then posted a notice reviewing the negotiations and stating that the new rates of pay would be started on July 22, with the provision that if these were found too low by further negotiation the men would be refunded the difference. It is thought likely at the time of writing (July 22) that the employees will apply for a board of arbitration, as President Mosher of the C.B.R.E. had a conference with the Minister of Labor on July 18, at which, it is stated, that was discussed.

On July 17 negotiations were begun between a C.B.R.E. delegation, headed by J. McGuire, General Chairman for G.T.R. lines employees, and G.T.R. officials. The procedure and results were about the same as in the case of the C.N.R. employees. Clerks, freight handlers and similarly engaged employees on the C.P.R. and other Canadian roads have also been notified that wage reductions are to take effect with the cheques covering the last half of July.

Telegraphers.—The Canadian National Rys. management has been holding conferences with telegraphers in the railways' employ, in regard to a revision of working rules, but to July 22 nothing definite has been arrived at. The C.P.R. had been negotiating with its telegraphers re rules and working conditions, but following a failure to reach an agreement, an application was made to the Minister of Labor by the C.P.R. telegraphers on July 6 for a board of arbitration, David Campbell, of Regina, being nominated by the employees. The application was granted and the C.P.R. nominated U. E. Gullen, General Manager, Toronto Terminal Ry., as its representative. We were informed by the Labor Department on July 17 that in the absence of a joint recommendation by Messrs. Campbell and Gullen, the Minister had appointed D'Arcy Scott, of Ottawa, as chairman of the Board. There is some talk, at the time of writing (July 22) of this board not functioning, on account of the C.P.R. and the employees again getting together to re-open negotiations, but definite information as to this is lacking.

General.—We have received reports of cases 124, 125 and 126 decided by Canadian Railway Board of Adjustment no. 1. The first involved a dispute between the C.P.R. and the Brotherhood of Railroad Trainmen in connection with men claiming run-arounds under conditions specified. The employees' contention was sustained. Case 125 involved a dispute between the C.P.R. Western Lines and the Brotherhood of Railroad Trainmen, in connection with the dismissal of an employee for violating rule G. The employees' claim was denied. Case 126 involved a dispute between the Kettle Valley Ry. and the B. of L.E., B. of L. F. & E., and the B. of R. T., in connection with discipline given train crews for delaying a train. The decision was: "The Board is of the opinion that the serious delay resulting to the train in question was caused through certain members of the

crew failing to exercise a proper degree of interest in getting it over the road, and therefore decides that the employees' claim is not sustained. However, it appears to the Board that the discipline as applied, at least in some of the cases, is excessive, and should be modified." The decisions were signed by Geo. Hodge, Chairman, and Ash Kennedy, Vice Chairman.

At the time of writing (July 22) no labor trouble has developed on Canadian railways, and prospects that all disputes will be amicably settled, on a basis approximating that on which the disputes in the U.S. are finally settled, are good.

The United States Situation.

The hearing before the U.S. Railroad Labor Board, and the Board's decisions re wages for different classes of labor, were detailed in Canadian Railway and Marine World for July. The Board's wage reduction order affecting shopmen was one of the primary causes of the strike now raging on U.S. roads; the other causes being the loss of advantageous working conditions by shopmen, and the contracting of repairs by the railways. Before the strike began on July 1, B. M. Jewell, President, American Federation of Labor Railway Employees' Department, telegraphed T. De Witt Cuyler, Chairman, Association of Railway Executives, stating that unless the roads agreed to maintain wages at the level at which they were before the Board's order, restore the working rules to the loss of which the shopmen objected, and do away with the contracting of repairs, the shopmen would strike. The telegram tried to place the blame for a possible strike on the railway executive. Mr. Cuyler telegraphed in reply, indicating that a strike could be started if it were though advisable to do so, and said in part as follows: "You demand now that we accept your decision and reject that of the Board. You are clothed with none of the power or authority of organized government. The Board is a creature of the U.S. statutes, is a part of the Government to whom all good citizens hold loyalty and allegiance, and in what it has done in the matter of which you now complain, has been performing a function expressly delegated to it by Congress. To submit now to your demands and to reject the decision of the Board would be to recognize your power as greater than that of the Government."

On June 29 the Labor Board issued orders for an enquiry, ordering the heads of the organizations which seemed likely to strike, and the executives of class 1 roads, to appear before it. Mr. Jewell did not obey the summons to the meeting, but sent a letter reading in part: "If it is the Board's intention to direct the employees of the railroads to remain at work under non-acceptable wages and working conditions, such order is void, both because it is not within the Board's powers and because it is a violation of the U.S. constitution."

At the Board's meeting, several railway executives expressed themselves as willing to stop the contracting of equipment repairs, after receiving advice from the Board's members that this would be a desirable procedure. The Board members made it plain that they considered they had made no mistake in ordering the wages they had, and that they had no intention of changing the rates for shopmen as set forth in their decision. E. F. Grable, President of the United Brotherhood of Maintenance of Way Employees and Railway Shop Laborers, attended the meeting, and was questioned as to the strike threats made by his

organization. He said that he and other executives of his organization had been subjected to a lot of criticism on account of the wage reductions, and that pressure was being brought to bear on him by many of his general chairmen to call a strike. Chairman Hooper, of the Board, told him that the Board was trying to do what was fair by the maintenance men, and that it was always ready to hear any complaints his organization had to make.

Because Mr. Jewell did not attend the meeting as ordered, Chairman Hooper said: "So far as Mr. Jewell is concerned, let his blood be on his own head. Mr. Jewell has flouted a Government tribunal, charged with the duty and responsibility to investigate this matter, not only in the interests of the public, but in the interests of his own organizations, and the interests of the carriers, the railway transportation systems of this country. He has shouldered the responsibility of his own volition, and the Board desires to pursue the matter no further."

The shopmen's strike was ordered effective by the following telegraphic order: "In compliance with the strike vote, all shop craft employees below the rank of general foreman are hereby granted sanction to suspend work, July 1, at 10 a.m., on all railroads and Pullman shops in the U.S." The great majority of the shopmen employed on U.S. lines struck.

On July 3, the Labor Board passed a resolution calling for the formation of new labor organizations among shop employees, and for the protection of employees remaining on duty or hired to take the strikers' places.

On July 4, after Board members had conferred at length with Mr. Grable, the threatened maintenance of way employees' strike was called off.

On July 11, D. W. Helt, President, Brotherhood of Railway Signalmen of America, after conferences with Labor Board members, declared he would withhold the strike order for members of his organization, and advise them to continue work under the wages ordered, under protest, pending efforts to obtain a satisfactory adjustment, on condition that any revision in wages obtained would be retroactive to July 1. E. H. Fitzgerald, President, United Brotherhood of Railway & Steamship Clerks, Freight Handlers, Express and Station Employees, refused to confer with the Board's members, when requested to do so, and issued orders to his general chairmen that wherever the constitutional majority of the employees on any road voted for a strike on account of the wage reductions ordered, he would sanction such a strike. On several roads such individual strikes have taken place.

The stationary engineers, firemen and oilers employed on U.S. roads were called out on strike on July 17 by Timothy Healy, President of their organization.

During the progress of the strike, up to July 12, Chairman Hooper, of the Labor Board, had instituted conferences, first with the labor leaders and then with the railway executives, but on July 12 these came to nothing, when the railway executives refused to meet the labor leaders. The executives said: "The issue raised is not one for the consideration of the carriers and the representatives of the organized crafts on strike, except through further orderly procedure through the U.S. Labor Board."

After the shopmen walked out, the roads began to operate their shops with newly hired men, and considerable violence and disorder resulted. Federal interference was negligible during the

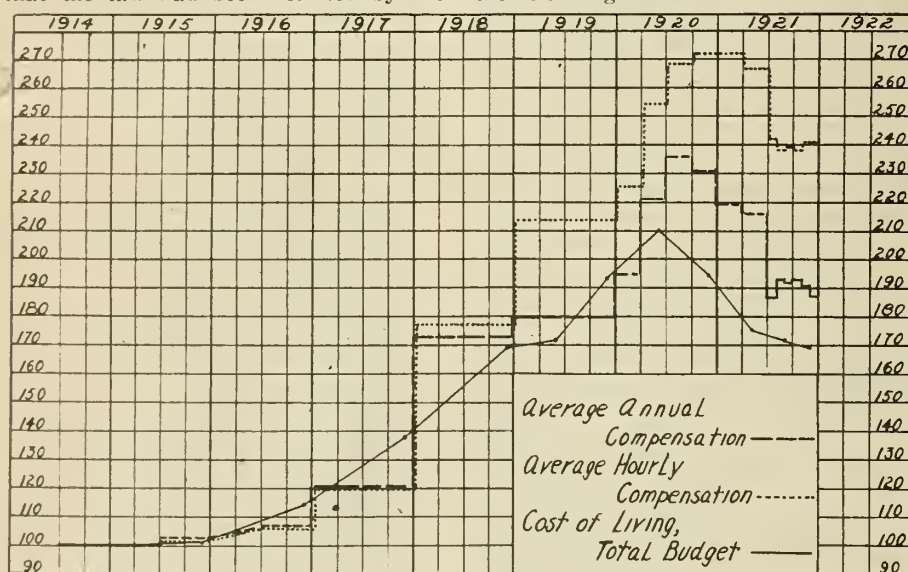
first two weeks, but on July 11, President Harding issued a proclamation, reading in part as follows: "Whereas, the maintained operation of the railways in interstate commerce and the transportation of the U.S. mails have necessitated the employment of men who choose to accept employment under the terms of the Labor Board's decision, and who have the same indisputable right to work that others have to decline to work, and, whereas the peaceful settlement of controversies in accordance with law and due respect for the established agencies of such settlement are essential to the security and well being of our people, I hereby direct all persons to refrain from all interference with the lawful efforts to maintain interstate transportation and the carrying of the U.S. mails."

On July 13, B. M. Jewell and the presidents of the six shop crafts organizations telegraphed Mr. Harding in answer to his proclamation, alleging that the wages fixed by the Labor Board were in violation of the Transportation Act, and that the law had been violated by the

1914. Carmen, whose rate was reduced 9c from the former 72c rate, will have real earnings under the new decision 61% higher than in 1914, based on their average hourly earnings, and 33% based on their average weekly earnings. The difference is due to shorter hours now worked. Their average hourly wage of 64.1c under the new ruling is 150% greater than their average hourly wage of 25.6c in 1914. Clerical forces, under the Board's latest ruling, will have net purchasing power 13% greater than in 1914. The real earnings of unskilled labor, based on the average hourly earnings after the latest wage reduction, show an increase of 40% and real earnings based on average weekly earnings show an increase of 19%.

C.N.R. and G.T.R. Directors' Resignations.

Following a meeting of Canadian National Rys. directors in Toronto, July 20, the following statement was issued from



Railway Employees' Wage Trend, 1914-1921.

railways.

At the time of writing (July 22) the strike in the U.S. is still in progress, and all efforts to settle it have brought no result. Shops on most roads are operating with new men, under armed protection. Injunctions have been granted by Federal courts to many railways to restrain the strikers from interfering in any way with the conduct of transportation.

The accompanying chart was prepared by the U.S. Bureau of Railway Economics, Washington, D.C., and shows the relation between railway wages and the cost of living in the U.S. from 1914 to the end of 1921. The average annual compensation of \$810.52 for 1915, the average hourly compensation of 26.1c in 1915, and the index number of the cost of living as prepared by the U.S. Bureau of Labor statistics were taken as equal to 100, and the lines plotted in accordance with the increases to 1920 and the decline since then.

As regards developments in 1922, including the Labor Board's latest decisions, a study made by the National Industrial Conference Board, New York, shows the following: Taking into consideration both wage changes and cost of living changes, skilled mechanics who had their wages reduced from 77 to 70c an hour by the Board's order, still have a purchasing power 10% greater than in

the head office: "At a meeting of the board of directors of the Canadian National Rys., held today, the members of that board tendered their resignations to the Government. These resignations are preliminary to the appointment of the single board of directors which will succeed the separate boards of the Canadian National Rys. and the Grand Trunk Ry. This will afford the Government a free hand in the selection of the new directors. Such selection may not be completed immediately, but in the meantime the interests of the Government Railways will not suffer, as the present directors will continue to act until their resignations have been formally accepted."

The directors present at the meeting were: D. B. Hanna, President; A. J. Mitchell, Vice President; Major G. A. Bell, C.M.G., Deputy Minister of Railways & Canals; Sir Hormidas Laporte, Montreal; R. T. Riley, Winnipeg; and E. R. Wood, Toronto. The directors' action was taken in consequence of an intimation from the Minister of Railways & Canals to President Hanna, who conveyed it to his colleagues on the board. The other directors than those mentioned above, viz.: Robt. Hobson, of Hamilton, who was in Europe, and A. P. Barnhill, of St. John, N.B., were communicated with by the President by telegraph, and tendered their resignations in that way.

While the board is spoken of as the

Canadian National Rys. directors, they are really Canadian Northern Ry. Co. directors, having been appointed in Sept., 1918, when that company passed under the Government's control. Later on their jurisdiction was extended over the Canadian Government railways, including the Intercolonial, the Prince Edward Island and local railways which had been acquired in the Maritime Provinces, and also the National Transcontinental Ry. between Moncton and Winnipeg. F. P. Jones, of Montreal, and C. M. Hamilton, of Weyburn, Sask., who were original members of the board, resigned in 1919.

When the Grand Trunk Ry. passed under the Dominion Government's control in May, 1921, the Government appointed its directors as follows: Sir Joseph Flavelle, Chairman; H. G. Kelley, President; J. N. Dupuis, Montreal; A. J. Mitchell, Vice President, Canadian National Rys.; and E. L. Newcombe, K.C., Deputy Minister of Justice, Ottawa. It was then expected that they would only retain office for a few weeks or months at the outside, until the G.T.R. would be merged with other lines owned by the Government. When the King Government was formed, Sir Joseph Flavelle tendered his resignation, and he is said to have pressed for its acceptance on several occasions. A similar intimation to that given Mr. Hanna was given Mr. Kelley recently, and as a result he and Messrs. Dupuis and Mitchell tendered their resignations a day or two after the Canadian National Rys. directors resigned. Mr. Newcombe has been in England in connection with the G.T.R. arbitration appeal, but will doubtless resign on his return, if he has not already done so.

It is expected that a new board of directors to manage the Canadian National Rys., into which the G.T.R. will be merged, will be appointed at an early date. No inkling even of its composition is obtainable at the time of writing (July 24), but it is believed that no members of the old Canadian National or Grand Trunk boards, with the possible exception of Major Bell, will be on it. It is said that the Government has received a considerable number of applications from persons who would like to become directors.

The Bad Order Car Situation.

The Railway Association of Canada reports the total number of freight cars on Canadian lines for the 15 days ended July 1, as 202,232. The allowance for bad order cars on the A.R.A. basis, which assumes a total of 7% of the cars in bad order, was 14,156, and the actual number in bad order was 22,896, an excess of 8,740 on the 7% basis. The figure 22,896 represent 11.32% of the cars in bad order. There were 33,354 surplus cars in good order, making the total not in use 56,250, or a total of 42,094 idle cars, on the basis of 7% of the cars being normally in bad order.

The American Railway Association's Car Service Division reports that the total number of freight cars on line on class 1 roads in the U.S. was 2,275,596 on June 15. Of these, 332,681 were in bad order, this figure representing 14.6% compared with 15% on June 1. Out of 1,035,513 box cars, 158,592, or 15.3%, were in bad order; out of 57,598 refrigerator cars, 8,729, or 15.2%, were in bad order; out of 960,738 gondola cars, 139,273, or 14.5%, were in bad order; out of 81,753 stock cars, 10,803, or 13.2% were in bad order, and out of 97,914 flat cars, 12,005 or 12.3% were in bad order.

Canadian National Railways Construction, Betterments, Etc.

Sackville Shipping Facilities.—Senator Dandurand, answering questions in the Senate, recently, stated that the Government intends to restore wharf and shipping facilities on the Tantramar River, at Sackville, N.B., when available traffic would seem to warrant the expenditure which is estimated at \$17,000. The revenue from the old wharf during four years preceding 1917 was \$412.92. The new wharf on the river was built in 1910-11, and grading for a railway track from the Intercolonial Ry. to the wharf was completed, but track was not laid. During the war the tracks from the I.R.C. to this old wharf were taken up, with the result that there is now no railway connection between the I.R.C. and the waterfront at Sackville.

Quebec West End Station.—A recent Quebec press report stated that the erection of a station in the west end, probably at the extreme end of St. Valier St., was being discussed. This end of the city has developed rapidly, and a station there would be a great convenience.

Quebec District Bridge Construction.—We are officially advised that a contract has been let to Jackson Construction Co., Montreal, for concrete culverts, piers and abutments for bridge reconstruction, as described below:—

Harvey Subdivision:—Flat top concrete culverts, 5 x 10 ft., at mile 26.5; 10 x 3 ft. at mile 31.96; and 12 x 4 ft. at mile 32.01.

Lachute Subdivision:—Flat top culvert, 10 x 4 ft., at mile 30.1.

Harvey Subdivision:—Mile 32.25, from Riviere a Pierre, crossing of Riviere des Envies. The existing structure is a 110-ft. deck plate truss, resting on crib piers, with timber trestle approaches, built in 1900. It is proposed to build 2 concrete abutments and pier to support the existing span in place of the cribwork abutments, to move the existing truss span about 20 ft. to the west, and put on a 50-ft. deck plate girder span on the east end. The abutments will be about 36 ft. high, and the pier about 25 ft.

We are officially advised that orders passed recently by the Board of Railway Commissioners for the reconstruction of the following bridges, with one exception, refer to work already done.

Jonquiere Subdivision:—Mile 226 from Quebec, crossing Chicoutimi River. The bridge consists of one span of 159.7 ft. clear, and 167.4 face to face of ballast walls. The new bridge was completed in 1921, and replaced the old truss span with a new one of the above length, and 32 ft. high, a little higher than the old one. Mile 142.4 from Quebec, over Joseph Louis River. This work was completed in 1920, and consisted of the replacement of a deck plate girder span 33 ft. 5 in. over all, with a new and heavier span of the same type and length.

Lachute Subdivision.—Mile 5.17, west of Joliette, over the Blanche River. This consisted merely of the replacing of a 104-ft. deck plate girder span, with one of similar length and type, but of heavier construction, the work being completed in 1921.

Lachute Subdivision.—Mile 5.73, west of Joliette, crossing Rouge River. The original structure was a 70-ft. deck plate girder span on timber piers, with wooden trestle approaches, and was replaced by two 45-ft. over all deck plate

girder spans with a center 89 ft. 8 in. deck plate girder span. There are 2 concrete piers, each 32 ft. high, on pile foundations, and the shore ends of the approach spans rest on temporary timber abutments. The concrete work was done by W. M. Fletcher & Co., and the steel spans, which had been released from other structures, were erected by the Dominion Bridge Co.

Roberval Subdivision.—Mile 22.7 from Chambord Jct., over the Iroquois River. The concrete piers for the bridge were erected in 1913, when a temporary trestle was built across the stream. Owing to the war the placing of the steel superstructure was postponed, and in 1921, a deck plate girder span 74½ ft. long, over all, was put in position and timber trestle approaches erected at each end. Mile 27.2 from Chambord Jct., over Riviere a l'Ours. The history of this work is similar to the last mentioned bridge, the deck plate girder span being 105 ft. over all. Mile 30 from Chambord Jct., over Eusebe Boivin River. This consisted of the replacing of a timber trestle with a 49 ft. 11 in. over all deck plate girder span, in 1921, on concrete abutments, erected in 1913.

Batiscan Subdivision.—Mile 7 from Quebec, at Riviere des Meres. The original structure consisted of a deck plate girder span 50 ft. clear, erected in 1889 on masonry piers. The superstructure has been strengthened by moving the girders closer together, and erecting 2 additional girders outside them. Mile 60.2 from Quebec at Riviere a Pierre. The original structure consisted of a deck plate girder span, 33 ft. over all, erected in 1885. The 2 original girders have been moved closer together, and 2 new girders placed outside them, on the original abutments.

The work on the following bridge has not yet been done.—Mile 27.14 from Quebec, crossing Lake Sergeant. The present bridge is an old turntable, resting on 2 piers and 2 abutments, having a total length of 55 ft., and was built in 1910. The new structure will consist of two 15-ft. and one 24-ft. plate girder spans, with such small additions to piers and abutments as are required.

Ontario District Bridges.—We are officially advised that a contract has been let to Sherwood Construction Co., Toronto, for the concrete substructures of the following bridges, the reconstruction of which was authorized recently by the Board of Railway Commissioners:—

Pembroke Subdivision.—Mile 87.1 from Hurdman, crossing of the Muskrat River. The existing structure consists of 2 deck plate girder and one through plate girder spans, 40, 110 and 75 ft. long, respectively, with trestle approaches at each end, built in 1913. It is proposed to substitute for the trestle approach at the west end four 76-ft. deck plate girder spans resting on 3 new concrete piers and one new concrete abutment. The piers will be from 27 to 42 ft. high, and the abutment about 27 ft. The most westerly span will cross a highway. The east trestle approach will be left in place until the timber has had its life. Mile 106.6 from Hurdman, crossing the Indian River, south branch. The existing structure is a timber trestle 60 ft. high and 405 ft. long, with a 30-ft. steel span over the river, built in 1912, which it is proposed to replace by a steel viaduct consisting

of three 40-ft., one 55-ft., and three 60-ft. deck plate girder spans resting on 2 abutments and 3 towers, the towers resting on 12 concrete pedestals. The abutments will be 26 and 36 ft. high, respectively, and the pedestals will be from 12 to 20 ft. high.

We are further officially advised that a contract has been let to the Dominion Construction Co., Toronto, for concrete culverts, and concrete piers and abutments, at the following bridges, the reconstruction of which was recently authorized by the Board of Railway Commissioners:—

Sudbury Subdivision.—Mile 67.9 from Parry Sound, crossing French River. The present structure consists of one 128-ft. deck truss, over the south channel, and two 110-ft. deck plate girders over the north channel, with 190 ft. of timber trestle between. Originally there was a timber trestle approach at each end. At the south end most of this approach has been filled, and it is proposed to build a concrete abutment to retain the fill at this end. At the north end the existing timber trestle approach will be replaced by a concrete abutment and one 62-ft. deck plate girder span resting on this abutment and one of the existing piers. The original structure was built in 1908, but the trestle approaches have had numerous repairs and renewals since then.

Ruel Subdivision.—Mile 44.1, flat top concrete culvert, 5 x 10 ft., with an embankment to replace a timber trestle 320 ft. long and about 25 ft. high. Mile 78.95 from Capreol, crossing Muskegoma River. The present structure consists of 2 plate girder spans, 105 and 40 ft. long, respectively, with timber trestle approach at the east end, which was built in 1911. It is proposed to place an additional span of the deck plate girder type, 75 ft. long, one new concrete abutment, and fill the remaining 120 ft. of trestle. Mile 134 from Capreol, crossing Groundhog River. The existing structure consists of two 70-ft. deck plate girders and one 200-ft. deck truss with timber approach on the west end, all built in 1912. It is proposed to substitute for the trestle approach at the west end a 62-ft. deck plate girder, resting on a new concrete abutment, about 40 ft. high, at the west end and on one of the existing piers. Mile 140, Duck Lake outlet. Flat top concrete double culvert, 12 x 12 ft., with embankment, to replace a timber trestle about 500 ft. long and approximately 40 ft. high.

Oba Subdivision.—Mile 32, at Trout River. The existing structure is a pile trestle, from 12 to 36 ft. high, with the center part in 22 ft. of water. This will be replaced with a through truss span 229 ft. over all, resting on 2 concrete abutments, each about 30 ft. high, which will be built on pile foundation. Mile 97.6 from Foleyet, crossing Pichogan River. The original structure was a pile trestle, 345 ft. long and about 35 ft. high, built in 1912. This is being replaced by a deck plate girder bridge consisting of 2 spans 57 and 112 ft. long, respectively, resting on 2 abutments, each about 40 ft. high, and one pier about 30 ft. high. Mile 36.9 from Hornepayne, crossing Osawain River. The existing structure, a trestle 285 ft. long and 40 ft. high, was built in 1912. It is proposed to replace this with 2 deck plate girders, 68 ft. over all, and one of 89 ft. over all long.

respectively, resting on 2 concrete abutments, 35 ft. high, and 2 concrete piers, each 40 ft. high, with embankment at each end.

Long Lake Subdivision.—Mile 46.5, at Little White Otter River. The present structure is a timber trestle about 50 ft. high, and 400 ft. long, which is to be replaced with an embankment and a double 10 x 15 ft. concrete flat top culvert.

It is expected that all of the above mentioned concrete and steel work will be done this year.

Washago Track Connection.—The Board of Railway Commissioners has authorized the opening for traffic of the connection between the Canadian Northern Ry. and the G.T.R. tracks at Wahsago, Ont.

Port Arthur, Duluth and Winnipeg Ry.—We are officially advised that the Palatine Mining Co., which had entered into an agreement with the Canadian National Rys. for the repair and operation of the old P. A., D. & W. Ry., west of North Lake, Ont. (see Canadian Railway and Marine World, June, 1921, pg. 308, and Oct., 1921, pg. 538), had, up to the end of Aug., 1921, practically completed the grading from North Lake to the mine, including the culverts. No rails had, however, been laid, and it was not the company's intention to start the bridge work until track was laid. Active operations ceased in Dec., 1921, and it is not known what the company's present intentions are as to further work. A recent press report stated that the Palatine Co.'s employees were about to take legal proceedings to recover wages.

Mount Yard.—A new freight terminal is to be built near Mount, Ont., 3.8 miles west of Fort William and 5.1 miles east of Twin City Jct., on the Manitoba District, Rainy River Division, Kashabowie Subdivision. The construction will include a large yard and a locomotive terminal, consisting of locomotive house and other facilities. S. B. Wass, Construction Engineer, heretofore at Moncton, N.B., will be in direct charge of the work. H. L. Currie, Assistant Engineer, and Gerald Allen, rodman, have also been transferred there from Moncton. We were advised, July 18, that the general plan had been filed with the Board of Railway Commissioners, and that the Board's approval of a slight diversion in the main line, which the construction of the new yard will necessitate, had been given. The railways' engineers are laying out the new yard and locomotive handling facilities, construction material is being gathered at Mount, and construction will be gone ahead with at once. All the work is to be done by the Railways' own forces.

Oakland Subdivision Fencing.—Tenders were received recently for the erection of approximately 50 miles of fencing along that subdivision.

Bird Tail Creek Bridge.—The Grand Trunk Pacific Ry. crosses the Bird Tail Creek Valley at mile 190 west of Winnipeg, over a trestle 2,400 ft. long, composed of 161 pile and frame bents, having a maximum height of 55 ft. This trestle was built in July, 1907, and its life is practically exhausted. It is intended to replace it by filling the valley completely, leaving an opening of about 70 ft. clear for a diversion of the creek. The fill will require about 330,000 cu. yd. of material. The permanent bridge will consist of a 79-ft. deck plate girder span, resting on 2 concrete abutments, each 56 ft. high. Timber trestle approaches

will be maintained until the fill on each side of the bridge has settled enough to carry small concrete abutments, to be erected at the time of completing the steel structure, which will be finally composed of three 80-ft. deck plate girders. The piers were completed April 1, and it is expected that the steel span will be put in place during August.

Western Lines Water Supplies.—Tenders were received recently for the construction of water supplies on Canadian Northern Ry., to be built as follows: Dam, excavation and laying of pipe line and excavation of a reservoir at Pope, Man.; Wiseton, Sask.; Rama, Sask.; Raymore, Sask.; Maryfield, Sask., and Mechache, Alta. Construction of dam and excavation of reservoir at Conquest and Tilney, Sask. Construction of 6-in. cast iron pipe line, 10,000 ft. long, at Lloydminster, Sask., all on Canadian Northern Ry. lines.

Saskatchewan Lines Construction.—Tenders were received recently for the construction of a revision of the Boundary Subdivision near Lampman, Sask., on the Canadian Northern Ry., and for the construction of a connection between the Craik and Riverhurst Subdivisions at Regina.

Alberta Lines Construction.—We are officially advised that contracts have been let for the construction of connections between the Canadian Northern Ry. and the Grand Trunk Pacific Ry. in Alberta as follows:—Near Magnolia, to J. Fitzgerald, Edmonton, the work to be completed by Sept. 1. This connection will be 0.83 mile long. It is situated in Sections 25 and 26, Tp. 53, Range 7, west of 5th Meridian. Connection between G.T.P.R., Bashaw Subdivision, and C.N.R., Battle River Subdivision, near Camrose, 3.47 miles, let to F. Mannix, Calgary. The grading and culvert work is to be completed by Oct. 1. A contract has been let to D. Fitzgerald, Carstairs, Alta., for the grading and construction of culverts on a revision of the G.T.P. main line in the vicinity of the Sundance River, between Ausell and Bickerdike, through Sections 2, 3, 4 and 5, Tp. 53, Range 18, West 5th Meridian, mile 60.71 to 64.46, Brule Subdivision, the work to be completed by Oct. 1. The proposed connection between the C.N.R. and the G.T.P.R. at Ryley, between the Viking and Battle Creek Subdivisions, will not be built this year.

Edmonton Vicinity Betterments.—A recent press report stated that considerable work was in progress on the Canadian Northern and the Grand Trunk Pacific lines near Edmonton, Alta. A steam shovel was said to be at work at Innisfree pit, taking out gravel for ballasting the line between Edmonton and Vermillion, on the Vegreville Subdivision; a second steam shovel was working east of Edmonton at the Kinsella pit, taking out gravel for ballasting on the Unity and Viking Subdivisions; and a third steam shovel was working at Burbank on the Brazeau Subdivision, taking out gravel for ballasting the extension of track made in 1921 into Red Deer. A ditching machine was working between Edmonton and Wainwright to improve the drainage.

The same report said it was expected to start work on the C.N. and G.T.P. lines at North Edmonton. The steel for the bridge carrying the tracks over the highway at North Trail was being delivered, and would be erected at an early date. The work there includes the alteration of gradients, which will facilitate the hand-

ling of freight into Calder, and will do away with the necessity of operating through freight trains in the center of the city.

The report also stated that a number of timber trestles on the Brazeau Subdivision are to be filled in, and that a steam shovel would shortly be started on this work.

United States Railways' Financial Results.

As stated in Canadian Railway and Marine World for July, pg. 348, U. S. railways in class 1 had net operating income for April of \$50,271,865, representative of an annual return on tentative valuation of 3.93%. In May the results were a little better, the net operating income being \$61,980,600, representative of an annual return of 4.36% on their tentative valuation. This was also much better than May, 1921, when the net operating income earned was at an annual rate of but 2.6%.

Operating revenues in May for class 1 roads were \$448,947,900, compared with \$416,868,620 in April, and operating expenses were \$355,588,800, compared with \$336,178,422 in April. Compared with May, 1921, operating revenues in May, 1922, decreased 1%, but operating expenses decrease more than 6%.

Class 1 railways in the Eastern District had net operating income in May of \$31,752,380, representative of an annual return of 4.57%. Those in the Southern District had net operating income of \$11,304,700, representative of an annual return of 6.63%, and the Western District had net operating income of \$18,923,500, representative of an annual return of 3.4%.

The improvement which has taken place in railway operating conditions in the U. S. in 1922, compared with 1921, is evident on an examination of the results for the first five months of each year. To the end of May, 1922, class 1 roads had net operating income of \$273,259,000, compared with \$94,417,907 for the same period of 1921. While operating revenues for the first five months of 1922 were 3½% less than for the first five months of 1921, operating expenses for that period in 1922 were 13½% smaller than in 1921.

While there has been a great falling off in coal loading on U.S. lines, because of the coal miners' strike, there has been a large and steady increase in the number of cars loaded with other commodities, and with a resumption of coal shipments it appears that the U.S. railways will next autumn be called upon to handle a heavier traffic than ever before.

Liability for Transfer Freight.—The Quebec Circuit Court, sitting at Thedford Mines, Que., recently heard an action by Fortin & Payour against the Quebec Central Ry., for damage to beer in transit. The shipment was made by C.P.R. from Montreal at Sherbrooke in a sealed car, and there transferred to the Q.C.R., which delivered it. It was alleged that the car was not properly heated. The Q. C. Ry. Co. denied responsibility, claiming it was only agent for the C.P.R., which was the principal carrier. Justice Poullot dismissed the action, holding that a railway company which accepts freight to be carried beyond its line by another company is responsible for damages in transit on the latter line unless it specifically limits its liability to its own railway.

Canadian Pacific Railway Construction, Betterments, Etc.

St. John Overhead Crossing—The Board of Railway Commissioners has granted an extension of time for the construction of an overhead crossing of Douglas Ave., St. John, N.B., to Oct. 1, in consequence of the pending action of the New Brunswick Government against the C.P.R., and its subsidiary owning the railway bridge across the St. John River at the Reversing Falls. This action was set down for hearing at the Chancery Court sittings for April 18, then adjourned to April 25, and again to the July sittings. According to the decision to be arrived at, the bridge across the river will either remain as it is, in which case the Douglas Avenue crossing order will be carried out in accordance with present plans, or if the bridge should have to be raised in the supposed interests of navigation, new plans for the Douglas Ave. crossing will have to be made.

Moosehead Subdivision Bridge—The Board of Railway Commissioners has authorized the rebuilding of bridge 117.02, Moosehead Subdivision N.B.

Ontario St., Montreal—The Board of Railway Commissioners has authorized the reconstruction of the bridge over the subway at Ontario St., Montreal.

Northern Colonization Ry.—The Dominion Parliament has granted an extension of time within which the company, a C.P.R. subsidiary, may extend its line westerly from the present terminus, to a point on Lake Timiskaming in Pontiac County, Que. It is held that this extension will connect with the Interprovincial and James Bay Ry., line now under construction to the Quinze River, at station 482, from which a branch of 8 miles is being built to Ville Marie on Lake Timiskaming.

Gatineau River Bridge—We are officially advised that a contract has been let to the Dominion Bridge Co., for four 200 ft., steel through truss spans to replace spans of similar dimensions of the Phoenix truss type, at bridge 115.9, Lachute Subdivision, over the Gatineau River. The spans are to be placed on the existing foundations, and the work is expected to be completed this year.

Branch from Adirondack Subdivision.—The Board of Railway Commissioners has approved the company's application to build a branch line of about 4½ miles from mile 42.82 on its Adirondack Subdivision, Quebec District, between the St. Lawrence bridge and the Lachine Canal, southwesterly and easterly, to be used for passenger service.

Interprovincial and James Bay Ry.—The Dominion Parliament has granted an extension of time for the construction of the line from 10 miles out of Kipawa, Que., on the Des Quinze River, with a branch to Ville Marie, which is in progress.

Cobb's Creek Bridge—The Board of Railway Commissioners has authorized the rebuilding of bridge 58.5, over Cobb's Creek, Ottawa Subdivision, Montreal.

Kingston Freight Shed—The C.P.R. applied recently to the Board of Railway Commissioners for an order rescinding an order issued about two years ago, requiring the company to erect a new freight shed at Kingston, Ont. The time within which the order was to be complied with has been twice extended. In its recent application, the company contended that any freight congestion

there had been, which was the basis for making the order, had ceased when the Canadian National Rys., which had made use of the C.P.R. facilities, co-ordinated with the G.T.R., and used its freight sheds, etc. The Kingston Board of Trade is reported to have been advised that the company's application had been refused, and that an extension of time to July 31, 1923, has been granted for complying with the order.

Feldspar Mining Spur—We are officially advised, with reference to the construction of a spur line into the Feldspar mining area, near Kingston, Ont., that the work consists of the relocation of approximately the last mile at the extreme end of the Godfrey Spur, which leaves the Kingston Subdivision at mile 29.4 from Kingston, on the old Kingston and Pembroke Ry., easterly.

Kingston Diamond—A press report states that Kingston, Ont., City Council is considering a Board of Railway Commissioners' recent order, dealing with the doing away of the old diamond west of the city by the building of a loop. It is stated that the order gives the C.P.R. the right to close up three unopened streets in the city, as well as three roads in Kingston. If the city council is of opinion that it only consented to the crossing of the streets by the loop line, the township council is also objecting to the closing of the roads. Both authorities are protesting to the Board of Railway Commissioners. The company is reported to have started the construction of the loop.

Orangeville and Teeswater Subdivision Bridges—The Board of Railway Commissioners has authorized the rebuilding of bridge 6.8, Orangeville Subdivision, and bridge 8.6 Teeswater Subdivision.

Chalk River Subdivision Bridge—The Board of Railway Commissioners has authorized the rebuilding of bridge 41.8, near Arnprior, Ont., Chalk River Subdivision.

Bridge Reconstruction.—We are officially advised that bridge reconstruction authorized recently by the Board of Railway Commissioners covers a number of small operations, consisting of the replacement in permanent form of a few abutments, and the installation of a few plate girder spans ranging from 28 ft. to 50 ft. long, as follows:—

Moosehead Subdivision, New Brunswick District.—Bridge 117.02, rebuilding small concrete abutment.

Montreal, Quebec District.—Ontario St. Subway.—Reconstruction of structure, City of Montreal.

Montreal and Ottawa Subdivision, Quebec District.—Two concrete abutments to replace old timber ones.

Orangeville Subdivision, Ontario District.—Bridge 6.8: Building concrete abutments to replace timber ones.

Teeswater Subdivision, Ontario District.—Bridge 8.6: Replacing pile trestle with concrete abutments and installing a 39-ft. deck plate girder.

Chalk River Subdivision, Quebec District.—Bridge 41.8: Building concrete abutments to replace timber ones.

Boundary Subdivision, British Columbia District.—Bridge 81: Replacing timber structure by 2 concrete abutments and 1 concrete pier, and installing a 28-ft. deck plate girder.

Sirdar Subdivision, British Columbia District.—Bridge 62.8: Replacing timber

approach with 1 abutment and 1 pier, and installing two 50-ft. deck plate girder spans.

The Board of Railway Commissioners has also authorized the rebuilding of the following bridges:—

Tobique Subdivision, New Brunswick District.—Bridge 8.1, over Quaker Brook, N.B.

Kipawa Subdivision, Quebec District.—Bridge 5.5, over Long Lake, Ont.

Elora Subdivision, Ontario District.—Bridge 3.4, near Elora, Ont.

Thompson Subdivision, British Columbia District.—Bridges 53.2 and 104.5, B.C.

Western Line Betterments.—We are officially advised that further betterments to be carried out on the western lines during this year are as follows:—The double track between Ignace and Kenora, Ont., 146.2 miles, will be relaid with new 100-lb. rails, replacing 85-lb. ones.

A considerable number of bridges will be replaced with structures adapted for heavier traffic. This work will consist mainly of replacing small wooden trestles with concrete culverts and fills. The bulk of the work of this character is to be done in Saskatchewan. Tenders were received to July 17, for the construction of the reinforced concrete culverts on the Saskatchewan District, Regina and Saskatoon Divisions.

New stations will be built at Napinka, Man., and Chaton, Alta. A new detention shed for immigrants will be built at Coutts, Alta. The freight shed at Indian Head, Sask., will be taken down and re-erected on a new site. The locomotive houses at Medicine Hat and Calgary, Alta., will be enlarged. New 90-ft. turntables will be installed at Brandon, Man., and North Bend, B.C. A coaling plant will be built at Secretan, Sask. The following facilities will be improved: Winnipeg freight sheds; electrical plants at Fort William, Ont., at main repair shops at Weston, Man., and at Ogden, Alta.; mechanical appliances and freight handling facilities at Vancouver; water supply facilities at Regina, Pilot Butte and Weyburn, Sask., and on the Lake Windermere Subdivision, B.C.

A transfer barge will be built on Kootenay Lake, B.C.; the wharves at Nelson, B.C., will be made permanent, and there will be an extensive overhaul of the lake and river and B.C. coast service fleets.

Fort William Yard Office.—A contract is reported to have been let to J. M. McDiarmid & Co., Winnipeg, for building a yard office at Fort William, Ont. The new structure is to be built on the basement of the old one, which was burned some time ago.

Russell Northerly.—Grading was completed during 1920 on the first 6 miles of a projected branch from Russell, Man., northerly to the Shell River, approximately 12 miles. This 6-mile section, ending at Cracknell, was completed during 1921, and a train service put in operation. We are officially advised that this branch line is now about to be completed.

Lanigan Branch.—We are officially advised that the first section of 50 miles of the branch northerly from Lanigan, Sask., is about to be fully equipped for traffic. It was graded in 1920, and track was laid in 1921.

Rosetown Southeasterly Branch.—The Board of Railway Commissioners has approved of location plan of a portion of

the branch from Rosetown, southeasterly from mile 0 to 18.66 in-*Sec. 26, Tp. 27, Range 16, west of the 3rd Meridian*, and authorized the building of the line across certain highways. Grading was reported completed at Dec. 31, 1920, on 25 miles from mile 20 to 45, and on a further distance of 20 miles to mile 65, during 1921.

Consul East Branch.—We are officially advised that it is proposed to complete the first 60 miles of the line from Consul, Alta., on the Weyburn-Lethbridge line, southerly and easterly. The grading on the first section of 30 miles of this branch was put under contract in 1920, and the Saskatchewan Minister of Railways reported to the Legislature in Dec., 1920, that the grading on it had been completed, and that 8% of the grading on a second 30-mile contract had been completed. In 1920 a mile and a half of track was laid from Consul easterly.

Moose Jaw Station, etc.—This recently-opened new station and office building, an illustration of which is given here-with, is located on the axis of Main St., between Manitoba St. and the old station building, the site of which has been used

District Superintendent, Paymaster, Sleeping and Dining Car Department, investigation and claims, and telegraph operating rooms. The exterior of the building is designed in a rather free type of Italian renaissance and is built of limestone and red brick, laid in a grey joint. The roofs are of copper. The public portions of the interior of the building are finished principally in ceramic materials. The entrance vestibule, waiting room and ticket alcove have heather brown floors, grey tile wainscoting, and grey brick walls, with moulded and ornamental members in polychrome terra cotta, and ceilings in Gustavino tile. The luncheon room is finished with heather brown floors and grey tile walls, the upper portion of the room in tinted enamel. The women's room has heather brown tile floor and wood panelling to the ceiling. The woodwork generally is birch stained walnut. The plans were prepared by Hugh G. Jones, architect, Montreal.

Coquitlam Bridge.—A recent press report stated that the substructure work on the new bridge over the Coquitlam River,

Week-end Excursion Rates Restored on Railways.

The Canadian Passenger Association, Eastern Lines, issued notice on June 27, that it had been decided to authorize some reduction in fares for week-end trips from the larger centers to nearby summer resorts and country places, also for organized society excursions, pilgrimages, celebrations and demonstrations, the reductions to become effective July 10.

We are officially advised that the reductions made are approximately on the following basis:—

Week-end fares, 2½¢ a mile, round trip mileage, with minimum fare of 50¢ adults, 25¢ children. Going Saturdays and Sundays, returning until following Monday.

Organized excursions and pilgrimages, under auspices of organized associations, such as athletic and other clubs, societies, churches, Sunday schools, fire brigades, and mercantile firms, and pilgrimages under diocesan authority, 100 or more



Station and Office Building, Canadian Pacific Railway, Moose Jaw, Sask.

for an extension of the station trackage. The entrance to the station is on the axis of Main St. and through the base of a clock tower approximately 90 ft. high, which has an 8-ft. dial on each face. The dials are flood lighted at night. At the right, after entering the station, are the public telephones, city ticket office, steamship office, baggage and parcel rooms and transfer office, arranged in the order mentioned, and all facing the west end of the waiting room. Directly opposite the entrance are the entrance and stair to a 20-ft. subway, passing under the tracks and having stairs at each side leading to the platforms. At each side of the waiting room are men's smoking room, women's room and luncheon room. The 4 story office building is built parallel with the west side of Main St. At the right of the entrance, on the ground floor, is the city telegraph office, at the left are the elevator and stairs to the upper stories, and the balance of the office building ground floor is given to the baggage room. On the upper floors are the offices of the Superintendent and

mile 112.8, Cascade Subdivision, B.S., was expected to be completed in July, and that the steel superstructure would be erected by September. This bridge was described in Canadian Railway and Marine World for June, pg. 288.

Vancouver Pier.—Tenders have been asked for the construction of the superstructure of the pier at the Vancouver waterfront, to be known as pier B.C. A contract was let to the Pacific Construction Co. for dredging and filling at the site and the work was started in March, 1920, and completed in 1921. The plans provide for a pier 800 ft. long and 333 ft. wide, provision being made for extending it to 1,200 ft. in length when conditions demand. There will be on the pier 2 sheds, each 100 ft. wide and extending for its whole length, with 4 railway tracks between the sheds, and 2 railway tracks on the outside. The estimated cost of the structure is reported to be about \$2,000,000, and it is expected to have it completed by Sept. 30, 1923. (June, pg. 288.)

adults, or equivalent guaranteed. Selling fares, lowest one-way 1st class fare and one-third for round trip. Minimum selling fare 50¢ for adults and 25¢ for children.

Celebrations, demonstrations, regattas and political meetings, lowest one-way 1st class fare and one-half for round trip. Minimum fare for adults or children, 25¢.

Round-trip party fares, ten or more adults or equivalent, lowest one-way 1st class fare and one-half for round trip. Minimum fare for adults or children, 25¢.

Agricultural exhibitions, lowest one-way 1st class fare and one-third for round trip. Minimum fare for adults or children, 25¢.

The Canadian Passenger Agents' Association, Eastern Lines members, held their summer meeting at Riviere du Loup, Quebec, July 7 and 8. They were received by the Mayor at the City Hall, and following the business meeting, they were given a motor drive through the country, and in the evening were entertained at a dinner and band concert.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Abitibi Transportation & Navigation Co., Ltd.—Canadian Railway and Marine World for June stated that it had been officially advised that the Abitibi Power & Paper Co., had let a contract to build, this year, a standard gauge logging railway from Iroquois Falls, Ont., to a junction with the National Transcontinental Ry. at Hughes, Ont., 16 miles, that Iroquois Falls is the terminus of the Timiskaming & Northern Ontario Ry's 7-mile branch from Porquis Jct., Ont., 225.7 miles north of North Bay, and that Hughes is 29 miles east of Cochrane. This meagre information was only obtained after we had written two letters to the company. We then wrote again, asking the usual information we obtain in regard to such matters, including the name and address of the contractor; what the contract included; section and weight of rails to be used; name of engineer who made the survey; a blue print showing the routes; who would be in charge of construction for the company, and what rolling stock it was intended to acquire. The company's Secretary replied, repeating that a contract for all the work had been let, and the equipment purchased, or under agreement to purchase, but declined to give any further information. We wrote him again, pointing out that such information is invariably furnished us in regard to railway contracts awarded and urged that it be supplied, but our request was ignored and our letter was not even acknowledged. In Canadian Railway and Marine World's 24 years history, its Editor cannot remember having been similarly treated before, railway officials and projectors being almost invariably willing to furnish full information. However, in spite of the company's refusal, we are able to give considerable information about the matter, and shall give more from time to time in our readers' interests.

The Abitibi Power & Paper Co. has a large pulp and paper plant at Iroquois Falls and extensive timber limits in the surrounding districts. Press reports state that the company wanted to build a railway from Iroquois Falls, via Hughes, to ultimately reach James Bay, or navigable waters flowing into it, and to do business thereon as common carriers. The question of the construction of such a line was considered by the Ontario Government in June, when a deputation from the company waited on Hon. M. Doherty, then acting Premier, and other members of the cabinet, the Chairman and other members of the Timiskaming & Northern Ontario Ry. Commission being present. The commissioners objected to the company's application, on the ground that the projected line would interfere with the T. & N. O. Ry's business, and that it would parallel the extension of that line now under construction from Cochrane northerly. As a result, it was decided that the company may build a railway from Iroquois Falls to Hughes, but that it shall be used for logging purposes only. The Ontario Government, on June 28, issued letters patent of incorporation under the Ontario Companies Act, for the Abitibi Transportation & Navigation Co., Ltd., for the following purposes: To carry on a lumber, timber and pulpwood business; to construct, purchase or otherwise acquire, steamers, scows, tugs and booms or any other kind of crafts or appliances for inland navigation and to employ and operate the same; to improve and develop rivers, streams and lakes and to construct and

maintain embankments, booms and other works and equipment of all kinds for the purpose of carrying on such business; and to construct and operate lumbering and logging railways or tramways as herein-after provided, sidings and appliances, provided, however, that any railway or tramways constructed or operated by the company shall be located from Iroquois Falls not farther north than Hughes and, together with any sidings in connection therewith, only on the present concession of Abitibi Power & Paper Co., Ltd., and, only for lumbering and logging for the supply of pulpwood to that company, limited; and further provided, that this company shall not in the exercise of its powers accept from or deliver to any railway other than the Timiskaming & Northern Ontario Ry. any business or traffic other than pulpwood for the Abitibi Power & Paper Co. The authorized capital is \$2,000,000, in shares of \$100 each, and the head office is in Toronto. The provisional directors, of the usual dummy variety, are: G. H. Kilmer, H. H. Davies, J. D. Rumball, L. A. Landriau and A. L. Lewis, solicitors, Toronto.

The Ontario Companies Act provides for granting charters for any of the purposes to which the Legislature's authority extends, except those of railways, incline railways and street railway companies, etc. It is evident from the charter having been granted under this act that the line to be built by the company is not considered a railway in the ordinary sense, but merely a logging line.

We have ascertained that the contractor for the 16-mile line is the Grenville Crushed Rock Co., Ltd., of Montreal, and that its contract includes clearing right of way, grading, building of culverts and bridges, track laying and ballasting, and is being carried out under the direction of Andrew Wheaton, who is stationed at Iroquois Falls. Sub-contracts have been let as follows: Mile 1 and 2 to Stewart & McLean, Iroquois Falls, this is heavy shovel work and 2 steam shovels are being used; mile 5 and 7 to Dempsey & Deschamp, Iroquois Falls; mile 9 and 16 to McLean & Wheaton, Hughes; bridge across Abitibi River, and trestles and timber work, to John McPeake. At the time of writing, July 21, the right of way has been practically all cleared, and grading is being done over from 12 to 15 miles, the bridge and trestle work being also under way. It is reported that 80 lb. rails will be used on the main line, and that a number of spurs, to be built from the main line at various points to facilitate getting out logs, will be laid with 56 lb. rails.

A Montreal press dispatch says that the Abitibi Power & Paper Co., expects to save \$500,000, or \$2 a share on its common stock, in operating costs, by hauling logs on the railway (June, pg. 286).

Burrard Inlet Tunnel and Bridge Co.—The Dominion Parliament has extended the time within which the company may build a bridge and tunnel, or either of them, with connecting railways at the second narrows of Burrard Inlet, Vancouver, B.C. The charter is held by the municipalities which the railway line, bridge and tunnel will connect with the steam railway lines. (Nov., 1921, pg. 583.)

Dominion Atlantic Ry.—We are officially advised that the following betterments are either in hand, or will be done this year: The construction of five industrial spur lines; the relaying with 85-

lb. rails of 10 miles of track, from mile 7 to 12, Windsor Branch; from mile 9 to 11, Kentville Subdivision; and from mile 62 to 65, Yarmouth Subdivision; the gravel ballasting of 10 miles as follows: Between mile 0 and 5, Windsor Branch, and between mile 62 and 72, Yarmouth Subdivision; the erection of a station, 18 x 46 ft., at Round Hill, N.S.; the erection of a 40,000-gall. tank at Grand Pre, N.S., and the installation of a wig-wag signal at Windsor, N.S. (June, pg. 286.)

Hudson Bay Ry.—In the discussion on the estimates, on an item of \$7,000,000 towards deficiency in revenues to meet working expenses on the Canadian Government Railways, in the House of Commons recently, A. Knox, Prince Albert, Sask., raised the question of the Hudson Bay Ry., and after reviewing the history of the project, asked the Government to give some assurance that it would be sympathetically considered and brought to completion at an early date. He also advocated the investigation of Churchill as a port before any further work be done at Nelson. A number of other Western members having spoken in favor of the completion of the line, the Minister of Railways stated that the railway had so far cost approximately \$20,000,000, and the estimates indicated that it would take a further sum of \$5,000,000 to complete it to Nelson, with an additional \$10,000,000 to complete terminal and port facilities. It had been suggested that notwithstanding the expenditure of \$6,000,000 on navigation facilities at Nelson, that the development there be abandoned in favor of Churchill. Under such circumstances the Government could not be expected to give an immediate answer to the question submitted. When the new directors of the Canadian National Rys. are appointed the matter will be brought to their attention, and he had no doubt they would, at the earliest possible date, give it the consideration it deserves. There was no tendency on the part of the Government to refrain from doing anything which was in the public interest, and this problem would be given due consideration. (June, pg. 236.)

Kettle Valley Ry.—The Dominion Parliament has extended the time within which the company may build its projected railway from Coalmount, B.C., on the joint section operated by the K.V.R. and the Victoria, Vancouver & Eastern Ry. and Navigation Co., generally southerly to the Granite Creek coal areas, about 12 miles.

A press report states that the construction on the extension of the Penticton-Dog Lake branch, from the south end of the lake to Oliver, is progressing rapidly. The rock cut south of Okanagan Falls, and the bridge at the outlet of Vauseaux Lake are reported completed, and the only works now to be done to make the extension ready for track laying are two of the smaller bridges and some easy grading near Oliver. The car barge to be used for the traffic on Dog Lake, between the two sections of the branch, is reported completed. It will be used to convey rails and other material for the track laying and completion of the line. It is expected to have track laying finished about Aug. 15. We are officially advised that bridge 8.2 over Nicola River, on the Merrit Branch, which is to be reconstructed, was built in 1906, and consists of a Howe truss

span resting on concrete abutments, and being 163 ft. 10 in. long, between ballast walls of abutments. The new bridge will consist of two second hand steel spans using the same abutments and a new center pier. The latter has already been built. The new superstructure will consist of one deck truss span 105 ft. 2½ in. over all, and one deck plate girder span 50 ft. ¾ in. over all. The height of the bridge from high water level to base of rail is 30 ft. The Board of Railway Commissioners has also authorized the rebuilding of bridges 14.5 and 18 on the Nicola Branch. (Feb., pg. 76.)

Lacombe & Northwestern Ry.—A press report states that a contract has been let by the Alberta Government to W. A. Dutton for preliminary construction on an extension of the Lacombe & Northwestern Ry., from near Rimbey, for 12 miles in the direction of Edmonton, Alta. The survey was made by H. G. Dimsdale, from the present end of track to the south boundary of Tp. 46, through a good farming country, in which there are several small settlements. The estimated cost of the extension is stated at \$250,000, provision for which was made in the estimates passed in April by the Legislature. Construction will be under the charge of Howard Tye, Superintendent and Engineer. (April, pg. 185.)

Lake Huron and Northern Ontario Ry.—Lt. Col. L. T. Martin, a member of the Timiskaming and Northern Ontario Ry. Commission, is reported to have stated recently that the Ontario Government had had numerous requests from settlers, and business interests asking for an inspection of this railway, and its extension beyond Rock Lake. The T. & N. O. Ry. Commission had made certain investigations, had gone over the line and had made some representations to the Government.

A summary of the history of the railway and of the company's plans for its extension and development was given in Canadian Railway and Marine World for May, pg. 236, and in the June issue on pg. 286, reference was made to the Ontario Government having opposed the extension of the charter applied for by the company, and to the T. & N. O. Ry. Commission having been asked to report on the property, and the possibilities of the country through which the extension was projected. The Premier's statement as to this investigation was that if the Commission's report was favorable, the existing line would be taken over, and operated according to the district's needs, and that its extension would be considered.

The existing railway runs from the shore of Lake Huron, and Bruce Mines, to Rock Lake, 17 miles, crossing the C. P.R. Sudbury-Sault Ste. Marie line at Bruce. The results of operation for the calendar year, 1920, were as follows:—gross earnings, \$10,874; operating expenses, \$10,560; net operating earnings, \$314. It carried 6,583 tons of freight, of which 5,740 originated on the line. No passengers were carried. The company owns one locomotive and 8 flat cars. The fixed charges were \$24,750. (June pg. 256.)

Michigan Central Rd.—A press report states that the Michigan Central Rd. has under consideration tenders for the fabrication, delivery and erection of the structural steel, including castings, rollers, railings, etc., for the proposed new steel arch bridge across the Niagara River, between Niagara Falls, Ont., and Niagara Falls, N.Y. The steel arch over

the river it is said has a total length of 640 ft., and the weight of the steel in the whole structure is estimated at 7,500 tons. (See Michigan Central Rd., May, pg. 237.)

Newfoundland Ry.—A press report states that the new management has decided to take up the rails on the Fortune Bay branch and that the work will be put in hand at once. This branch line was one of those projected in 1910, and was to extend from Northern Bight to Fortune, 79 miles. About 30 miles of track has been laid, and R. C. Morgan, now General Manager, in his recent report to the Government, recommended that the rails be taken up, and used to replace worn track on the main line. The work was never completed on the mileage of track laid on the branch, and the rails and ties have been lying exposed to the weather since they were put in position in 1913-14.

Pacific Great Eastern Ry.—The Premier of British Columbia returned to Vancouver recently from Winnipeg, where he had a conference with J. G. Sullivan, consulting engineer, who recently made a trip of investigation over the P.G.E.R., with a view of advising the Government as to its present condition and future construction policy. In an interview, while admitting that Mr. Sullivan regarded the situation as serious, the Premier stated that until Mr. Sullivan's report was received by the Government, nothing could be said. He, however, stated that the press report that the Squamish-Clinton section of the railway was to be abandoned and a connection made with the Canadian National Ry., south of Clinton, was not in keeping with Mr. Sullivan's views.

Lt.-Col. J. S. Dennis, Chief Commissioner, Colonization and Development, C. P.R., was engaged recently by the B.C. Government to report on the resources of the country served by the railway, and its prospects. He started from Vancouver, and after spending nearly two weeks in the country, left the line at Clinton, proceeding to Ashcroft, where he took a C.P.R. train for Calgary. He will report in writing to the Government. (June, pg. 287.)

Pennfold to Blacks Harbor, N.B.—A press report states that A. E. Hanson, Fredericton, N.B., is making a survey for a line from Pennfold, on the C.P.R. Shore Line Division, to Blacks Harbor, Charlotte County, N.B.

Quebec & Chibougamou Ry.—H. L. R. Blake, mining engineer, is reported to have left Quebec, recently, in charge of a party for Lake Chibougamou, Que., to investigate the area's mining and other resources for a British syndicate which is interested in the projected railway. The party expects to stay in the field until October or November.

The Q. & C. R. Co. made some surveys for a railway at the north of Lake St. John, in 1920, and a subsidy contract was reported to have been arranged with the Quebec Government for its construction, but nothing further has been heard of the matter. The company's railway project is for a line from Quebec to Chicoutimi, then round the northerly end of Lake St. John, and on to Lake Chibougamou, with branches. (April, pg. 185.)

Quebec Central Ry.—The Board of Railway Commissioners has authorized the Quebec Central Ry. to connect its line with the Canadian National Rys. in lot 234, range 2, Taniata, St. Jean Chrysostome Parish, Que. This is a connection between the line completed in 1921

from Scotts Jct., and the Canadian National Rys., which was built in Oct., 1921, to enable the Q.C.R. to run its trains into Quebec. (Nov., 1921, pg. 583.)

Timiskaming & Northern Ontario Ry.—A recent press report stated that rails and other material were being delivered at Cochrane, Ont., for the extension to opposite New Post on the Abitibi River, and that it was expected to start track laying during July. (June, pg. 287.)

Vancouver Harbour Ry.—A press report states that work is expected to be started shortly on the section of the projected harbor terminal railway between the Great Northern Ry. interchange track near the Ballantyne pier, and the Government dock at Vancouver. Plans for the work have been sent to Ottawa for approval, and it is expected that when they are received the work will be put in hand. It will be a single track line.

Railway Earnings.

Canadian National Railways.

Following are total operating revenues, total operating expenses, and net operating revenues or deficits, for the Canadian Northern Ry. System, Grand Trunk Pacific Ry., and Canadian Government Rys., the last including the Intercolonial Ry., Prince Edward Island Ry. and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government:—

	Revenue	Expenses	Net deficits	
			1922	1921
Jan.	\$8,210,401	\$10,433,564	\$2,223,163	\$2,863,058
Feb.	7,650,743	10,026,572	2,375,829	2,986,998
March	9,418,100	10,397,547	979,447	2,532,959
April	7,804,222	9,153,738	1,349,516	2,636,639
May	9,678,965	9,726,020	47,055	2,554,540
	\$42,762,431	\$49,737,441	\$6,975,010	\$13,574,194
Decr.	\$6,320,440	\$12,919,624	\$6,599,184	.....

Approximate gross earnings for June, \$7,595,758, and for two weeks ended July 14, \$4,171,815, against \$8,452,054 and \$4,213,968 for same period 1921.

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1922, compared with those for 1921. The discrepancies between these figures and those issued by the Dominion Bureau of Statistics are owing to the fact that the Bureau is, at its request, furnished with figures by the C.P.R., including the Esquimalt & Nanaimo Ry., and the Montreal & Atlantic Ry. earnings, as well as the C.P.R. ones. The figures supplied the Bureau are exclusive of certain income items which are included in figures supplied Canadian Railway and Marine World:—

	Gross	Expenses	Net	Decreases
Jan.	\$11,337,975	\$10,854,498	\$483,477	\$157,948
Feb.	11,303,693	10,649,205	654,488	158,904
March	13,847,627	11,427,120	2,420,507	30,402
April	12,331,371	10,782,598	1,548,773	1,097,359
May	13,664,246	11,319,732	2,344,514	949,038
	\$62,484,911	\$55,033,153	\$7,451,758	\$2,393,650
Decr.	\$7,109,118	\$4,715,468	\$2,393,650	.....

Approximate gross earnings for June, \$13,198,000, and for two weeks ended July 14, \$6,353,000, against \$13,859,000 and \$6,837,000 for same periods 1921.

Grand Trunk Railway.

Following are total operating revenues, total operating expenses and net operating revenues, or deficits for 1922:—

	Gross	Expenses	Net revenue	
			1922	1921
Jan.	\$5,354,317	\$4,984,953	\$369,364	*\$701,166
Feb.	5,667,487	4,700,985	966,502	31,374
March	6,118,314	5,153,028	965,286	577,680
April	4,901,367	4,596,666	304,701	382,272
	\$22,041,485	\$19,435,632	\$2,605,853	\$290,520
Incr.	.....	.....	\$2,315,333	.....
Decr.	\$1,637,714	\$3,953,047	.....	.....

*Deficit.

Approximate earnings for June, \$9,220,065, and for two weeks ended July 14, \$4,400,851, against \$8,508,543 and \$3,395,895 for same periods 1921.

Jasper National Park Tourist Facilities.—The Canadian National Rys. has a special representative at Jasper National Park, B.C., during this summer. D. S. Dewar, of the Passenger Traffic Department, Winnipeg, was there until July 15, when he was relieved by T. W. McDonough, Terminal Passenger Agent, Winnipeg.

Mainly About Railway People Throughout Canada.

William Askin, Accountant, Northern Navigation Co., Sarnia, Ont., died suddenly at his home at Port Huron, Mich., from heart disease, aged 65. He first entered transportation service, several years ago, with the C.P.R., and later entered the service of the Beatty Line, operating on the Upper Lakes, and owned by the late Henry Beatty, father of the present President of the C.P.R. He later entered Northern Navigation Co.'s service, and left in 1904 on his appointment as Agent, Montreal-Lake Superior Line, Montreal. In April, 1907, he was appointed Western Agent, Canadian Lake Line, Winnipeg. He, subsequently, went to live in Detroit, Mich., and in 1918 was appointed Accountant, Northern Navigation Co., Sarnia, Ont.

A. S. Baldwin, Vice President, Illinois Central Rd., Chicago, Ill., died suddenly on a train en route from New York to Chicago, via Windsor, Ont., June 27, while returning home from Europe after a three months visit.

E. W. Beatty, K.C., President, C.P.R., addressed the pupils of the training school at Shawbridge, Que., of which he is President, July 14.

Sir George McLaren Brown, European General Manager, C.P.R., London, Eng., has been re-elected President of the Canadian Chamber of Commerce there.

G. S. Donaldson, General Agent, Chicago & Northwestern Ry., Toronto, who was driving an automobile which was overturned, near Oakville, Ont., when a friend in the car was killed and he was seriously injured, towards the end of June, was committed for trial at Oakville, July 14, on a charge of manslaughter. He was released on \$10,000 bail.

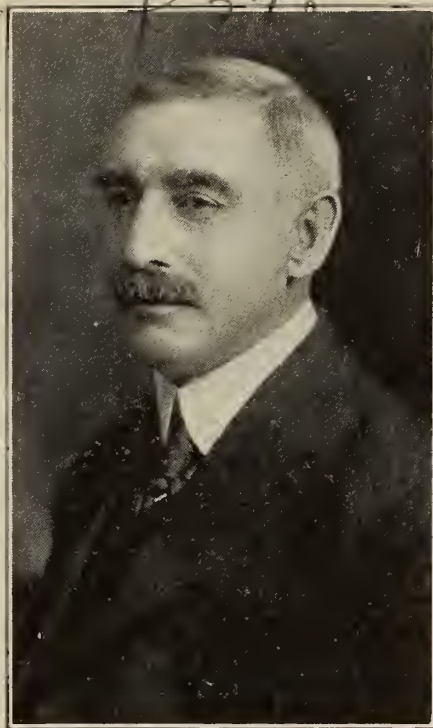
Mrs. G. B. Edwards, wife of the General Agent, White Pass & Yukon Route, Dawson, Yukon, died there, July 13.

C. Price Green, Commissioner, Industrial & Resources Department, Canadian National Rys., Toronto, has been admitted to the Royal Geographic Society's fellowship.

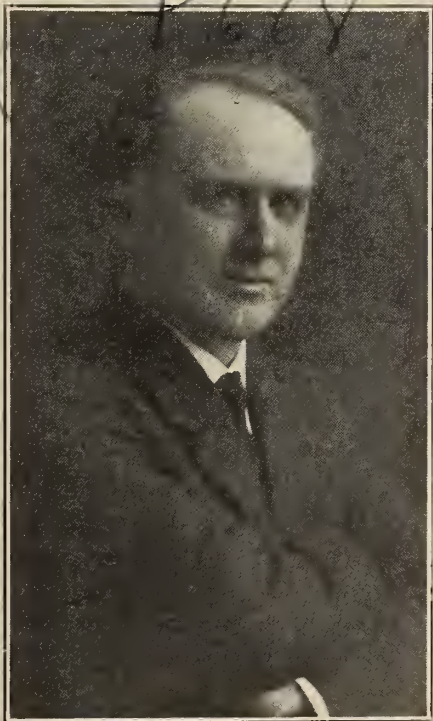
John H. Green, Assistant Master Mechanic, Bridgewater Division, Maritime District, Canadian National Rys., Bridgewater, N.S., was killed by a yard locomotive there, July 6. In company with **W. C. Hirtle**, Car Foreman, he was overlooking some men repairing a passenger car on a siding, and crossed over to inspect a train which was drawing into the station. In crossing a siding he did not notice a yard locomotive approaching on the siding, on account of the noise made by the incoming train, and of heavy rain. The locomotive was only moving at about 5 miles an hour, but Mr. Hirtle's attempt to save Mr. Green was unsuccessful. The funeral took place at Bridgewater, July 9. He was born at Wyckham, N.B., Aug. 29, 1862, and entered railway service in April, 1892, since when he was, to March, 1896, Master Mechanic, Nova Scotia Central Ry., Bridgewater, N.S.; March, 1896, to 1903, Master Mechanic, Central Ry., Bridgewater, N.S.; 1903 to June, 1906, Shop Foreman, Halifax & Southwestern Ry., Bridgewater, N.S.; June, 1906, to April, 1908, Locomotive Foreman, same road, Yarmouth, N.S.; April, 1908, to Aug., 1910, Locomotive Foreman, same road, Bridgewater, N.S.; Aug., 1910, to June, 1915, acting Master Mechanic, same road, Bridgewater, N.S.; June, 1915, to Aug., 1918, Master Mechanic, same road, Bridgewater Division, Maritime District,

Canadian National Rys., Bridgewater, N.S.

Roland W. Greene, who has been ap-



Alfred Price,
General Manager, Eastern Lines, Canadian Pacific
Railway, on extended leave of absence.



J. J. Scully,
General Manager, Eastern Lines, Canadian Pacific
Railway.

pointed Assistant General Agent, Ocean Traffic, C.P.R., Calgary, Alta., entered transportation service in March, 1909, since when he has been, to Nov., 1911, clerk, Freight Department, Canadian Northern Ry., Saskatoon, Sask.; Nov.,

1911, to Feb., 1913, clerk, Freight Department, Grand Trunk Pacific Ry., Saskatoon, Sask.; Feb., 1913, to Aug., 1915, station ticket clerk, Canadian Northern Ry., Saskatoon, Sask.; Aug., 1915, to Feb., 1916, ticket clerk, same road, North Battleford, Sask.; March, 1916, to March, 1917, city ticket clerk, Grand Trunk Pacific Ry., Winnipeg; June, 1917, to March, 1919, assistant City Passenger and Ticket Agent, same road, Winnipeg; March, 1919, to July 1, 1922, Travelling Passenger Agent, Ocean Traffic, C.P.R., Winnipeg.

Grant Hall, Vice President, C.P.R., left Montreal, July 2, on a trip of inspection over the line as far as the Pacific coast. He was accompanied by Mrs. Hall and his son William. On arriving at Winnipeg, July 4, he was met by D. C. Coleman, Vice President, Western Lines, and a number of other local officials. Mr. Coleman accompanied him to Regina, and C. Murphy, General Manager, Western Lines, went through with him by the main transcontinental line to Vancouver, and thence to Victoria, the intention being to return over the Crowsnest Pass line. District and other officials travelled with the party over their respective jurisdictions.

George William Holmes, who died at Hamilton, Ont., July 14, was born at Detroit, Mich., July 2, 1873, was educated in the public schools there, and at Ypsilanti, Mich., and was, for some time, engaged in the Stores Department, Michigan Central Rd., Detroit. He entered Toronto, Hamilton & Buffalo Ry. service Dec. 14, 1897, as Storekeeper at Hamilton, Ont., and was appointed Purchasing Agent, June 1, 1903. He resigned, Mar. 31, 1922, on account of ill health.

H. J. Humphrey, whose appointment as Assistant General Superintendent, Ontario District, C.P.R., Toronto, was announced in our last issue, was born at Berry's Mills, N.B., Jan. 26, 1879, and entered railway service in June, 1896, since when he has been, to Aug., 1897, telegraph operator at various points, Intercolonial Ry.; Aug., 1897, to Aug., 1901, telegraph operator, Boston & Maine Rd.; Aug., 1901, to April, 1902, telegraph operator, Intercolonial Ry.; May 9, 1902, to Sept. 6, 1903, telegraph operator, C.P.R., Calgary, Alta.; Sept. 6, 1903, to June 1, 1907, dispatcher, C.P.R., Calgary, Alta.; June 1, 1907, to Nov. 1, 1909, dispatcher, C.P.R., Medicine Hat, Alta.; Nov. 1, 1909, to April 10, 1911, dispatcher, C.P.R., Calgary, Alta.; April 10, 1911, to July 1, 1912, Chief Dispatcher, C.P.R., Macleod, Alta.; July 1, 1912, to Jan. 8, 1915, Car Service and Fuel Agent, Saskatchewan Division, C.P.R., Moose Jaw; Jan. 8, 1915, to Jan. 1, 1916, Superintendent of Car Service, Western Lines, C.P.R., Winnipeg, Jan. 1, to Nov. 6, 1916, Superintendent of Car Service, Eastern Lines, C.P.R., Montreal; Nov. 6, 1916, to Feb., 1917, Superintendent, Farnham Division, Quebec District, C.P.R., Farnham; Feb. to Apr. 2, 1917, Superintendent, Laurentian Division, Quebec District, C.P.R., Montreal; Apr. 2, 1917, to Aug. 1, 1919, Superintendent, Brownville Division, New Brunswick District, C.P.R., Brownville Jct., Me.; Aug. 1, 1919, to July 4, 1922, Superintendent, Trenton Division, Ontario District, C.P.R., Toronto.

Hon. W. C. Kennedy, Minister of Railways and Canals, is reported to be the principally interested member of a syn-

dicade which has bought the London, Ont., Advertiser.

Sir Donald Mann, ex Vice President, Canadian Northern Ry., left Toronto early in July, to spend some weeks in Great Britain.

Alexander McKenzie, who died at St. Paul, Minn., recently, aged 41, was born at Barrie, Ont., and went to Dakota in 1867, at about 17 years of age, when he carried dispatches for the Government through hostile Indians, to Fort Burford. In 1872 he worked as a spiker on the Northern Pacific Ry., then under construction westerly, and in 1874 was elected Sheriff of Bismarck, then a rough settlement, which position he held for 12 years. He was subsequently a U.S. deputy marshal, and later entered politics, and was for 30 years the acknowledged head of the Republican party in Dakota. He later moved to St. Paul, Minn., promoted the Cook Construction Co., and carried out a large contract for the City of Montreal. His company lent its machinery and general aid at the time of the Halifax disaster during the war. Mrs. Foster, wife of C. B. Foster, Assistant Passenger Traffic Manager, C.P.R., Montreal, is a daughter.

Wm. Mitchell, who died in Toronto, June 28, aged 74, was the father of L. W. Mitchell, formerly Treasurer, Canadian Northern Ry., and now General Auditor, T. Eaton Co., Toronto. He lived for many years in Port Elgin, Ont., removing to Toronto in 1910.

William Merton Neal, whose appointment as General Superintendent, Algoma District, C.P.R., North Bay, Ont., was announced in our last issue, was born at Toronto, June 20, 1886, and entered C.P.R. service Jan. 25, 1902, since when he has been, to March, 1902, office boy, Superintendent's office; March, 1902, to April, 1903, stenographer, General Superintendent's office, Ontario Division; April to May, 1903, stenographer, Accounting Department; May, 1903, to March, 1904, stenographer and Superintendent's secretary; March to August, 1904, stenographer, Freight Traffic Department, all at Toronto; Aug., 1904, to March, 1907, secretary to Superintendent of Transportation; March to Sept., 1907, secretary to General Superintendent, Central Division; Sept. to Dec., 1907, travelling car checker; Dec., 1907, to Jan., 1908, secretary to General Superintendent, Central Division, all at Winnipeg; Jan. to April, 1908, chief clerk, Superintendent's office, Souris, Man.; April, 1908, to June, 1910, assistant chief clerk; General Superintendent's office, Winnipeg; June, 1910, to May, 1915, chief clerk, Car Service Department, Winnipeg, and at various times, acting car service agent, at Winnipeg, Moose Jaw, Sask., Calgary, Alta., and Vancouver, B.C.; May, 1915, to Jan., 1916, chief clerk to General Superintendent of Car Service, Montreal; Jan. to April, 1916, Car Service Agent, Montreal; April to June, 1916, acting Superintendent of Car Service, Eastern Lines, Montreal; June to Oct., 1916, Assistant Superintendent, Montreal Terminals; Oct., 1916, to Oct., 1917, acting Superintendent of Car Service, Eastern Lines, Montreal; from Oct., 1917, to Feb., 1920, he was General Secretary of the Canadian Railway War Board, later the Railway Association of Canada, Montreal; Feb. to April, 1920, Assistant General Superintendent, Quebec District, C.P.R., Montreal, and from April, 1920, to July 3, 1922, Assistant General Superintendent, Ontario District, C.P.R., Toronto.

Alfred Price, General Manager, Eastern Lines, C.P.R., Montreal, who has been granted extended leave of absence, on account of ill health, as mentioned in our last issues, was born at Toronto, Dec. 6, 1861, and started work in 1875, as



George Hodge,
Assistant General Manager, Eastern Lines, Canadian Pacific Railway.



W. M. Neal,
General Superintendent, Algoma District, Canadian Pacific Railway.

messenger, Montreal Telegraph Co., Toronto. He entered railway service in Sept., 1879, since when he has been, to 1881, operator and clerk, Credit Valley Ry.; 1881 to 1882, car accountant, same road, Toronto. He remained with the C.

P.R. when that company took over the Credit Valley Ry., and from 1882 to 1884 was operator and relief dispatcher, Toronto; 1884 to July, 1888, dispatcher, Toronto; July, 1888, to May, 1896, car distributor, Toronto; May, 1896, to Aug., 1898, car distributor and Chief Dispatcher, Toronto; Aug., 1898, to May, 1901, Superintendent, Toronto, May, 1901, to Sept., 1902, Superintendent, Districts 8 and 9, Toronto; Sept., 1902, to May, 1903, Superintendent, Districts 10 and 11, Toronto; May, 1903, to 1905, Superintendent, Fort William, Ont.; 1905 to Feb., 1907, Superintendent of Transportation, Western Lines, Winnipeg; Feb. to Dec., 1907, General Superintendent, Central Division, Winnipeg; Dec., 1907, to July, 1910, General Superintendent, Western Division, Calgary, Alta.; July, 1910, to July, 1914, General Superintendent, Alberta Division, Calgary, Alta.; July, 1913, to Oct. 15, 1918, Assistant General Manager, Eastern Lines, Montreal; and from Oct. 15, 1918, General Manager, Eastern Lines, Montreal. Mr. Price sailed from Montreal on the s.s. Montrose, July 14, with his 2 daughters, to go to Torquay, Devonshire, England, intending to rest there quietly for a few months.

Edward J. Richel, who has been appointed City Passenger Agent, C.P.R., Chicago, Ill., entered C.P.R. service, June 16, 1920, since when he has been, to Oct. 1, 1920, clerk, Passenger Department, Canadian Pacific Ocean Services, Ltd., Chicago; Oct. 1, 1920, to Jan. 21, 1921, chief clerk, same department, Chicago; Jan. 21 to June 1, 1921, Passenger Agent, Chicago; June 1, 1921, to June 1, 1922, Travelling Passenger Agent, Chicago.

J. J. Scully, whose appointment as General Manager, Eastern Lines, C.P.R., Montreal, was announced in our last issue, was born there, Feb. 3, 1872, and entered C.P.R. service, Jan. 14, 1887, since when he has been, to June 18, 1888, office boy, car accountant's office, Montreal; June 18 to Sept. 12, 1888, clerk, Assistant Superintendent's office, Farnham, Que.; Sept. 12, 1888, to Aug. 12, 1890, chief clerk, same office; Aug. 12, 1890, to April 1, 1891, clerk, Superintendent's office, Montreal; April 1, 1891, to March 1, 1893, chief clerk, Superintendent's office, Farnham, Que.; March 1, 1893, to Sept. 1, 1894, chief clerk, Mechanical & Car Departments, Farnham, Que.; Sept. 1, 1894, to March 1, 1898, chief clerk, Mechanical & Car Departments, Toronto Jct., Ont.; March 1, 1898, to Aug. 20, 1901, assistant to Master Mechanic, Ontario & Quebec District, Toronto Jct., Ont.; Aug. 20, 1901, to Aug. 1, 1902, assistant to Master Mechanic, Road Service, Western Division, Winnipeg; Aug. 1, 1902, to May 1, 1903, chief clerk to General Superintendent, Western Division, Winnipeg; May 1 to June 1, 1903, acting Superintendent, Regina, Sask.; June 1, 1903, to Jan. 1, 1904, chief clerk to Assistant General Manager, Winnipeg; Jan. 1 to April 15, 1904, chief clerk to second Vice President, Winnipeg; April 15 to Aug. 8, 1904, Assistant Superintendent, Brandon District, Brandon, Man.; Aug. 8, 1904, to Oct. 10, 1906, Superintendent, Brandon District, Western Division, Brandon, Man.; Oct. 10, 1906, to May 10, 1910, Superintendent, Kenora District, Lake Superior Division, and in charge jointly with W. A. James, now Assistant Chief Engineer, Western Lines, of building first double track in Western Canada (Port Arthur to Winnipeg), Kenora, Ont.; May 10 to July 1, 1910, Superintendent, Moose Jaw District, Western Division, Moose Jaw, Sask.; July 1, 1910, to April 20, 1912,

General Superintendent, Saskatchewan District, Moose Jaw, Sask.; April 20, 1912, to July 3, 1922, General Superintendent, Algoma District, North Bay, Ontario. Prior to leaving the Algoma District, Mr. Scully entertained the heads of the various dedepartments of the District, at Sudbury, Ont., July 9, when they were introduced to his successor, W. M. Neal.

Andrew J. Smith, agent, C.P.R., Tweed, Ont., died July 19, aged 55.

Major General J. W. Stewart, C.B., C.M.G., returned to Vancouver in July from England, where he had been in connection with the contract which his firm, Stewart & Macdonnell, have for building a harbor, railway, etc., in the Gold Coast Colony, Africa.

W. N. Tilley, K.C., whose election as Director, C.P.R. Co., was announced in our last issue, was born at Bowmanville, Ont., in 1868. He was called to the Ontario Bar in 1894, and was made a K.C. in 1916. He has had a wide experience in railway cases, and has been retained in the Canadian courts, and before the Imperial Privy Council, in a number of important cases during the past few years. Among these were the International Fisheries arbitration at the Hague, Holland, where he represented Canada and Newfoundland; the Canadian Northern Ry. arbitration and the G.T.R. arbitration, and recently on behalf of the Dominion Government in the G.T.R. shareholders' appeal before the Imperial Privy Council.

A. E. Wallace, who has been appointed General Manager, Minneapolis, St. Paul & Sault Ste. Marie Ry., Minneapolis, Minn., was born at Nashua, N.H., in 1879, and entered railway service in 1902, since when he has been, to 1904, clerk, Great Northern Ry., Larimore, N.D.; 1904 to 1907, yard clerk, timekeeper and chief clerk, Chicago, Rock Island & Pacific Ry.; 1907 to 1912, special inspector, assistant gang foreman, trainmaster, and assistant superintendent, Chicago, Burlington & Quincy Ry.; 1912 to 1918, Superintendent, Chicago, Rock Island & Pacific Ry.; 1918 to 1920, Assistant General Superintendent, Erie Rd.; 1920 to June, 1921, Manager, Chicago Region, same road.

James Webster, who died at Toronto, July 4, was born in 1844, and entered railway service in 1859, as office boy with the Great Western Ry., now G.T.R., Hamilton, Ont. He continued with the G.T.R. and from July 1, 1879, to Oct. 16, 1889, was Superintendent, Traffic Department, Northern & Northwestern Division, Toronto; Oct. 16, 1889, to Jan. 1, 1897, Assistant Superintendent, at Allandale, Ont. He later became President and General Manager, Gulf Shore & Carquet Ry. at Bathurst, N.B., and retired from active service in 1914. A. F. Webster, general ticket agent, Toronto, is a brother.

Dolly Varden Mine and Railway.—G. Wingfield, a Reno banker, is reported to have obtained an order for foreclosure in the British Columbia courts on the Dolly Varden and other mining properties at Alice Arm, B.C., together with the railway and all equipment. The order was unopposed by the Taylor Engineering Co., the Dolly Varden Mining Co., the Taylor Mining Co., the trustees for the bondholders and the trustee for the creditors. It is reported that a private agreement has been made under which the Taylor Mining Co. has a right to redeem the property under certain conditions. The decision has been confirmed.

Prime Minister King Plays Politics with the Canadian National Railways.

At the recent Manitoba elections, two Canadian National Rys. employees were candidates, viz:—C. W. Foster, employed in the Transcona shops; and G. H. Palmer, a truck dispatcher at Dauphin. When they announced their candidatures, their services were dispensed with, under the order issued some time ago by President D. B. Hanna, forbidding officials or employees becoming parliamentary or legislative candidates. Both of them were defeated at the polls.

On July 19 W. D. Bayley, who was elected an Independent labor representative in Assiniboia, telegraphed Premier King, at Ottawa, in part as follows:—"In Nov. 1920, in reply to my letter of Oct. 30, 1920, you expressed your agreement with my opposition to the Hanna order dismissing mere wage-earners from service in the Canadian National Rys. for running as Parliamentary candidates. I wired you to give you the opportunity

the Government, as representing the people, for the management and operation of the roads. It is a fundamental principle of Government policy not to interfere, or to permit interference, with the board of directors in the discharge of its duties. The Government is therefore not in a position to say to the board of directors what, in this or in any other matter, should or should not be done." On the other hand, the Government does not hesitate to make known the attitude which, in its opinion, should be adopted by the board of directors of the Government railways with respect to the right of railroad workers to offer themselves for political office. As regards workers on the Government railroads, the Government would hope and expect that the same attitude would be taken in the matter of their political rights as is taken towards their employees by the privately owned railroads and in particular by the C.P.R. Co. which operates the other important railway system in the Dominion, and is the only real competitor of the Canadian National Rys. I regret that the Minister of Railways is absent from Ottawa today, which deprives me of an opportunity of immediate conference with him. I am sending copies of your communication and this reply to the Deputy Minister of Railways with the request that its contents be communicated immediately to the Chairman of the Board of Directors of the Canadian National Rys."

While Mr. King said he was forwarding a copy of his telegram to the Deputy Minister of Railways for transmission to Mr. Hanna, he did not wait for it to reach the latter before making it public, but gave it to the press immediately, so that no doubt Mr. Hanna read it in the papers before it reached him officially. Mr. King's ideas of the amenities are certainly perverted and his whole course in the matter is hypocritical, as while he said that "it is a fundamental principle of Government policy not to interfere or to promote interference with the board of directors in the discharge of its duties" he went on to say that "the Government does not hesitate to make known the attitude which in its opinion should be adopted by the directors". In other words, he told the directors who were appointed by the Government, and hold office during its pleasure, what the Government thinks they should do. How long is the ridiculous pretence that there is no political interference with the Canadian National Rys, management to be kept up?

It is not likely that Foster and Palmer will be reinstated while the present C. N. R. directors are carrying on, and that the matter will be left to the new board to deal with.



H. J. Humphrey,
Assistant General Superintendent, Ontario District,
Canadian Pacific Railway.

of righting this outrage against Labor and democracy before appeal to public opinion. I trust you will immediately seize the opportunity to confirm your former attitude by having Palmer and Foster reinstated at the earliest possible moment."

The Premier telegraphed in reply on July 20, as follows:—"On May 29 last, in answer to a communication from the president of the Trades and Labor Congress of Canada, making enquiries as to the decision of the Government upon section (D) of the legislative programme of the Trades and Labor Congress of Canada, which is worded as follows: "To restore the right of railroad workers to offer themselves for political office without forfeiting their positions or seniority on the national railroads and correct the injustice created by what has been known as the Hanna order," I stated the Government's view of the matter as follows: "The control of the Canadian National Rys. is vested in a board of directors which is held responsible by

The Act to amend the Railway Act, 1919, passed at the Dominion Parliament's recent session, provides as follows: The Railway Act, 1919, sec. 325, sub-sec. 5, shall, notwithstanding the proviso thereof, remain in effect until July 6, 1923, and may be continued in force for a further period of one year, by order of the Governor in council, published in the Canada Gazette, provided that notwithstanding anything in this act or in the Railway Act, 1919, sec. 325, sub-sec. 5, rates on grain and flour, shall, on and from July 6, 1922, be governed by the provisions of the agreement made pursuant to the statutes of 1897, chap. 5.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian Freight Association.—Major W. M. Kirkpatrick, Assistant Freight Traffic Manager, C.P.R., and W. G. Manders, Assistant Freight Traffic Manager, Canadian National Rys.; the C.F.A., Western Lines, the executive committee, issued a circular, July 1, announcing that F. W. THOMPSON, heretofore the Association's Inspector, had been appointed acting Chairman at Winnipeg, vice W. E. Campbell, resigned, on appointment as Chief Traffic Officer, Board of Railway Commissioners.

Canadian National Rys.—G. L. BRYSON has been appointed Travelling Passenger Agent, Canadian National-Grand Trunk Rys., Cincinnati, Ohio, vice R. C. Kuhn, transferred to General Agent's Office at Detroit, Mich., as Chief Clerk. Office, 406,407 Traction Bldg.

J. A. McMAHON, heretofore Roadmaster, Hornepayne, Ont., has been appointed Roadmaster, Ottawa, Ont., vice W. H. Henderson, who was appointed acting Roadmaster there, vice O. Ogden, deceased.

RIGBY'S LTD. have been appointed Passenger Agents for the north of Ireland for Canadian National-Grand Trunk Rys. Office, 74 High Street, Belfast. The arrangements with Stephens & Warrington, who were G.T.R. Freight and Passenger Agents at Belfast, have been cancelled.

W. TAYLOR, heretofore on the staff at Manchester, Eng., has been appointed Special Agent, Passenger Department, Canadian National-Grand Trunk Rys., Antwerp, Belgium. Office, 2 Quai Ortelius.

Canadian Pacific Ry.—W. I. BALKWILL has been appointed Travelling Passenger Agent, Chicago, Ill., vice E. J. Richel, appointed City Passenger Agent there.

R. W. GREENE, heretofore Travelling Passenger Agent, Ocean Traffic, Winnipeg, has been appointed Assistant General Agent, Ocean Traffic, Calgary, Alta., vice H. M. Tait, whose appointment as General Agent, Passenger Department, Rail and Ocean Traffic, Minneapolis, Minn., was announced in our last issue.

ALLAN CAMERON, Superintendent, Land Branch, Natural Resources Department, Calgary, Alta., it is expected; will be appointed Oriental Manager, C.P.Ry., Hong Kong, China, about Oct. 1.

ROSS OWEN is reported to have been appointed Agent at Moscow, Russia.

E. J. RICHEL, heretofore Travelling Passenger Agent, Chicago, Ill., has been appointed City Passenger Agent, there, vice A. R. Dean, resigned to engage in other business.

Reid Newfoundland Co.—H. D. Reid, President, issued a circular, June 23, announcing that RICHARD C. MORGAN, Superintendent, Winnipeg Terminals, C. P.R., who is on seven months leave of absence, has been appointed General Manager, Reid Newfoundland Co.'s railway and steamships, and of the Newfoundland Express Co. Office, St. John's, Nfld.

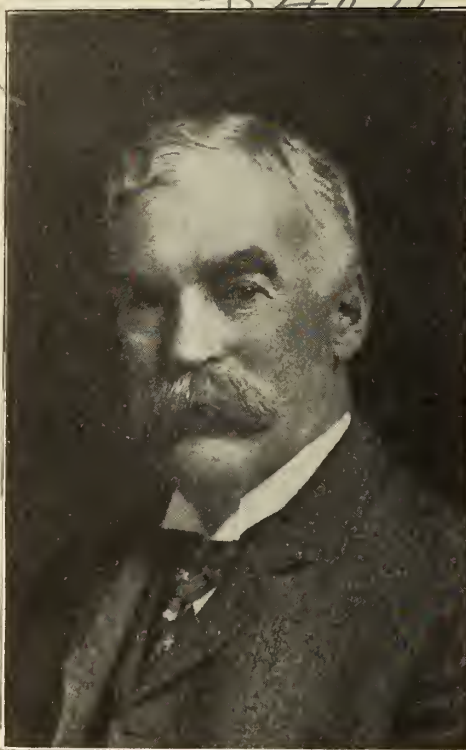
H. J. RUSSELL, Superintendent, Eastern Division, has also been appointed Assistant to the General Manager, R. C. Morgan.

Royal Mail Steam Packet Co.—A. G. ALBERTSEN, heretofore General Agent, Passenger Department, Rail and Ocean Traffic, C.P.R., Minneapolis, Minn., has

been appointed Manager R.M.S.P. Co., San Francisco, Cal., as announced in our last issue. He has jurisdiction over the States of California, Nevada, Arizona and New Mexico. Office, 544 Market St.

Death of W. H. Biggar, K.C.

W. H. Biggar, K.C., Vice President and General Counsel, G.T.R., died suddenly at Montreal, July 7, from cerebral hemorrhage. He was taken ill on St. Catherine St., while proceeding home, and was removed to a private hospital, where he became unconscious and died during the evening. He was born at The Carrying Place, near Trenton, Ont., Sept. 19, 1852, and was educated at the Trenton Grammar School and Upper Canada College. He began to study law in 1875, after having for a short time engaged in commercial pursuits, and was called to the bar in 1880. He then became associated with John Bell, Q.C., then General Counsel, G.T.R., at Belleville, Ont., in general practice in 1881, was made a Q.C. in 1900,



W. H. Biggar, K.C.,
Vice President and General Counsel, Grand Trunk
Railway, who died at Montreal, July 7.

and was appointed Assistant General Counsel, G.T.R., Montreal, Jan., 1903, and General Solicitor, Dec., 1904, and General Counsel, G.T.R. and Grand Trunk Pacific Ry., Montreal, in Jan., 1910. In October, 1914, he was also appointed Vice President, G.T.P.R. In Sept., 1917, he was appointed Vice President and General Counsel, G.T.R., Montreal. He was Mayor of Belleville, Ont., in 1887, and represented West Hastings in the Ontario Legislature from 1890 to 1897. During the recent G.T.R. arbitration proceedings, he was actively engaged on behalf of the company, and was also instrumental in the preparation of the case for the shareholders' appeal against the majority decision of the arbitration board. He was prominent in social circles in Montreal, and was a member of the Mount Royal, St. James and Royal Montreal Golf Clubs, Montreal, and Rideau Club, Ottawa.

The body was taken to Belleville, Ont., on a special train, July 11, for burial.

The pallbearers were: W. C. Chisholm, K.C., E. Donald, J. P. Pratt, C. A. Harwood, K.C., T. Waterson, and T. W. R. McRae, all of the G.T.R. Legal Department. Among others present at the funeral were: Sir Joseph Flavelle, H. G. Kelley, J. E. Dalrymple, Frank Scott, W. D. Robb, D. E. Galloway, G. T. Bell, H. C. Martin, Major F. L. C. Bond, Dr. J. A. Hutchison, W. F. Fitzsimmons, W. S. Cookson, R. H. Fish, H. Hulatt, J. J. Connolly, C. G. Bowker, G. C. Jones, J. R. Melville, L. L. Grabill, E. W. Smith, R. W. Long, D. F. McGraw, J. D. McDonald and I. W. Gannt, of the G.T.R.; John Pullen, W. C. Muir, Canadian National Express Co.; C. J. Smith, Montreal Warehousing Co.; W. H. Smith, Canada Atlantic Transit Co. and Ontario Car Ferry Co.; E. P. Flintoff, K.C., representing the C.P.R., and G. W. Yates, representing the Railways and Canals Department.

The Equipment Painting Section, American Railway Association, Division 5, Mechanical, will hold its second annual session at Cleveland, Ohio, Sept. 5, 6, and 7. Among the members of the various committees are the following:—On direction, and on protection of steel equipment, J. R. Ayres, General Master Painter, C.P.R., Montreal; on tests, Jas. McCarthy, Foreman Painter, G.T.R., Montreal; on safety and sanitation, Robt. Woods, Foreman Painter, G.T.R., Western Lines, Port Huron, Mich.; on classification of painting, repairs and shopping of equipment, Thos. Marshall, Foreman Painter, C.P.R., Montreal.

Locomotive Stokers for Canadian National Rys.—The C.N.R. management has ordered 25 duplex stokers from Locomotive Stoker Co., Pittsburg, Pa., for use on Mikado, Santa Fe and consolidation locomotives. Ten will be applied at the Moncton N.B. shops, to Santa Fe locomotives, and 15 will be applied at the Transcona, Man., shops, 10 to mikado locomotives and 5 to heavy consolidations. The stokers are being made by Canadian Westinghouse Co. at Hamilton, Ont. At July 15, 4 had been delivered, 2 to Moncton and 2 to Transcona. It is expected that the remainder will be delivered by the end of August.

Hutchison Shield Competition.—The G.T.R. first-aid teams in Montreal competed recently for the shield, offered for competition by Col. J. Alex. Hutchison, C.B.E., M.D., Chief Medical Officer, for proficiency in first aid. It was won by the Point St. Charles shops' team, to which it was presented, July 14, by G. M. Wilson, Superintendent, Motive Power Shops.

The C.P.R. will entertain members of the Travelling Passenger Agents' Association from the United States at Victoria, B.C., Sept. 19. Two special trains will be placed at the disposal of the party, which is expected to number about 350.

Steel Rail Orders.—The C.P.R., late in June, ordered 48,000 tons 100-lb. C.P.R. section, open hearth steel rails, from the Algoma Steel Corporation, to be delivered during July and August, to points in Western Canada.

Algoma Central & Hudson Bay Ry.—Gross earnings for April, \$105,169, against \$147,881 for April, 1921. Gross earnings for 10 months ended Apr. 30, \$1,404,437, against \$2,331,025, 1920-21.

Jasper Park Lodge is a new summer resort on the shores of Lake Beauvert, about three miles from Jasper Station, Alta., established by the Canadian National Rys. The lodge has accommodation for 60 guests in log cabins.

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TORONTO, CANADA, AUGUST, 1922.

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The Canadian National Railways' Results for 1921.

Canadian Railway and Marine World for July, contained on pgs. 289 to 292 the Canadian National Rys. report for the calendar year 1921, including the Canadian Northern, Canadian Govern- ment and Grand Trunk Pacific Rys. Notwithstanding the operating losses recorded, and the magnitude of the fixed charges, which, combined with those operating losses to make up the total deficit, which must be met by taxation, direct and indirect, there are many things in the report which inevitably give rise to optimism and faith in the ultimate success of the Canadian National Rys. enterprise. In view of the financial results attending railway operation in North America and on other continents during the past five years, and of the operating difficulties and discouragingly low traffic density facing the C.N.R. management, it may be stated without reserve that the manage- ment in 1921 amply demonstrated its ability to convert the far flung lines embraced in the C.N.R. system into an efficient and financially successful trans- portation machine, if it is but given the time and the opportunity.

We say advisedly, "If it is but given the time and the opportunity." It must be evident to all who have given any thought to the matter that it will take time to place the C.N.R. system on a basis where not only operating expenses, but also fixed charges, can be met. The peculiar situation which developed in the rail transportation industry in the later years of the war, and in the two years immediately following, by reason of rapidly increasing operating costs not being compensated for by rates being increased to the same extent, cannot be corrected all at once. The process of restoration to normal began almost immediately after the last rate increase in Sept. 1920, and has been going on ever since, but it still has a long way to go before the relationship as between rail- way operating costs and charges for transportation services are on the 1916 basis. And even with that restoration complete, the time would still not have arrived when the C.N.R. would be on a self supporting basis. The element of traffic density enters into the equation to further extend the time. More population, more industry, more produc- tion, more traffic, these are the things which are needed, and the acquisition of these things by Canada will take time. It is evident, therefore, that a coinciding period of time must elapse before the system can be financially self-supporting.

It can be as truthfully said that the management must be given opportunity, i.e., freedom from restrictive regulation and from political interference. Rates have been cut severely, so severely, in- deed, that the restoration to normal in the railway business has been greatly impeded. It is held by probably a majority of the people that the lower rates will prove to be in the railways' interest, and in the national interest, by encouraging industry and creating greater traffic, but we are of the opinion that the rates have now been put as low as if not lower than they can be without regulation becoming restrictive and defeating its own purpose. We do not want to see restrictive regulation. So far as political interference is concerned, we imagine it will be kept to the irre-

ducible minimum so long as the present management is in control. It is to be hoped, therefore, that the opportunity mentioned above, will not be withheld. Is it necessary to add that the greater the opportunity, the shorter will be the time required to place the system on a proper basis, or, conversely, that the more limited the opportunity afforded the management, the longer will be that time?

The mere fact that the C.N.R. was the only transcontinental, or near-trans- continental carrier, on the North Amer- ican continent to increase its gross earnings in 1921 over those of 1920 speaks volumes for the property's fu- ture. After all, the rate of progress is what counts. The fact that operating expenses were so appreciably reduced below those of 1920 speaks volumes for the efficiency of management and for the wisdom of the policy which placed the road in first class shape in 1919 and 1920 for the handling of future traffic. The fact that the property is in better physical condition today than it ever was, and is being maintained in that condition at a most reasonable mainten- ance cost, is highly gratifying.

Pessimism should not exist because the result of the system's operations in 1921 was a loss. Rather should the 1921 results be considered in relation to all prior conditions, and all influencing factors. When such has been done, optimism and confidence as to the future should prevail.

The foregoing article was written and put in type before the C.N.R. directors had been requested by the Government to resign, and before it was known that President Hanna would not be included in the new board to be appointed. In view of the excellent work he has done, in spite of great difficulties, his retire- ment is much to be regretted from the standpoint of the national interests. We believe that his fixed determination not to allow himself to be influenced by poli- ticians, or to permit interference by them in regard to appointments, etc., is one of the principal reasons for not continuing him in office. It is to be hoped that his successor, whoever he may be, will be equally firm, otherwise the Canadian National Rys. cannot be successful.

C.P.R. Freight Tariff Suspended.—The Interstate Commerce Commission has suspended until September 13, 1922, sup- plement 11 to C.P.R. Eastern Lines, tariff I.C.C. no. E. 2,196, the schedules in which made certain increases in rates for inter- state transportation of paper in carloads, individual and joint rates being affected. In its order, docket 1,556, the Commis- sion stated: "It is ordered that the rates and charges hereby sought to be changed shall not be increased and the regula- tions and practices thereby sought to be altered shall not be changed by any sub- sequent tariff or schedule until this in- vestigation and suspension proceeding has been disposed of, or until the period of suspension and any extension thereof has expired, unless authorized by special permission of the Commission." U. S. roads participating in the joint rates are made respondents to the proceeding.

The Norfolk & Western Rd. has had in service for some months a 120-ton capacity gondola car, the performance of which has been so satisfactory that it is probable an order will be placed for a large number of them.

C.P.R. and G.T.R. Dispute re Toronto-Hamilton Joint Section.

The following question was submitted to arbitration some little time ago: "Whether the C.P.R. Co. has the right, under the agreement of May 13, 1896, with the G.T.R. Co., to take express traffic, from or to any station on the joint section between Toronto and Hamilton to or from any station on the lines of the C.P.R. or its connections, beyond the joint section." The arbitrators, F. H. Chrysler, K.C., Ottawa, representing the C.P.R.; S. F. Washington, K.C., Hamilton, Ont., representing the G.T.R., and F. H. Phippen, K.C., chairman; gave a unanimous decision on June 26, answering the question in the affirmative, and an award was made accordingly.

The circumstances which led up to the arbitration were as follows: On July 8, 1921, C.P.R. passenger train 792, due to leave Hamilton at 4.25 p.m. and arrive at Toronto at 5.38 p.m., and which was operated over the G.T.R. tracks between Hamilton Jct., mile 37.3 from Toronto and Bathurst St., Toronto, was delayed for about two hours at Burlington Jct., mile 31.72 from Toronto, owing to a dispute between C.P.R. and G.T.R. representatives concerning the C.P.R.'s right to pick up an express refrigerator car, which it had set off there previously, and which had been loaded with fruit and consigned via Dominion Express to Winnipeg. The dispute was caused by a difference as to the interpretation of a clause in the agreement under which the C.P.R. has running rights over the G.T.R. tracks, the G.T.R. agent claiming that the C.P.R. did not have the right to pick up the car, while R. W. Scott, Superintendent, Toronto Terminals Division, Ontario District, C.P.R., and members of his staff, claimed that it had. After considerable discussion, the car was finally picked up by train 792 and taken to Toronto.

The agreement between the G.T.R. and C.P.R. companies for the joint use of the G.T.R. tracks between Bathurst St., Toronto, and Hamilton Jct., about 36 miles, dated May 13, 1896, and which was ratified by the Dominion Parliament in the same year, and published as a schedule to the statutes, 60 Vic., chap. 6, contains the following as a part of sec. 16, the G.T.R. being referred to as the party of the first part, and the C.P.R. as the party of the second part:—"The party of the second part further agrees that it will do freight and passenger business over the said joint section as follows: Passenger and freight business between the City of Toronto and the City of Hamilton shall be considered through business, and the party of the second part shall have the right to handle it over the said joint section, in competition with the party of the first part and all others, but business between either Hamilton or Toronto and an intermediate station on the said joint section, or business between two intermediate stations on the said joint section, shall be considered local business of the party of the first part, which the party of the second part shall not be permitted to handle except as hereinafter provided. The party of the second part shall have the right to take passengers or freight from or to any station on the said joint section, originating at or destined to any point on its own lines or its connections, beyond the said joint section, in either direction, and it shall be the duty of the agents on the said joint section to waybill such freight

and ticket such passengers without discriminations or hindrance, and the party of the first part shall account to the party of the second part therefor, in the same manner as if such agents were the agents of the party of the second part."

The G.T.R. contention was, apparently, that as express business was not specifically mentioned in the agreement, the C.P.R. had not the right to pick up a car of express goods at a station on the joint section. The C.P.R. has, however, been handling express business over this section.

Another matter in dispute between the two companies, and which was to be arbitrated, was the agreement for its use of G.T.R. tracks between Toronto and Hamilton, to the use of the industrial tracks coming off what is known as the old belt line, on the joint section, and whether the Y at Burlington is part of the joint section. This was also referred to arbitration. J. T. Arundel, formerly General Superintendent, Ontario District, C.P.R. represented the C.P.R.; F. H. McGuigan, formerly Fourth Vice President, G.T.R., represented the G.T.R. and McGregor Young, K.C., was the chairman. The majority award, signed by the chairman and Mr. Arundel, gives the C.P.R. the right to use both legs of the Y at Burlington and the tracks at Swansea, except the one serving the Brick Co's plant.

Canadian Ticket Agents Association's Annual Outing and Meeting.

Many of the C.T.A.A. members, dependent members of their families, and several guests, left Sarnia, Ont., July 3, on the Northern Navigation Co's s.s. Noronic for a complimentary trip to Duluth, Minn., and return, there being about 150 in the party, the majority of whom travelled by special steamboat express from Toronto to Sarnia, to which place they returned on July 17, after a most successful and enjoyable trip. The guests included G. W. Vaux, Union Pacific System, and Mrs. Vaux; F. V. Higginbottom, Lehigh Valley Rd., and H. E. Heal, of the Pennsylvania System, Toronto. W. Askin, Accountant, Northern Navigation Co., met the party at Sarnia on July 3, only a few days before his sudden death. W. Duperow, General Passenger Agent, Canadian National-Grand Trunk Rys., Winnipeg, met them at Port Arthur, and went with them to Duluth on the up trip, and from there to Sault Ste. Marie on the down trip. H. B. Smith, President, Northern Navigation Co., who was up the lakes on a fishing trip, went on board at Sault Ste. Marie and gave the party a hearty welcome.

The annual meeting was held on board on July 12, when a number of matters of interest were discussed, particularly the change in the scale of commissions paid by ocean steamship companies, and the withholding of free transportation by railways from dependents of ticket agents not engaged in transportation business. The following officers were elected: J. A. McDonald, Valleyfield, Que., President, re-elected; C. L. Von Gunten, Blenheim, Ont., First Vice President; S. Burrows, Belleville, Ont., Second Vice President; G. Sutherland, Ingersoll, Ont., Third Vice President; E. de la Hooke, London, Ont., Secretary-Treasurer; B. Caswell, Smiths Falls, Ont., Auditor; W. Jackson, Clinton, Ont.; A. M. Hare, Till-

sonburg, Ont.; C. J. Janes, Orillia, Ont.; W. H. C. Mackay, St. John, N.B.; and W. J. Moffatt, Toronto, executive committee. Presentations of silverware were made to Capt. Wright, of the Noronic, and F. D. Geoghegan, General Passenger Agent, Northern Navigation Co., who accompanied the party throughout the trip. The Secretary-Treasurer, E. de la Hooke, who reached his 80th birthday recently, was presented with a purse of \$225.

Railway Rolling Stock, Orders and Deliveries.

The Timiskaming & Northern Ontario Ry. is stated, in a press report, to be in the market for 75 steel underframe, double sheathed box cars, 40 tons capacity. We think this must be a mistake, as we were officially advised, July 22, that it was not in the market for additional equipment.

The G.T.R. has received 1 switching locomotive from its Montreal shops, and has 9 more switching, and 5 transfer locomotives on order there. They were described in Canadian Railway and Marine World for May, pg. 230.

The C.P.R., between June 13 and July 12, ordered 3 single track snow ploughs and 1 steel underframe flanger, from its Angus shops, Montreal, and bought 1 wrecking crane, 160 tons capacity, from Industrial Works, Bay City, Mich.

The C.P.R. has bought one of the two private cars, both of which were named Eaton, owned by the late Sir John Eaton. The one bought is a wooden one, the other being retained for Mrs. Timothy Eaton's use.

Canadian Secures Peruvian Railway Contract.

R. W. Dunsmuir, son of the late James Dunsmuir, the former head of the Esquimalt & Nanaimo Ry., and of the Dunsmuir collieries on Vancouver Island, is reported to have secured a contract from the Peruvian Government for building 2,400 miles of railway in that country. The report states that the Government grant of 50,000,000 acres of land, the surface rights in perpetuity, and the oil and mineral rights for 33 years; will hand over the tobacco monopoly in the republic, and give 168 miles of railway lines completed or under construction. The Dunsmuir syndicate is to pay over to the government \$5,000,000 to free the government of a first charge on the tobacco monopoly, which will then be used as a security on which to borrow money to provide funds to operate the concession. The government reserves the right to cancel the contract if the railways are not built at the minimum rate of 93 miles a year, or if the whole are not completed within 12 years. The estimated cost of the railways to be built is stated at \$120,000,000 as a minimum. The report adds that arrangements are being made in New York for financing the project.

Signing of Letters by Railway Chief Clerks. — F. F. Lowle, Local Freight Agent, C. P. R., Edmonton, Alta., writes: "With further reference to H. A. Balkwill's article on the railway chief clerk, his problems, duties and required qualifications, published in Canadian Railway and Marine World for May, and to the Editor's note published in your July issue. I may say that in letters to all transportation men we have dropped 'Dear Sir' and 'Yours truly' for a very long while."

Self Propelled Cars on Steam Railways.

The Canadian National Railways' management has bought a gasoline railway passenger motor car for the Maritime District, very similar to the one bought by the Greater Winnipeg Water District Ry., which was described and illustrated in Canadian Railway and Marine World for May, pg. 231. An elevation and plan are given herewith. The car, which is mounted on two 4-wheel trucks, has a design embracing a radical departure from the automobile type of motor-driven vehicle, and is a typical rail transportation unit. The light weight per passenger is notable; the weight is about 13 tons complete, and as 46 passengers can be accommodated, the car weighs only 560 lb. per passenger. The general dimensions are: Length over all, 42 ft. 6 in.; width over all, 8 ft. 4 in.; height from rail to ventilators, 11 ft.; truck centers, 22 ft. 2 in.

The car frame is of steel construction throughout, and the body is of compo-

sition of the 3-speed, heavy duty type, is mounted in unit with the engine. A motor truck type propeller shaft connects the primary transmission to the secondary transmission, located in the cast steel swing bolster. From this auxiliary transmission the drive is transmitted through propeller shafts to each driving axle in the leading truck. The engine is a 4-cylinder, 4-cycle, valve-in-head, heavy duty type, with $4\frac{3}{4}$ -in. bore and 6-in. stroke. At 800 r.p.m. it develops 41.8 h.p.; at 1,000 r.p.m., 51.3 h.p.; at 1,200 r.p.m., 59.1 h.p.; at 1,400 r.p.m., 65.8 h.p., and at 1,500 r.p.m., 68 h.p. Ignition is furnished by an Eisemann high tension magneto, equipped with impulse coupling, and equipment includes a starting motor.

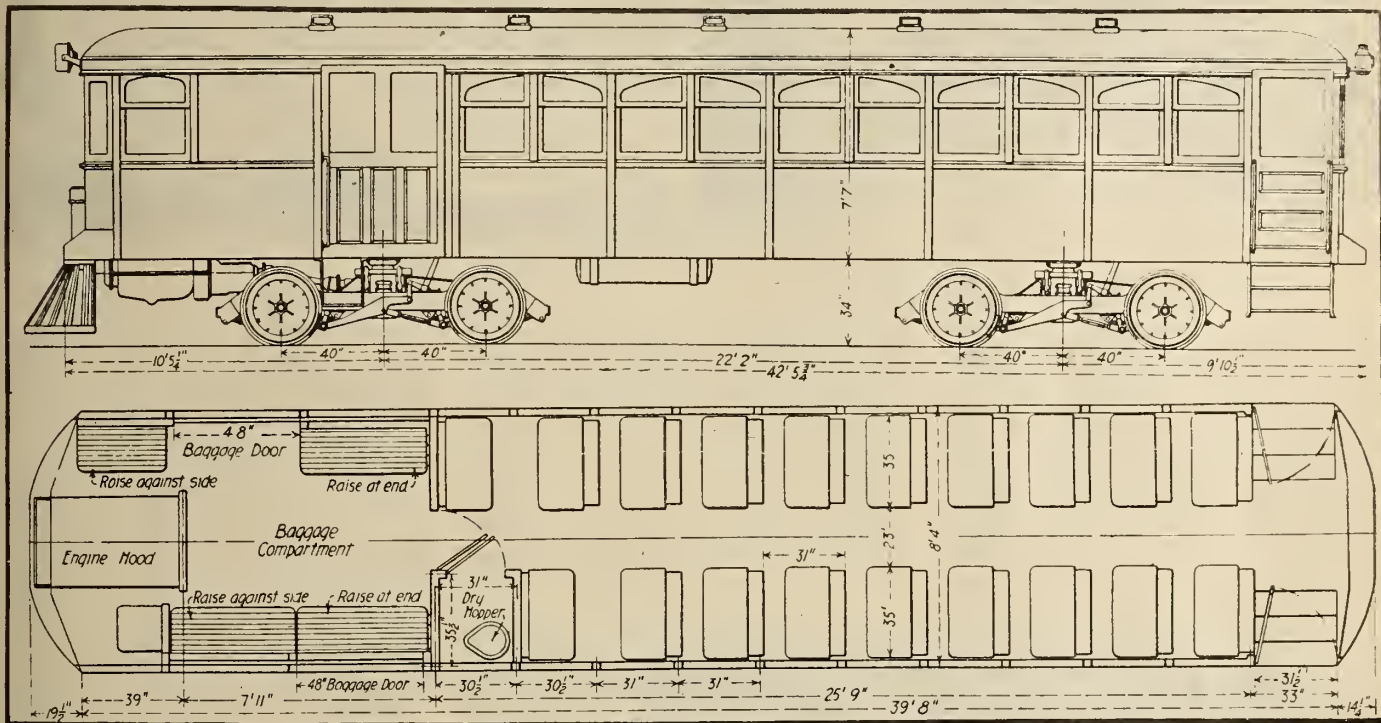
The primary transmission, in unit with the engine, has gears $1\frac{1}{4}$ to $1\frac{1}{2}$ in. wide, made from carbonized and oil-tempered nickel steel, and carried on nickel steel shafts and Timken taper roller adjust-

the bearings are of the Timken taper roller type. The wheels are held by taper and key.

The car is equipped with air brakes, all wheels being equipped with brake shoe, applied by inside hung linkage. The operator's brake valve is connected to a cord running the full length of the car. Hand brake staffs for emergency use are located at each end. Lighting is by a 12-volt, engine-driven electric generator of 300-watt capacity, fitted with automatic cutout and voltage control, and the car is also equipped with a 160 ampere hour storage battery.

The car, which was bought from the Service Motor Car Co., Wabash, Ind., will, when delivered, be put in operation on the Maritime District, Campbellton Division, Bathurst Subdivision, between Bathurst and Campbellton, N.B., 32.96 miles.

As stated in previous articles, the run between Bathurst and Campbellton



Elevation and Floor Plan, Canadian National Railways, Rail Motor Car, 15,814.

site construction. The underframe consists of four 6-in. channels, 8 lb. a foot, with cross members, gussets, etc. The car framing consists of $1\frac{1}{2} \times 1\frac{1}{2} \times \frac{3}{16}$ in. steel T sections, continuous, forming the carlines and posts. The car siding to the belt rail is of $\frac{3}{32}$ -in. steel plates; the belt rail is $2\frac{1}{2} \times \frac{3}{8}$ -in. steel bar with no. 16 pressed steel window sill capping. A description of the interior of the Greater Winnipeg Water District Ry's car, together with other details, was given in our May issue, and, as stated above, the two cars are practically identical. Some enlargement on the description of the driving mechanism, etc., given in the article referred to, seems desirable, however.

An interesting feature of the car's construction is that the drive is through the 4-wheel truck at the front, while the 4-wheel truck at the rear is an idler. The engine is mounted between the sills at the front of the car, so as to be removable as a unit. The primary transmis-

sion is of the 3-speed, heavy duty type, is mounted in unit with the engine. A multiple dry disc clutch is used. Between the primary transmission and the secondary transmission a propeller shaft, with 2 universal joints, is used. The secondary or auxiliary transmission is, as stated above, mounted in the bolster, and it transfers the drive through 2 propeller shafts, equipped with 2 universal joints each, to each driving axle. All gears and shafts are of carbonized and oil-tempered nickel steel. The secondary transmission is arranged to provide 2 ratios for forward operations (standard ratios 26 m.p.h. and 35 m.p.h.) and one ratio for reverse. This, taken in conjunction with the gear ratios for the primary transmission, as given above, makes a total of 6 possible speeds in forward gear and 3 in reverse. Each axle of the driving truck is provided with bevel gearing, driven through a pinion from the propeller shaft. The axles are heat-treated alloy steel, 3 in. diam., and

has been covered for some time by the storage battery car bought by the C.N.R. in 1921. We are advised that results secured with this car continue to be eminently satisfactory, as concerns operating and maintenance costs, and reliability. As there is a heavy steam train traffic on the Bathurst Subdivision, three men have been used in operating the car. Under summer conditions the current consumption has averaged 0.875 k. w.h. a car mile, and under unfavorable winter conditions it has been only on rare occasions that it has been more than 1.30 k.w.h. This car is to be transferred to a run between the Central station, Ottawa, and the Tunnel station, Montreal, 114 miles, on the Quebec District, Montreal Division, Grenville and Tunnel Terminal Subdivisions, as soon as the gasoline motor car bought recently and described above is ready for service between Bathurst and Campbellton, N.B.

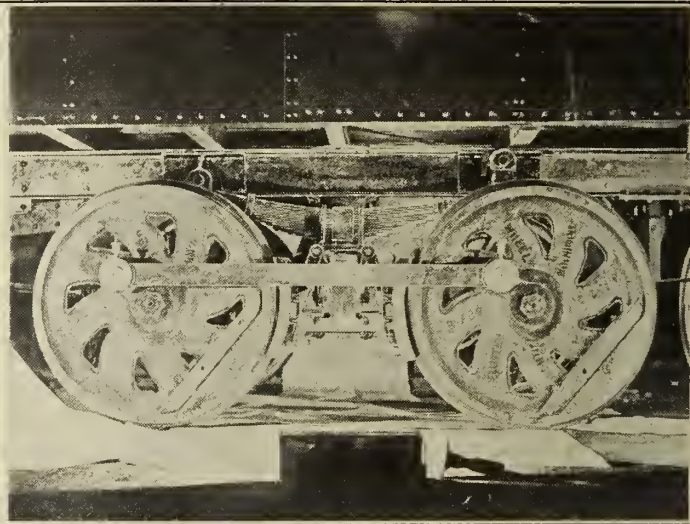
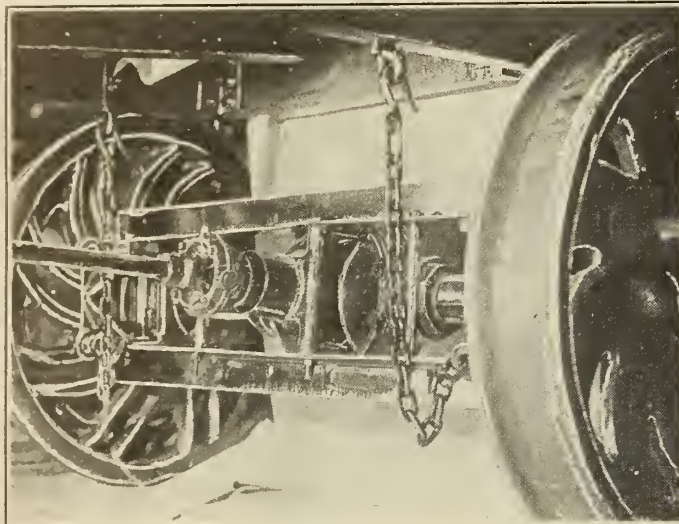
The gasoline motor car built by Ledoux, Jennings, Ltd., Montreal, and which

was operated in 1921 between Brockville and Westport, 44.4 miles, on the Ontario District, Ottawa Division, Brockville Subdivision, has been transferred to the Maritime District, Edmundston Division, and is operating between Cross Creek and Stanley, N.B., on the Nashwaak and Stanley Subdivisions, 5.74 miles. This car was described in Canadian Railway and Marine World for Nov. and Dec., 1921.

The gasoline car equipped with a Winton chassis and 6-cylinder engine, described and illustrated in Canadian Rail-

and arrives at Elmira at 11.45 a.m.; leaves Elmira at 12.45 p.m., Harmony Jct. at 1.32 p.m., and arrives at Souris at 1.50 p.m. In addition to the motor car service a mixed train service is given between Souris and Elmira on Wednesday only. From Souris to Harmony Jct., the junction between the Souris and Elmira Subdivisions, is 4.8 miles, and from Harmony Jct. to Elmira is 9.85 miles, making the total distance from Souris to Elmira 14.65 miles. Harmony Jct. is 55.5 miles from Charlottetown. No meets having to be made on steam trains, the motor

Montreal under its own power and made the trip to Ottawa, 114 miles, in 4 hours, including all stops and meets. The builders state that between Montreal and Hurdman, 111.4 miles from the Montreal Tunnel station, 107 miles were run on a gasoline consumption of 9½ galls., with 5 passengers in the car. On arrival at Ottawa, the car was inspected by Board of Railway Commissioners' members and officials, after which it was driven to Trenton, making on part of the trip 20 miles in 30 minutes. The trial trip on the regular runs was made June



Gasoline Railway Motor Car, 15,812, Canadian National Railways.

Front of rear truck, with drive shaft arrangement.

Side of rear truck, showing side rods.

way and Marine World for Dec., 1921, and which ran formerly between Cross Creek and Stanley, N.B., has been converted to 3½-ft. gauge at the C.N.R. Moncton shops, and started on July 6 operating between Souris and Elmira, P.E.I., on the Maritime District, Island Division, Souris and Elmira Subdivisions. Trains 23 and 24, which operated between Souris and Elmira daily except Sunday, were cancelled on the date mentioned, and motor car service was installed on the following schedule: Daily

car is being operated by one man. This operation will be in effect for the summer only, the Elmira Subdivision being very difficult to operate in winter, on account of snow. The car hauls a small trailer, used chiefly for the transportation of cream.

The first of the two gasoline cars ordered recently by the C.N.R. management from Ledoux, Jennings, Ltd., Montreal, was, on June 28, as stated in our July issue, placed on the run between Picton and Trenton, 30.6 miles, on the

28, and with 21 passengers on board 32 miles were run in 55 minutes, including two stops. The builders further state that they have a report that on one day the car made 196 miles on 14 gals. of gasoline, or 14 miles to the gallon. To July 10 the mileage made was 5,000.

As stated in our July issue, the C.N.R. management intends to convert 2 passenger cars into self-propelled cars of the storage battery type at the Niagara, St. Catharines & Toronto Ry. shops at St. Catharines, Ont., for use on Ontario District lines. They will each be fitted with a set of storage batteries and 4 motors, and all other electrical and control equipment will be applied at St. Catharines. The type of battery to be used has not been decided.

The self-propelled cars in C.N.R. service have been renumbered recently. The gasoline electric car which has been operating for some time between Transcona and Winnipeg, Man., is now no. 15,800; the storage battery car operating between Bathurst and Campbellton is now no. 15,801; the 2 storage battery cars to be built at St. Catharines will be nos. 15,802 and 15,803; the gasoline car operating in Prince Edward Island has been numbered 15,810; the first car built by Ledoux, Jennings, Ltd., now operating between Cross Creek and Stanley, N.B., is no. 15,811; the 2 gasoline cars ordered recently from the same builders, are nos. 15,812 and 15,813, and the gasoline motor car to be operated between Bathurst and Campbellton is no. 15,814.

Greater Winnipeg Water District Ry. —The gasoline motor car bought for this line, which extends from St. Boniface, Man., to Waugh, Shoal Lake, adjoining Lake of the Woods, 91.9 miles, was delivered in Winnipeg, June 23, and was placed in service July 3. It leaves St. Boniface, 5.3 miles from Winnipeg, on



Gasoline Railway Motor Car, 15,812, Canadian National Railways.

except Sunday the car leaves Elmira at 6.20 a.m., Harmony Jct. at 7.03 a.m., and arrives at Souris at 7.30 a.m.; leaves Souris at 5.30 p.m. On Wednesday only Souris at 5.30 p.m., Harmony Jct. at 5.50 p.m., and arrives Elmira at 6.30. On Wednesday only the car leaves Souris at 1.15 p.m., arrives Harmony Jct. at 1.32 p.m., leaves Harmony Jct. at 1.45 p.m., and arrives at Souris at 2.05 p.m. Daily except Sunday and Wednesday the car leaves Souris at 10.45 a.m., Harmony Jct. at 11.05 a.m.,

Ontario District, Ottawa Division, Picton Subdivision, and between Trenton and Trenton Jct., 1.6 miles, on the Maynooth Subdivision, also, and between Trenton and Napanee, 34.6 miles, on the Rideau Subdivision. The car's schedule was given in our June issue on pg. 289. The car is giving very satisfactory service. It was described and a plan and elevation were given in our June issue, and herewith are shown illustrations of it and of its truck details.

When this car was delivered, it left

Tuesdays, Thursdays and Saturdays, at 1 p.m., and arrives at Waugh, at 5.35 p.m. On Mondays, Wednesdays and Fridays it leaves Waugh at 7 a.m. and arrives at St. Boniface at 11.35 a.m. When car-load traffic warrants the change, the car is supplanted by mixed train service.

The Quebec Central Ry. has we are officially advised, ordered from Ledoux, Jennings, Ltd., Montreal, a gasoline railway motor car similar to those acquired by the Canadian National Rys., described in Railway and Marine World for June, pg. 289, and illustrated with this article.

The Quebec, Montreal and Southern Ry., a Delaware and Hudson Co.'s subsidiary has, we are officially advised, ordered a gasoline railway motor car from Ledoux, Jennings, Ltd., Montreal, similar to the two acquired recently by the Canadian National Rys., and which were described in Canadian Railway and Marine World for June. It is the intention, subject to approval by the Board of Railway Commissioners, to operate the car between St. Lambert and Sorel,

Que., 51 miles so as to give a morning service for the delivery of mail and newspapers out of Montreal.

Timiskaming and Northern Ontario Ry. Commission. A Cobalt press dispatch stated recently that G. W. Lee, Chairman, T. & N.O.R. Commission, in commenting on a proposal to run railway gasoline motor cars between Cobalt and Swastika, had stated that there is not sufficient traffic to justify such an innovation, and that steam trains and gasoline cars cannot be run safely on the same tracks. We are officially advised that the question of operating gasoline railway motor cars on the line has been before the Commission for some little time but that no definite decision has been reached. We cannot help thinking that the press report must have misrepresented Mr. Lee in regard to having stated that steam trains and gasoline railway motor cars cannot be run safely on the same tracks, as the contrary has been proved by the Canadian National Rys., which are operating both electric storage battery cars and gasoline motor

cars on lines where there is also steam train service.

Foreign. That self propelled cars for steam railway service are receiving attention in countries outside North America is evident from a description in the Railway Gazette of London, Eng. of three gasoline motor cars under construction for the Western Australian Government Rys. The chasses for these have been built in Bedford, England and the bodies are being built in Australia. The chief dimensions are as follows: Length, 24 ft. 4 in.; width, 8 ft.; height, 10½ ft.; wheelbase, 9 ft.; gauge 3½ ft.; weight, chassis, 7¼ tons; weight car loaded, 13 tons. These cars will be driven by a 45 h.p. gasoline engine, with heavy fly-wheel and clutch direct coupled to a 2-speed both-direction gearbox, and will be equipped with electric lighting and engine starting equipment. The speed at which they are designed to run is 25 m.p.h. on level track and 10 m.p.h. on 2½% grades. On completion of the chasses construction at Bedford, official tests were made, and reported satisfactory.

Birthdays of Transportation Men in August.

Many happy returns of the day to,—
V. T. Bartram, ex-Purchasing Agent, Timiskaming & Northern Ontario Ry., now general contractor, etc., Toronto, born at Ottawa, Aug. 2, 1880.

H. H. Beasley, Purchasing Agent, Toronto Transportation Commission, Toronto, born at St. Thomas, Ont., Aug. 1, 1867.

Major Graham A. Bell, C.M.G., Deputy Minister of Railways and Canals, Ottawa, Ont., born at Perth, Ont., Aug. 13, 1874.

C. B. Brown, Engineering Assistant to Vice President, Operation and Maintenance, Canadian National Rys., Toronto, born at Ithaca, N.Y., Aug. 27, 1879.

A. B. Calder, Assistant to Chief Commissioner of Colonization and Development, C.P.R., Montreal, born at London, Ont., Aug. 24, 1867.

J. S. Carter, District Passenger Agent, C.P.R., Nelson, B.C., born at Aurora, Ill., Aug. 14, 1864.

Hon. F. B. Carvell, K.C., Chief Commissioner, Board of Railway Commissioners, Ottawa, Ont., born at Bloomfield, N.B., Aug. 14, 1862.

A. E. H. Chesley, General Accountant, Dominion Atlantic Ry., Kentville, N.S., born near Annapolis Royal, N.S., Aug. 27, 1877.

A. B. Chown, Assistant General Western Passenger Agent, Canadian National Rys., and Assistant General Passenger Agent, Western Lines, G.T.R., Chicago, Ill., born at Belleville, Ont., Aug. 4, 1887.

Lieut.-Col. F. F. Clarke, D.S.O., Chief Land Surveyor, Canadian National Rys., Toronto, born at Hamilton, Ont., Aug. 22, 1878.

C. H. N. Connell, District Engineer, Ontario District, Canadian National Rys., Toronto, born at Woodstock, N.B., Aug. 26, 1876.

S. W. Crabbe, Superintendent, Smiths Falls Division, Quebec District, C.P.R., Smiths Falls, Ont., born at Teeswater, Ont., Aug. 9, 1885.

H. W. Crawford, ex-General Agent, Canada Steamship Lines, now of Toronto, born at Bowmanville, Ont., Aug. 24, 1887.

E. L. Desjardins, Superintendent, Levis Division, Quebec District, Canadian National Rys., Levis, Que., born at St. Jean Port Joli, Que., Aug. 1, 1859.

A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Ry., Kingsville, Ont., born in Bosanquet Tp., Ont., Aug. 21, 1870.

J. V. Foy, General Passenger Agent, Canada Steamship Lines, Ltd., Toronto, born there Aug. 27, 1882.

Geo. H. Ham, Head Office Department, C.P.R., Montreal, born at Trenton, Ont., Aug. 23, 1847.

W. B. Harper, Resident Engineer, Laurentian Division, Quebec District, C.P.R., Montreal, born at Baie Verte, N.B., Aug. 15, 1882.

W. P. Hinton, ex-Consulting Officer to Receiver (Minister of Railways and Canals), Grand Trunk Pacific Ry., Winnipeg, born at Hintonburg, Ont., Aug. 30, 1871.

F. S. Isard, Manager, Canada Steamship Lines, Ltd., Montreal, born at Hamilton, Ont., Aug. 14, 1888.

H. L. Johnston, District Engineer, Vancouver Island Lines, Canadian National Rys., Victoria, B.C., born at Fredericton, N.B., Aug. 29, 1862.

Hon. W. C. Kennedy, M.P., Minister of Railways and Canals, Ottawa, Ont., born there, Aug. 27, 1868.

W. A. Kirkpatrick, Superintendent of Transportation, Prairie District, Canadian National Rys., Saskatoon, Sask., born at West Lorne, Ont., Aug. 28, 1883.

F. L. Lamplough, Superintendent, Ottawa Division, G.T.R., Ottawa, born at Cambridge, Vt., Aug. 15, 1867.

J. D. McDonald, General Passenger Agent, Western Lines, Grand Trunk Ry., and General Western Passenger Agent, Canadian National Rys., Chicago, Ill., born at Toronto, Aug. 27, 1855.

M. K. McQuarrie, Engineer, Dominion Atlantic Ry., Kentville, N.S., born at Sault Ste. Marie, Ont., Aug. 17, 1884.

A. H. Mahon, Assistant Master Mechanic, Canadian National-Grand Trunk Pacific Rys., Edson, Alta., born near Ottawa, Ont., Aug. 27, 1874.

H. C. Meacham, ex-Import Freight Agent, Canadian National Rys., Montreal, now of Calgary, Alta., born at Brantford, Ont., Aug. 11, 1863.

C. Montgomery, Master Mechanic, Pere Marquette Rd., St. Thomas, Ont., born near London, Ont., Aug. 29, 1860.

W. G. Murrin, Assistant General Manager, British Columbia Electric Ry., Van-

couver, B.C., born at Greenwich, Eng., Aug. 27, 1875.

L. Palk, Assistant to General Manager and Assistant Secretary, Winnipeg Electric Ry., and Secretary, Winnipeg, Selkirk & Lake Winnipeg Ry., Winnipeg, born there, Aug. 14, 1885.

Capt. K. G. Polyblank, Division Engineer, Canadian National Rys., Hornepayne, Ont., born at Bristol, Eng., Aug. 17, 1884.

Lieut.-Col. Blair Ripley, C.B.E., D.S.O., District Engineer, Ontario District, C.P.R., Toronto, born at Oxford, N.S., Aug. 29, 1880.

J. M. Rosevear, Comptroller, G.T.R., Montreal, born at St. Lambert, Que., Aug. 9, 1869.

W. LeB. Ross, Local Treasurer, Canadian National-Grand Trunk Pacific Rys., Winnipeg, born at Ottawa, Ont., Aug. 9, 1868.

F. C. Salter, Manager, Foreign Department, Canadian National Express Co., Montreal, born at Sarnia, Ont., Aug. 31, 1863.

A. O. Seymour, General Tourist Agent, C.P.R., Montreal, born at Ogdensburg, N.Y., Aug. 14, 1887.

S. A. Simpson, Superintendent, Sleeping, Dining and Parlor Cars and News Service, C.P.R., Winnipeg, born at Toronto, Aug. 22, 1880.

J. F. Sweeting, Industrial Agent, Natural Resources Department, C.P.R., Winnipeg, born at Worthing, Eng., Aug. 20, 1872.

W. J. Sturges, formerly of Fuel Department, Grand Trunk Pacific Ry., Winnipeg, now of Edmonton, Alta., born at Fairfield, Vt., Aug. 20, 1877.

L. Tait, Secretary-Treasurer, London St. Ry., London, Ont., born at Hamilton, Ont., Aug. 9, 1882.

W. D. Waddell, Chief Accountant, Canadian Northern Ry. System, Toronto, born at Waterford, Ireland, Aug. 7, 1877.

F. E. Warren, General Car Foreman, C.P.R., Winnipeg, born at Chelsea, Que., Aug. 29, 1872.

W. B. Way, Superintendent, Cochrane Division, Quebec District, Canadian National Rys., Cochrane, Ont., born at Bowmanville, Ont., Aug. 22, 1867.

H. E. Weyman, Manager, Levis County Ry., Levis, Que., born at Guildford, Eng., Aug. 27, 1883.

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Steam Railway Operating Revenues, Expenses and Other Statistics for April.

The following comparative table for April, 1922 and 1921, has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics, Transportation Branch. The figures in the column headed "All railways" include all steam railways with an annual operating revenue of \$500,000 and over. There is a slight increase in the number of roads included under this heading, so that the data for 1922 and 1921 is not directly comparable with previous reports.

As the Canadian Government, Canadian Northern and Grand Trunk Pacific Railways are under one management, and operated as one system, the monthly operating reports for 1922 contain a consolidated report for these railways, under the heading "Canadian National Rys.," which includes the old Canadian Government Rys., viz., Intercolonial, Prince Edward Island, National Trans-

continental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.; the lines operated as the Canadian Northern Ry. System, prior to its acquisition by the Dominion Government; and the Grand Trunk Pacific Ry.

The column headed "Canadian Pacific" includes also the Montreal and Atlantic and Esquimalt and Nanaimo Rys.

The column headed "Grand Trunk" includes all the G.T.R. Co. of Canada lines, including 36.16 miles in the U.S.A., viz.: Champlain & St. Lawrence Ry., 1.21 miles; United States & Canada Ry., 22.18 miles; Vermont & Provincial Line Ry., 9.77 miles, and Black Rock terminal. It does not include other lines in New England, or lines west of the Detroit and St. Clair rivers.

Items 1 to 6 in the table include rail

lines revenues only. Previous to this year they included water lines. Operating income items have been added. Freight and passenger train miles contain a proportion of mixed train miles, divided on the basis of freight and passenger car miles in mixed train service. In former years the total of mixed train miles were added to both freight and passenger train miles when computing averages. Total train miles include freight; passenger, with their proportions of mixed train miles; special train and non revenue train miles. The average freight revenue per freight train mile includes only rail line revenue. Average passenger train revenue per passenger train mile includes revenue from passenger, mail, express, excess baggage, parlor cars, etc., whereas previous reports gave an average per train mile of passenger receipts only. The number of employees is also a new feature of this year's reports.

	All railways.		Canadian National		Canadian Pacific		Grand Trunk	
	1922	1921	1922	1921	1922	1921	1922	1921
Operating revenues								
Freight	\$20,344,611	\$23,263,262	\$5,757,090	\$6,755,212	\$8,274,114	\$9,048,265	\$3,332,636	\$4,139,636
Passenger	5,843,949	6,701,455	1,314,363	1,627,213	2,628,729	3,094,556	1,098,731	1,081,037
Mail	628,227	622,475	174,997	179,588	314,597	308,955	95,000	85,656
Express	1,026,764	1,196,225	218,560	305,431	445,978	607,725	255,000	202,201
Other freight train	2,052	2,758			2,009	2,015		
Other passenger train	450,709	525,252	126,307	163,276	265,970	296,171	23,800	43,958
Water line	77,804	97,876			53,891	57,529		
All other	942,430	1,146,128	212,901	264,592	515,752	547,966	96,200	125,847
Total railway operating revenues.....	29,316,549	33,555,434	\$7,804,221	\$9,295,314	\$12,501,044	\$13,963,184	\$4,901,367	\$5,676,338
Operating expenses								
Maintenance of way and structures.....	\$5,038,037	\$5,650,474	\$1,901,862	\$2,383,739	\$1,960,115	\$1,707,742	\$566,995	\$825,375
Maintenance of equipment.....	7,455,315	7,608,237	2,682,456	2,969,330	2,631,934	2,563,817	1,249,439	1,276,928
Traffic	1,026,787	858,151	260,232	183,465	570,179	468,853	118,694	126,174
Transportation	13,224,656	16,862,808	3,938,594	6,090,071	5,280,477	6,059,010	2,436,522	2,786,131
Miscellaneous operations	389,291	442,897	124,659	151,315	202,616	215,109	24,020	25,863
General	951,778	981,211	317,251	260,768	277,465	308,424	214,829	254,254
Trans. for investment	Cr. 85,194	Cr. 107,504	Cr. 71,319	Cr. 106,735			Cr. 13,835	Cr. 661
Total railway operating expenses.....	28,000,672	32,296,276	\$9,153,738	\$11,931,953	\$10,922,788	\$11,322,958	\$4,596,666	\$5,294,066
Operating income								
Net operating revenue	\$1,315,876	\$1,259,158	Dr. \$1,349,516	Dr. \$2,636,639	\$1,578,256	\$2,640,226	\$304,700	\$382,272
Railway tax accruals	440,736	446,169	11,250	40,084	243,401	227,477	110,850	106,669
Uncollectible revenues	2,845	731					2,799	460
Hire of equipment	Cr. 206,567	Cr. 276,848	Cr. 95,314	Cr. 168,825	Cr. 249,430	Cr. 227,008	Cr. 139,298	Cr. 151,419
Joint facilities rents	Dr. 26,750	Dr. 21,457	Cr. 23,286	Cr. 17,370	Cr. 35,920	Cr. 42,529	Cr. 47,795	Cr. 37,042
Operating income	1,052,111	1,067,647	Dr. \$1,242,165	Dr. \$2,490,527	\$1,620,205	\$2,682,287	\$378,146	\$463,605
Operating statistics								
Average miles of road operated.....	38,805.02	38,585.11	17,212.10	17,111.07	13,877.2	13,785.8	3,612	3,612
Tons carried (revenue)	6,430	7,147	1,314	1,573	1,902	1,945	1,365	1,583
Tons carried one mile (revenue).....	1,728,754	1,759,031	540,720	596,183	700,040	645,346	267,127	278,887
Tons carried (all freight)	7,322	8,395	1,632	1,997	2,254	2,373	1,518	1,901
Tons carried one mile (all freight).....	1,909,685	1,966,515	629,922	695,049	771,952	721,758	281,187	304,281
Revenue passengers carried	3,486	3,575	942	991	1,179	1,200	908	903
Revenue passengers carried one mile.....	194,981	220,486	48,587	56,137	86,333	103,352	35,695	35,269
Freight train miles*	3,811	4,074	1,266	1,536	1,348	1,348	702	716
Passenger train miles*	3,412	3,594	948	1,053	1,474	1,509	590	646
Total train miles (revenue and non-revenue).....	7,347	7,814	2,286	2,685	2,866	2,893	1,292	1,364
Freight car miles (loaded).....	84,426	82,735	25,807	27,348	31,757	30,497	14,998	13,745
Freight car miles (empty).....	36,528	40,839	10,613	15,091	11,414	11,118	7,509	7,895
Passenger train car miles.....	22,954	24,571	6,606	7,235	9,985	10,881	3,502	3,773
Total amount of pay roll.....	\$16,774,527	\$18,918,718	\$5,748,971	\$6,899,230	\$6,302,271	\$6,543,556	\$3,242,077	\$3,740,535
Averages per mile of road operated								
Number of employees	139,358	143,521	49,627	53,650	52,847	51,244	26,996	27,311
Operating revenue	\$755.48	\$869.65	\$453.41	\$543.23	\$900.83	\$1,012.87	\$1,356.97	\$1,571.52
Operating expenses	\$721.57	\$837.01	\$531.82	\$697.32	\$787.10	\$821.35	\$1,272.61	\$1,465.68
No. of tons moved one mile (revenue).....	44,550	45,588	31,415	34,842	50,445	46,812	73,955	77,211
No. of tons moved one mile (all freight).....	49,212	50,966	36,598	40,620	55,627	52,355	77,848	84,242
Averages per freight train mile*								
Freight revenue	\$5.34	\$5.71	\$4.55	\$4.40	\$6.14	\$6.71	\$4.75	\$5.78
No. of tons of freight (revenue).....	453.6	431.7	427.0	388.0	519.0	478.5	380.4	389.2
No. of tons of freight (all freight).....	501.0	482.6	497.4	452.3	572.4	535.2	400.4	424.7
Loaded freight cars	22.1	20.3	20.4	17.8	23.5	22.6	21.4	19.2
Empty freight cars	9.6	9.9	8.4	9.8	8.5	8.2	10.7	11.0
Averages per passenger train mile*								
Passenger train revenue	\$2.33	\$2.52	\$1.93	\$2.16	\$2.48	\$2.85	\$2.50	\$2.18
Passengers carried	57.1	61.3	51.2	53.3	58.6	68.5	60.5	54.6
Passenger cars	6.7	6.8	7.0	6.9	6.8	7.2	5.9	5.8
Average operating expenses per train mile*.....	\$3.81	\$4.13	\$4.00	\$4.44	\$3.81	\$3.91	\$3.56	\$3.88
Average length of haul (revenue freight) miles.....	268.8	246.1	411.5	379.0	367.9	331.7	195.6	176.1
Average passenger journey, miles.....	55.9	61.7	24.4	25.4	24.3	23.7	18.7	22.1
Average tons per loaded freight car.....	22.6	23.9	51.5	56.6	73.2	86.1	39.3	39.0
Average freight receipt per revenue ton mile.....	1.177c	1.325c	1.065c	1.133c	1.182c	1.402c	1.248c	1.484c
Average passenger receipt per passenger per mile.....	2.997c	3.039c	2.705c	2.898c	3.045c	2.994c	3.078c	3.065c
Ratio of pay roll to operating revenues.....	57.2%	56.3%	73.7%	74.2%	50.4%	46.8%	66.1%	65.9%
Ratio of pay roll to operating expenses.....	59.9%	58.6%	62.8%	57.8%	57.7%	57.8%	70.5%	70.7%
Ratio of operating expenses to revenues.....	95.51%	96.25%	117.29%	128.37%	87.37%	81.09%	93.78%	93.27%

*Contains a proportion of mixed train miles.

The Railways' Operating Results for April.

Canadian railways experienced a large decrease in total operating revenues in April, the figures, \$29,316,549, showing a decrease from March of \$4,817,132. While this was no doubt due in part to seasonal decline in freight traffic, the decrease as between the two months was greater in 1922 than in 1921 or 1920. In 1922 the decrease in freight revenue, as between March and April, was 21.5% and in revenue ton miles 29%; in 1921 the decrease in freight revenue was 8.7% and in revenue ton miles 17.1%; in 1920 the decrease in freight revenue was 6.1% and in revenue ton miles 3.8%. During 1920 and 1921 the decline in revenue ton miles continued through to June, when it began to increase and continued to increase till a peak was reached in October.

Compared with April, 1921, total revenue for all railways decreased 12.6%, although revenue ton mileage decreased only 1.7%. Passenger mileage and passenger revenue were both about 12% below last year, although some increase over those for March is shown.

Compared with April, 1921, operating expenses decreased 13%, the greatest decrease being evident in the transportation account, where it was 21.5%. Compared with March, operating expenses show a good decrease, but, on account of the large decrease in operating revenue, the April operating ratio was not so favorable as for March. For April the operating ratio was 95.51, compared with 89.54 in March. There was an improvement, however, in operating ratio over April, 1921, when it was 96.25.

A comparison of train and car loading figures shows that in the average number of tons of revenue freight per freight train mile, a substantial improvement in train loading was secured in April, 1922, compared with April, 1921. The figure of 453.6 tons for April does not compare well with that for March, however, when the average revenue train load was 489.7 tons. Better train loading is shown in April, 1922, than in April, 1921, as in April, 1922, the average train contained 22.1 loads and 9.6 empties, while in April, 1921, the average train contained 20.3 loads and 9.9 empties. This performance was better than that of March also. In car loading, however, the performance in April was not as good as in either March, 1922, or April, 1921. While the average number of tons per car was 22.6 in April, 1922, it was 25 in March, and 23.9 in April, 1921.

The effect of the wage reductions made in July, 1921, is evident on a comparison of the pay roll, and the railways' action in enforcing economy in every direction is reflected in the decrease in the number of employees. It will be observed that, despite the wage reduction of July, 1921, the ratio of payroll to operating revenues, and the ratio of payroll to operating expenses, was greater in April, 1922, than in April, 1921, which leads to the belief that other operating expenses have decreased in as great, or greater, proportion than wages.

The Canadian National Rys. total revenues decreased \$1,491,092 or 16% in total revenues, compared with April, 1921, due to decreases in rates and also to decreases in freight and passenger traffic. The decrease in freight traffic from March was much greater this year than last, being 38% for 1922, against 22% for 1921. Expenses were reduced

\$2,778,215 or 23.3%, giving an operating loss of \$1,349,516, against \$2,636,639 for 1921, and an operating ratio of 117.29 against 123.37 for 1921. Train loading was increased an average of 45 tons a train, and with a decrease of 9.4% in ton miles, there was effected a decrease of 17.5% in freight train miles. The pay roll was reduced \$1,150,258, or 16.7%, with a reduction in the number of employees of 4,023 or 7.5%.

The C.P.R. revenues decreased 10.5% and operating expenses decreased 3.5%, which increased the operating ratio from 81.09 to 87.37 for April, 1922. Revenue ton miles increased 8.5%, but freight revenues decreased 8.5%, and transportation expenses were reduced 12.8%. Freight train miles showed practically no change, while passenger train miles decreased 2.3%, with a decrease of 1.7% in passengers carried and a decrease of 16.5% in passengers carried one mile; the average passenger journey showing a decrease of 12.9 miles. The pay roll was reduced \$241,285 or 3.7%, with an increase in the number of employees of 1,603 or 3%.

The G.T.R. passenger revenues increased over both April, 1921, and March, but freight revenues decreased, the decrease from April, 1921, being \$807,000 or 19.5%, with a decrease of 4.2% in revenue ton miles. Total revenues decreased \$774,971, or 13.6%, and expenses were reduced \$697,400 or 13.2%, giving an operating ratio of 93.78 compared with 93.27 for April, 1921. Maintenance of way and structures expense continued considerably below 1921, while for maintenance of equipment there was but little change. The pay roll was reduced \$498,457 or 13%, with 315 less employees.

It does not require more than a casual examination of the April figures to see that despite the large decrease in operating expenses, compared with April, 1921, the decrease in operating revenues has been just about as large. The freight and passenger traffic figures indicate that but little of this decrease in revenue is due to decreased traffic handled, which leads one to suppose that it must be ascribed to the rate decreases. A comparison of the average rate per revenue ton mile and per passenger mile will show this supposition to be correct. The position is, therefore, that while the railways to the end of April had been able to reduce their operating expenses materially, the rate reductions imposed upon them had been such as to prohibit any substantial improvement in their operating position. It does not require a very vivid imagination to picture what will happen to the railways' operating ratios when the rate reductions recently ordered come into effect, if operating reductions to counterbalance these rate reductions do not begin to operate simultaneously.

It must be plain to anyone who has spent any time in studying Canadian railway statistics that the railways are in no position to be able to make the rate reductions ordered unless expenses are reduced materially. We have taken the position that the C.P.R. should have an operating ratio of 70, or very little greater than 70, if the country's interests are to be best served, and if adequate provision is to be made for the creation of new transportation facilities as and when they are needed. Instead of 70, there are monthly operating ratios of between

80 and 90. Even with reductions in expenses to offset the rate reductions, any improvement secured would have to come solely from increased traffic. If through any cause reductions in expenses to offset the rate reductions cannot be accomplished by the time the rate reductions take effect, the principle of confiscatory railway regulation is about to obtain a foothold in this country. With the object lesson furnished by the economic calamity of Federal control in the U.S., resulting purely and simply from confiscatory railway regulation, presented such a short time ago, it is, we may at least hope, surely impossible that such a mistaken and short-sighted policy could be put into operation in Canada. Decreases in railway operating expenses, at least sufficient to offset the rate reductions, should be applicable to Canadian railway traffic without delay.

Freight Car Location on Canadian Railways.

The Railway Association of Canada has issued a report showing the location of freight cars on July 1, based on returns from the following railways:—Algoma Central & Hudson Bay; Canadian National, including Grand Trunk Pacific; Canadian Pacific; Central Vermont, in Canada; Dominion Atlantic; Edmonton, Dunvegan & British Columbia; Grand Trunk; Kettle Valley; Michigan Central, in Canada; Napierville Jet.; Pere Marquette, in Canada; Quebec Central; Quebec, Montreal & Southern; Timiskaming & Northern Ontario; Temiscouata; Toronto, Hamilton and Buffalo; Wabash, in Canada, as follows: Cars owned by reporting railways, 221,976; home cars on Canadian foreign lines, 15,115; home cars on U.S. lines, 35,668; home cars on home road, 171,193; Canadian owned foreign cars on home lines, 12,649; U.S. owned foreign cars on home lines, 18,390; total cars on lines, 202,232; per cent on line to total owned, 91.1; deficiency on line to total owned, 19,744; home cars in bad order, 22,560; foreign cars in bad order, 336; total cars in bad order, 22,896; per cent in bad order, 11.3; privately owned U.S. cars on line, 2,128; privately owned Canadian cars on line, 1,151.

Railways and Road Transportation in Great Britain.—The Northwestern and Midland Rys. group withdrew the application to the British Parliament for authority to carry on a motor freight business in connection with their railways wherever it was to their advantage to do so, when it came up for consideration before the select committee of the House of Commons recently. The bill had previously been opposed by the Federation of British Industries and the motor truck owners, but the coup de grace was given by the Minister of Transport, whom the railways concerned were unable to satisfy regarding the fixing of a satisfactory basis of charges. A subsequent cable stated that it was said that the railways will form a subsidiary company under the Joint Stock Companies Act, to carry on a motor haulage business. It is stated that the motor haulage concerns have cut into the railway haulage business so much that the railways can no longer stand aside and see the more profitable end of their business go elsewhere.

Driving Wheel Lathe Tests, G.T.R., Stratford Shops.

The accompanying table gives the results of tests of a 90-in. heavy driving wheel lathe at the Grand Trunk shops at Stratford, Ont. In turning 8 pairs of driving wheel tires, of the diameters shown, the total time for the work from floor to floor was 3 hr. 58 min., the average time for each pair of wheels being 29.7 min. The total turning time was 203½ min. for the 8 pairs, and the average turning time for each pair was 25.4 min.

ped with semi-automatic drivers, which engage the tires directly and hold the wheels rigid under the heaviest cuts. The faceplates are recessed, for the reception of crankpins, enabling wheels to be chucked close to the faceplate, thus ensuring the rigidity of the drive. The main spindles are provided with heavy bushings, which can be readily replaced when worn without disturbing the alignment of the bearing in the head.

feed ratchets are of the enclosed type, and provided against accidents to operator, and also arranged to keep out chips. They are made to operate in either direction.

The lathe is arranged to handle wheels having either inside or outside journals, the design being such that when outside journals are to be handled, the centers can be run back. Special provision is made for turning trailer wheels with

No. of Pairs	Diam. of wheel center	Diam. of rough tire	Diam. of finished tire	Floor to chuck, min.	Time turning, min.	Machine to floor, min.	Total time floor to floor	Speed ft. per minute	Feed, in. per revolution	Condition of tires	Total delay min.	Remarks
1	56"	63"	62½"	3½	24½	1	29	15 to 23	¾"	Hard Spots	Nil	Changed 1 tool, right side.
2	56"	63"	62½"	3½	28	1	32½	15 to 23	¾"	"	"	Changed 2 tools, 1 r. & 1 l.
3	56"	63"	62½"	3½	25	1	29½	15 to 23	¾"	"	"	Changed 2 tools, 2 right.
4	56"	63"	62½"	3½	23¾	1	28	15 to 23	¾"	"	"	Changed 2 tools, 1 r. & 1 l.
5	56"	63½"	62½"	3	28	1	32	9 to 23	¾"	Very Hard	"	Changed 2 tools, 1 r. & 1 l.
6	56"	63½"	62½"	4	26	1	31	9 to 23	¾"	"	"	Changed 1 tool, right.
7	56"	63½"	62½"	3½	24½	1	29	10 to 23	¾"	"	"	Changed 1 tool, left.
8	56"	63½"	62½"	2¾	23¾	1½	27	8 to 23	¾"	"	"	Changed flanging tool, r. side.
Totals.....				27	203½	7½	238					

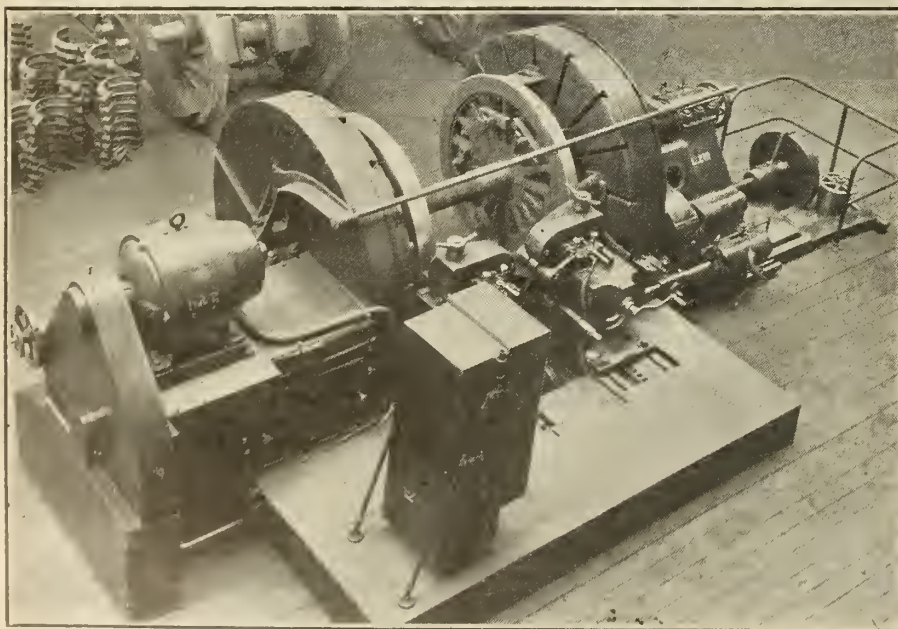
The machine, shown in the accompanying illustration, will take wheels on tread up to 84 in. diam., and has a maximum distance between faceplates of 9 ft. 2 in. and a minimum distance of 6 ft. 8 in. It is designed for heavy duty, with modern high speed tool steel, and consists of two massive heads mounted on a heavy bed, the left hand head being stationary. The driving gears are fully enclosed in a box with doors in front, which allows the operator to conveniently inspect the driving mechanism when necessary. The right hand head is movable along the bed by power, the drive being of the friction

The faceplates are driven by internal gears securely bolted to the faceplates. The driving pinions are located at 45 deg. from the vertical line on the front side, bringing the drive of the faceplate near the point of cutting. The driving pinions are of forged steel, and are mounted on an auxiliary shaft, by which the ratio of the driving shaft to the faceplate is multiplied very materially, reducing the torsional strain. The internal gear drive of the faceplate gives greater contact for the pinion teeth, ensuring less wear, and protecting them from injury by falling chips.

long outside journals, by simply removing the bushings that support the sliding spindle when it is extended. A caliper attachment is provided, which enables the operator to measure the diameter of the wheels without leaving the position at the tool rests. All exposed gears are covered with guards and the main driving shaft is protected by a sheet metal guard. The equipment includes caliper attachment, pneumatic tool clamps, power traverse for tailstock, pneumatic clamp for tailstock, and a set of 4 drivers for each faceplate.

The machine is arranged with d.c. motor drive, the motor being used at Stratford is Canadian Westinghouse 50 h.p. type S.K., 230 volts, 500-1,500 r.p.m. The machine is supplied with magnetic push button control, for starting, stopping, and slowing down the speed of the motor. This control is located within easy reach of the operator, and is especially useful when hard spots are encountered in the turning of tires.

We are indebted to J. C. Garden, General Superintendent Motive Power and Car Department, G.T.R., for information concerning the time required for the turning of the 8 pairs of driving wheels referred to. The machine was manufactured by the John Bertram & Sons Co., Dundas, Ont.



Driving Wheel Lathe, G.T.R. Shops, Stratford, Ont.

type, thus eliminating the possibility of accident by the faceplates being brought up too forcibly against the wheels. The controlling lever for moving the head is conveniently located, so that the operator does not have to leave his position at the tool posts. The head is adjustable to a sliding fit, and is clamped at both sides of the bed simultaneously, by a pneumatic cylinder. Each head is equipped with a heavy faceplate, carried on an extra large spindle. The faceplates are provided with T slots and each is equip-

Tools rests are of massive construction, arranged to swivel, and have sufficient adjustment on the bed to turn wheels from 40 in. up to the capacity of the machine. They are provided with improved pneumatic tool clamps, enabling the operator to change and clamp the tools in a few seconds time and without the use of a wrench.

The drive is positive in action, and has a range per revolution of faceplate from 1/10 to 7/10 in. obtained by 9 vibrations, giving practically a continuous feed. The

The Ottawa Street Incline Ry. Co. of Hamilton, Ont., has been incorporated by the Ontario Legislature to build an incline railway from the southerly end of Ottawa St., Hamilton, to the summit of the escarpment in Barton Tp., subject to agreements with the municipalities. The authorized capital is \$500,000, and the company may issue bonds. The work is to be started within four months and completed within 18 months of the signing of the agreements with the municipalities. The provisional directors are: T. H. Simpson, R. H. Baxter, F. H. McCallum, Hamilton, Ont., J. R. Simpson, Toronto, and W. B. C. Bradley, New York, N.Y.

The Railway Supply Manufacturers' Association, which arranges the exhibits for the railway mechanical conventions at Atlantic City, has added an 18th district to its organization, including all Canada, and has elected Arthur Allen, Vice President, The Holden Co., Montreal, as Canadian representative for three years.

Canadian Pacific and Canadian National Railways' May Earnings and Expenses.

The C.P.R. in May had gross earnings of \$13,664,245, a decrease of \$227,799 from May 1921. Operating expenses were \$11,319,732, an increase of \$721,239 over May 1921. Net earnings were \$2,344,513, a decrease of \$949,038 from May 1921. With this decline in gross earnings, and with operating expenses increased over those of the corresponding month last year for the first time this year, the decline in net earnings was large. In April there was a decline in net earnings as compared with April 1921 of \$1,097,359, so that for the two months the company had a decrease in net of \$2,046,397. While net earnings for May were the second largest of any month this year, those for March being slightly larger, they were the smallest for any month of May in over 10 years. The operating ratio for the month was 82.84.

The Canadian National Rys., in marked contrast to the C.P.R., had a better month in May than for some time past, as operating expenses were nearly earned. Gross earnings were \$9,678,965, an increase of \$1,344,991 over May 1921, operating expenses were \$9,726,020, a decrease of \$1,162,495, from May 1921. The operating deficit was but \$47,055 an improvement of \$2,507,485 over May 1921.

It is evident from the results of C.P.R. operation for May that the decreases which have taken place in rates during the year from May 1921 to May 1922 have more than wiped out any benefits accruing from reductions in unit operating expenses. While it may seem strange when the wage reduction of July 16, 1921, and lower material prices, are taken into consideration, that C.P.R. operating expenses were larger in May 1922 than in May 1921, yet, on consideration of the fact that there was a 10% reduction in passenger fares on July 1, 1921, a 10% decrease in freight rates on Dec. 1, 1921, and a whole multitude of individual rate reductions, it will be evident that the company had to handle much more traffic in May 1922 than in May 1921 to derive the gross earnings it did. The handling of traffic means the furnishing of train service, and notwithstanding the fact that the unit costs of operation were lower this year, the total operating expenses were increased in May because of the additional train service rendered.

The results for the first five months of the year on the C.P.R. have not been particularly encouraging. Gross earnings were \$62,484,911 as compared with \$69,594,029 for the same period in 1921. Operating expenses have not decreased in like proportion; for the first five months of this year they were \$55,033,153, a decrease of \$4,715,468. As a consequence, net earnings for the first five months this year have been but \$7,451,758, a decrease of \$2,393,650 from 1921. As in May, so in the first five months of the year, the relationship as between rates and unit operating costs has not been as favorable as in the corresponding months of last year.

While the Canadian National Rys. have experienced the same changes in rates and in unit operating costs as the C.P.R., the former road has had an opportunity to improve its operating condition during the past two years by placing its road and equipment in a condition coinciding with C.P.R. standards, and it

is evident, from the greatly improved results being secured, that the Canadian National management was fully justified in spending the money to enable it to take advantage of the opportunity. Acquisitions which the Canadian National Rys. have made in the way of new equipment, and the changes which have been made to eradicate costly operating conditions have been detailed in Canadian Railway and Marine World from time to time. A reduction in operating expenses is the logical result of the improvements made. During the first five months of 1922 operating expenses decreased \$13,000,000 as compared with the corresponding months of 1921, a reduction of 20%.

Although it may be expected that it will be some time before the National system has an operating ratio approaching that of the C.P.R., this is not due to operating conditions of a limiting nature, such as light power, inferior track, lack of terminal facilities—these conditions have been largely rectified where they existed—but solely to the fact that the Canadian National Rys. traffic density is still low and that its growth must necessarily be a more or less gradual process. The work which has been done on the Canadian National Rys. in the way of removing unfavorable operating conditions has enabled the property to improve its operating position to a great degree in a relatively short time, but these unfavorable conditions having now been removed and the property placed in good physical condition, it may be anticipated that further improvement will not be so rapid, for the reason, as just stated, that it must depend on an increase in traffic density. While not anticipating such a rapid improvement in operating conditions in the future as in the past year or two, it may, however, be hoped that the country's commerce and industry will experience a sound and steady growth, and that the increasing traffic offering will make the improvement in railway operating conditions stable and permanent.

The Board of Railway Commissioners' Chairman's Position.

Mr. Meighen, leader of the opposition, said in the House of Commons on June 24: "On June 10, attention being called by the member for Macleod, Alta., to certain commitments of the present Minister of Agriculture (Mr. Motherwell) as regards the removal of the Chairman of the Board of Railway Commissioners, the Prime Minister stated, as reported in the unrevised Hansard, that the Minister of Agriculture had made certain representations to the Government as regards such removal; that the same had been considered, but that no definite conclusion had been reached. May I ask if a definite decision has been reached, and if so, what is it?"

Prime Minister King replied: "No conclusion has been reached; the matter is still under consideration."

Always on Time.—Commercial traveler (to newsboy at a Scottish railway station)—I say, when does the next train go? Boy (after scratching his head for an instant)—A wee whiley aifter she whustles.

Grand Trunk Railway Construction, Betterments, Etc.

Dixie Station.—The Board of Railway Commissioners and the Montreal City Council approved recently, plans for the erection of a new station at Dixie, Que., which has been built immediately adjacent to the old structure, which had outlived its usefulness. The new building is larger and more in accord with the needs of the growing locality. The work was done by the company's own forces.

Tiny Tp. Bridge.—The Board of Railway Commissioners has authorized the rebuilding of bridge 329 1/4, at mile 100.69 from Toronto, on Lot 115, Con. 2, west of Penetanguishene road, Tiny Tp., Ont.

London Division Improvements.—Work is expected to be started almost immediately on the relaying of about 85 miles of track on the London Division with new rails. Ties and rails have been delivered at several points where work is to be done. A press report states that a new floor is to be laid in the London freight sheds at an estimated cost of \$5,000.

Detroit Grade Separation.—A press report stated recently that it had been decided to begin work upon the separation of grades in Detroit, Mich., in connection with a movement to bring a large area of industrial territory within the company's influence. The plans, it was stated, called for the building of a second track from Detroit to Pontiac, 26 miles; the depression of 5 miles of track within the city limits, and the improvement of the terminal and ferry facilities, so as to permit of the running of the Montreal-Chicago trains via Detroit, instead of via Sarnia and Port Huron. The estimated cost of the entire work was stated as \$20,000,000. We are officially advised that negotiations are in progress with Detroit City Council relative to grade separation between Jefferson Ave. and Hale St., approximately 1.5 miles, but that nothing definite has been settled as to what will be done. (June, pg. 285.)

Transfer Company's Liability for Lost Baggage.—The Quebec Court of Appeal gave judgment recently on the Canadian Transfer Co.'s appeal against a Superior Court judgment awarding Mrs. E. S. Chambers, \$1,745 for loss of baggage. When on her way from Ottawa to New York, she engaged the Transfer Co. to take her baggage from Bonaventure station to the Windsor St. station, Montreal. The baggage did not arrive at its destination and suit was entered. The transfer company disclaimed liability beyond \$50 as stated on the back of the receipt check. Justice Duclos, in the Superior Court, held this did not constitute a contract and gave a verdict for Mrs. Chambers.

Railway Accidents Throughout Canada.—The number of accidents throughout the Dominion, reported to the Board of Railway Commissioners, for June, was 198, in which 6 employees and 22 others were killed, and 14 passengers, 152 employees and 34 others were injured. Among "others" are included 13 persons killed and 25 injured in 24 highway accidents. In these latter accidents, the highways were unprotected in 20 cases, and in the other 4 they were protected by bells. Automobiles and motor trucks were concerned in 14 of the accidents, a motor cycle in 1, a bicycle in 1, other vehicles in 6 and a pedestrian in 2.

Grand Trunk Railway Shareholders' Appeal to the Privy Council.

The G.T.R. shareholders' appeal against the award of the board of arbitration, which found that the company's preference and common stocks had no value, upon the property being taken over by the Dominion Government, was opened before the Judicial Committee of the Imperial Privy Council, in London, Eng., July 10, the arguments were concluded July 13, and judgment was reserved. The appeal was heard by Lord Chancellor Birkenhead, Viscount Haldane, Lord Cave, Lord Parmoor, Lord Shaw and Lord Carson. The Dominion Government was represented by A. C. Clanson, K.C., of the English Bar, E. L. Newcombe, K.C., Deputy Minister of Justice, Ottawa, and W. N. Tilley, K.C., Toronto, the latter of whom was the Government's chief counsel in the arbitration proceedings; Sir John Simon, K.C., led for the shareholders. Lord Carson, at the outset of the proceedings intimated that he held an interest in the company's stock, but the Government's counsel intimated that all possible objection to his participation in the case would be withdrawn.

Sir John Simon presented the shareholders' case in an argument starting on July 10, and concluding on July 11. He pointed out that about 1,700 miles of the G.T.R. lines, from which 67% of the company's revenues are derived, are in the United States. He contended that the majority of the arbitration board were wrong in holding evidence respecting replacement value to be inadmissible, and submitted that there was a minimum value below which it was not possible to go. It was fundamentally wrong to assert that shares, even in a concern with no prospect of making a profit, were worth nothing, for the company's assets, nevertheless, might be exceedingly valuable.

A. C. Clanson, who opened the case for the Government on July 11, continuing on July 12, contended that the majority of the arbitrators were willing to hear evidence as to the selling value of any portion of the lines, provided it was shown that it would be to the advantage of the shareholders to sell; but such evidence was not tendered. The evidence which was tendered and rejected was for the purpose of showing what it would cost to build the G.T.R. lines new, as if they had never existed.

W. N. Tilley, K.C., on July 13, supported the arbitrators' finding, and after a short reply by Sir John Simon, and some discussion between the members of the court, and the counsel, the Lord Chancellor announced that the court would take time to consider its finding.

London press cables express the opinion that the court will probably grant the appeal on the ground that the Sir Walter Cassells' judgment included matter from the Drayton-Acworth report, and that evidence as to the reproduction value of the railway was rejected.

Memorial to David Thompson.—The C.P.R. is co-operating with the Hudson Bay Co. in erecting a memorial at Lake Windermere, B.C., in memory of David Thompson, who was engaged in exploring that region between 1784 and 1826. The memorial is a reproduction of the trading post, named Kooknai House, established there by the explorer in 1807. The building is to be opened Aug. 30.

Among the Express Companies.

The Canadian National Ex. Co. has opened offices at Norway Bay and Perce, Que., and Vilna, Alta.

The Dominion Ex. Co. shipped two wallabies recently from the London, Eng., Zoological Gardens, to Toronto, by the s.s. Batsford, in exchange for some beavers sent to London from Toronto just before the war.

W. A. Clark, General Agent, Dominion Ex. Co., Montreal, was presented with a gold headed cane, by the local employes, July 3, on the completion of his 50 years of express service, 40 of which have been with the Dominion Ex. Co. It was stated that he is the first of the company's officials who has had 50 years of express service.

The Board of Railway Commissioners passed general order 367, June 29, ordering that all international express commodity tariffs, now in effect, be amended so as to include a rule to the effect that rates named therein, unless specifically indicated as being competitive, will apply to or from intermediate points in Canada not enumerated in said tariffs, and that a similar rule be published in international commodity tariffs as issued.

The Canadian Ex. Co. applied to a court at Winnipeg, July 7, for an order to compel the Canadian Credit Men's Christie-Grant Co., to list the company Trust Association, official assignee of the as a preferred creditor in the liquidation proceedings. The Canadian Ex. Co. supplied the firm with blank money order books, and at the time of the assignment, orders totalling \$1,845 had been issued and honored. The company objected to being listed as an ordinary creditor. Judgment was reserved.

An action against the Canadian Ex. Co. for damages, on the ground that it had refused to accept a shipment of fish at La Tuque, Que., was dismissed by the Quebec Board of Appeal, recently. The claimant argued that the company being a public utility, had to accept parcels or merchandise at any time, but the company denied this, and claimed it was governed by certain rules. The judgment upheld the company's contention, stating that express companies were governed by regulations approved by the Board of Railway Commissioners.

Telegraph, Telephone and Cable Matters.

The C.P.R. section of the Order of Railroad Telegraphers has applied to the Labor Department for the appointment of a board of conciliation on the matters in dispute with the company, following a rupture of negotiations with the Railway Association of Canada. The men have named D. Campbell, Winnipeg, as their representative, and it is stated that U. E. Gillen, General Manager, Toronto Terminals Ry. Co., will act for the company.

The Imperial Cable Co. has taken over the Direct United States cable from Balinskelligs, Ireland, to Harbor Grace, Nfld., and Halifax, N.S. This cable was bought by the British Government in Nov., 1920, for £750,000, and has since been operated by the Western Union Telegraph Co., under lease. A section of the cable from Halifax to Rye Beach, Mass., remains with the Western Union Telegraph Co. The cable was laid in 1874, and was the first trans-Atlantic cable to use the Muirhead duplex system.

It was landed originally, on the Canadian side, at Tor Bay, N.S., and moved to Halifax in 1887. The control passed from the Direct United States Cable Co., to the Western Union Telegraph Co., in 1912.

The British Postmaster General announced in the British House of Commons, July 13, that in connection with the proposed chain of wireless telegraph stations throughout the British Empire, the Government had decided to erect a station of the ultimate power contemplated by the experts, in England, providing specially for direct commercial communication with India, South Africa and Australia. A similar station will be built in India, and on account of this decision, the erection of a second station in Egypt and a station in East Africa, will be deferred, and the building of stations at Singapore and Hong Kong reconsidered. It was anticipated that Canadian representatives would be in England shortly to discuss the Dominion's participation in the scheme.

The Newfoundland Legislature has confirmed an agreement with the Commercial Cable Co., concerning the transfer and operation of the Government owned submarine cable between Port aux Basques, Nfld., and Canso, N.S., to and by the company. The amount to be paid by the company for the cable, \$60,000. The cable is admitted to be in an imperfect condition and incapable of transmitting messages. The company agrees to repair the cable and to maintain it in efficient condition, and obtains the exclusive use of a wire on the Government land lines between Port aux Basques and St. John's, which is to be maintained by the Government. The Government agrees to pay the company \$4,000 a year, and to hand over to it all telegraph traffic destined to points outside Newfoundland, coming within the Government's control, and all telegraph traffic destined to points within Newfoundland, except Port aux Basques or St. John's, coming within the company's control. Government messages to Great Britain, or Ireland, on official business, will be paid for at half the published rates.

FOR SALE Air Compressor Plants

The Commission offer for sale the following plants:—

4 Air Compressors, 112 cubic feet displacement, 2 stage, straight line, 300-lb. pressure, 12" x 12" x 5½"; also necessary reservoirs, shafting, pulleys, valves, etc.

4 Westinghouse 50 h.p. Shunt-wound motors, D.C., 550 volts; complete with starting apparatus.

The above plants may be seen by appointment with the Office of the Superintendent of Rolling Stock, foot of Sherbourne Street.

Tenders addressed to the Chairman, sealed and endorsed "Tenders for Air Compressor Plants," to be delivered at the Commission's office, Public Utilities Building, corner Front and Yonge Streets, on or before noon, August 26th, 1922.

The highest or any tender will not necessarily be accepted.

**TORONTO TRANSPORTATION
COMMISSION.**

Electric Railway Department

Toronto Transportation Commission's Works, Etc.

The Toronto Transportation Commission has been making good progress with its track rehabilitation and extension work during the past two months, and at the time of writing, July 18, the majority of the shorter sections are completed. Of the undertakings mentioned in Canadian Railway and Marine World for July, pg. 373, as under way, the following have been completed: 1. Rehabilitation, King St., Church St. to Sherbourne St.; York St., Wellington St. to Adelaide St.; Dovercourt Road, College St. to Bloor St.; Howard Park Ave., Dundas St. to loop at High Park; Carlton St., Sherbourne St. to Parliament St.; Dundas St., from railway bridge to Howard Park Ave.; Spadina Ave., Spadina Crescent to Bloor St., East track; McCaul St., Elm St. to College St.; Queen St., Kingston Road to Woodbine Ave. 2. Extensions, loop and tail track at Neville Park Boulevard; Main St., Gerrard St. East to Danforth Ave.

The following are nearing completion: 1. Rehabilitation, Church St., Queen St. to Bloor St.; Dufferin St., exhibition loop to Queen St.; Roncesvalles Ave., Queen St. to Dundas St.; Spadina Ave., Spadina Crescent to Bloor St., West track. 2. Extensions, from Gerrard St., along Carlaw north to Riverdale, thence east on Riverdale to Pape Ave., and north on Pape Ave. to Danforth Ave.; Dovercourt line extension.

Work has not been started on the following: Rehabilitation of Bloor St., from Spadina Ave. to Avenue Road, or from Yonge St. to Church St., on account of there being a possibility of the street being widened. On Gerrard St., between River St. and Broadview Ave., pending the building of a new bridge. On Queen St., between Scarboro Beach Park and McLean St. On the extension on Kingston Road, from Queen St. to the city limits. On Yonge St., from Woodlawn Ave. to the northern city limits, although an extension on the northbound track at Woodlawn Ave. has been made. The work on Yonge St., which will involve 37,100 single track ft. of new track, will constitute the Commission's largest single job, but commencement is delayed pending the signing of the clean-up agreement.

Yonge St. Rehabilitation.—Yonge St., between Deloraine Ave. at the northern city limits, and Woodlawn Ave., the present northern terminus of the Commission's Yonge St. line, is occupied by the Toronto & York Radial Ry's Metropolitan Division single track line, on the west side of the street. The intention is to widen the street to 86 ft., which will allow for a 54-ft. roadway, with car tracks in the center, and an 8-ft. walk and sodded space at each side. The pole line at the west side of the street has been moved back 20 ft. to allow for the widening, and the intention is to grade this space and lay a temporary track to handle traffic during the reconstruction. This temporary track will be laid in sections, as sections of the T. & Y. Radial Ry. track are taken up, the temporary track being swung in to connect with the remaining portion of the T. & Y. Radial Ry. track from time to time as the work progresses.

Cars.—No decision has been arrived at by the Commission in connection with the purchase of additional equipment. As stated in previous issues, the intention at the beginning of the year was to add about 150 double truck cars, similar to those got last year, and although that intention still exists, no orders have been placed.

Yonge St. and Eglinton Ave. Carhouse.—The Commission has made public the plans for the carhouse proposed to be built on the land acquired recently, bounded on the east by Yonge St., on

Eglinton Ave., near the Duplex Ave. corner, and curves will be installed at main line points, so that cars operating in either direction on Yonge St. or Eglinton Ave., will be able to enter the yards with no reverse movement. A substantial office building will be built near the Yonge St. and Berwick St. corner, around which will run a loop. The layout is designed to afford the greatest facility in car movement. At the time of writing, July 18, no contract had been awarded.

Bridge on Main St. over G.T.R. track.—Consequent on the Commission laying tracks on Main St. and across the bridge which carries Main St. over the G.T.R. tracks, the G.T.R. claimed that the Commission or the city should bear a portion of the cost of the bridge. The matter came before the Board of Railway Commissioners at Ottawa on July 5, when I. S. Fairty, K.C., appeared for the Transportation Commission, G. R. Geary, K.C., for the city, and W. C. Chisholm, K.C., for the G.T.R. Mr. Fairty contended that the original plan of the bridge, drawn up in 1919, and approved by the Board, provided for street railway tracks crossing it, and that with this plan before it the Board had at that time decided that the G.T.R. should bear the full cost of construction. This having been done, he said, only the Board's approval was required on the mere technicality of allowing the Transportation Commission to make use of the tracks laid in accordance with the original plan. The Board reserved judgment as to apportionment of cost, but granted the Commission permission to proceed with the operation of cars over the bridge.

Installation of Grand Union.—The Commission is installing a grand union intersection at the corner of Bloor and Bathurst Sts., which will be one of the largest of this nature in Canada. It is stated that there is a grand union in Calgary with longer ends, but that only 108-lb. steel is used, while in the one being installed in Toronto, 140-lb. steel is being used. A grand union was installed recently by the Commission at the intersection of Adelaide and Bay Sts., but the job was not of the same magnitude as that now under way.

Trackless Trolley Operation.—The Commission is meeting with great success in the operation of its trackless trolley buses, described in detail in previous issues of Canadian Railway and Marine World. They are operating on Merton St. and Mt. Pleasant Road, in the northeast part of the city. Of the 4 buses, 2 operate throughout the day, with an additional one during the rush hours, and the fourth is held in reserve. Some difficulty was experienced at first on account of the buses being equipped with 1-pole current collection, but since this has been replaced with the 2-pole system, no delays have been experienced through the trolley coming off the wire. About 1,700 passengers a day are handled, and the service is proving very popular with the residents of the district served.

Frank Ruley was fined \$5 and costs by the Ottawa Police Magistrate, recently, for assaulting J. W. Shaver, an Ottawa Electric Ry. conductor.

Canadian Electric Railway Association.

Honorary President, E. A. Robert, President, Montreal Tramways Co., and Quebec Ry., Light, Heat & Power Co.

Honorary Vice President, Wm. C. Hawkins, Managing Director and Secretary, Dominion Power & Transmission Co.

Honorary Council, Thos. Ahearn, President, Ottawa Electric Ry.; Acton Burrows, Proprietor, Canadian Railway and Marine World; Geo. Kidd, General Manager, British Columbia Electric Ry.; Lt.-Col. J. E. Hutcheson, General Manager, Montreal Tramways Co., and director, Quebec Ry., Light, Heat & Power Co.

President, Major F. D. Burpee, Manager and director, Ottawa Electric Ry.

Vice President, H. H. Couzens, General Manager, Toronto Transportation Commission.

Executive Committee, The President, the Vice President, the immediate past President (G. Gordon Gale, Vice President and General Manager, Hull Electric Co.) and D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co.; E. P. Coleman, General Manager, Dominion Power & Transmission Co.; A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Ry.; D. W. Houston, Superintendent, Regina Municipal Ry.; A. W. McLimont, Vice President and General Manager, Winnipeg Electric Ry.; R. Mayne-Read, Superintendent, Quebec Railway, Light & Power Co.; W. R. Robertson, General Superintendent of Railways, Hydro-Electric Power Commission of Ontario; W. L. Weston, Manager, Nova Scotia Tramways & Power Co.; H. E. Weymann, Manager, Levis County Ry.; C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Treasurer, W. S. Hart, Managing Director, Three Rivers Traction Co.

Auditor, Lt.-Col. G. C. Royce, General Manager, Toronto Suburban Ry.

Secretary, D. N. Gill, Comptroller, Ottawa Electric Ry., Ottawa, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

the north by Eglinton Ave., on the west by Duplex Ave., and on the south by Berwick St. While the construction of this carhouse, like the reconstruction of the tracks on north Yonge St., is contingent on the consummation of the clean-up agreement, the commission has obtained a building permit. The property has a frontage on Yonge St. of about 900 ft. It is the intention to resell the frontage on Yonge St., with the exception of 250 ft. near the corner of Yonge and Berwick Sts., and that on Eglinton Ave., with the exception of 250 ft., near the corner of Eglinton Ave. and Duplex Ave. The land to be resold will have a depth of 90 ft., and will, presumably, be used for stores. The car house, 306 x 136 ft., will be located in the middle of the property, and will be divided into 3 bays. Entrance to the yard surrounding the house will be by 2 tracks from Yonge St., near the Berwick St. corner, and from

Hull Electric Company's One-Man Cars.

The Hull Electric Co. has added two one-man safety cars to its equipment. The general dimensions are as follows:—

Length of body	21 ft.
Length of front vestibule, about	5 ft.
Length of rear vestibule, about	5 ft.
Projection of bumper	6 ft.
Width of car body over all	8 ft. 1 1/4 in.
Length over bumper	32 ft.
Seating capacity	41 persons
Standing capacity, approximately	26 persons

The car bodies are of semi-convertible type, wood construction, built specially for one-man operation, and single end control. The sides are straight, and sheeted vertically with narrow tongued and grooved poplar sheeting. There are 8 double sash windows on each side of the body. The top sash is made stationary and bottom sash made to raise to open. The roof is of arch type with three ventilators on each side, and adjustable grids on the interior. The underframe is of composite construction, having wood side sills reinforced with 18 x 3/4 in. steel plates, which are rivetted to steel cross plates 6 x 1/2 in. to form

cross rail to the same upright fastened to the corner post, forming protection to passengers on longitudinal seats. The body seats are all wood slats with pressed steel pedestals with bronze grab handles. The seats comprise 12 cross and 2 longitudinal at the front end and are hinged to accommodate sweeping. There are curtains on all side windows, on metal rollers and pinch handle fixtures. Sanitary hand straps are provided at longitudinal seats, 3 on each side. The heater equipment is Cutler Hammer, 10 per car in two circuits, controlled by a 2-knife switch. The lighting system is arranged with 15 lights, keyless lamp sockets, 10 in the body and 2 in rear vestibule, and 2 for door lights, which are protected by a metal shade, which keeps the glare off the motorman. There is one headlight of pressed steel. Storm sashes are installed on all side windows and vestibule, with window guard rods which are installed between the post and do not require to be taken off when storm sashes are installed. A



One-man Car, Hull Electric Railway.

a complete steel frame. The cross wood sills are of oak. The flooring is 7/8 in. thick, tongued and grooved hard yellow pine, covered with hardwood floor matting laid lengthwise in the aisle. The interior trimming is red cherry, with no bulkheads at either end. The trimmings are solid bronze and the waist panelling agasote.

The front vestibule is 5 1/2 ft. over bumpers and step, the opening being 30 in. wide. The door opening has folding door and step operated by air engine. The rear vestibule is circular, with an emergency exit door lift up step, controlled by air engine in case of emergency, which can then be opened by hand. There is a circular seat running around the rear vestibule, which accommodates 9 passengers; the seats are of the wood slat type. The buzzer equipment includes push buttons, the current being procured from the trolley. The front vestibule is equipped with iron pipe railing, having a short stanchion to support the fare box, with a horizontal railing at an angle to upright the stanchion at the bulkhead, which is used as a grab handle; also another upright stanchion at the bulkhead on the right coming out and forming a grab handle and a small

buffer casting is installed on front and rear buffers, which acts as a protection to headlight and trolley catcher when cars are being placed in barns at night. A trolley catcher is installed in the rear vestibule. The air brake equipment is the Westinghouse safety car equipment for single end cars, having all safety features embodied, including the bungalow d.h. 16 compressor. The rear door, which acts as an emergency, is operated by an air engine, ensuring closing of door after emergency application. Air brakes are also provided. Air track sanders are installed on all four wheels with the Ohio air sander trap worked from motorman's valve. The draw bars are the Hull Electric Co.'s standard radiating coupler, installed at each end. The painting is pullmatic green, numbered and lettered in gold. The cars are mounted on 21-E trucks with Westinghouse 101-B motors.

The cars were built by the Ottawa Car Manufacturing Company.

A motor bus service is reported to have been put into operation from London to Parkhill, Ont., and it is stated that if traffic offers it will be extended to Grand Bend, on Lake Huron.

Quebec Railway, Light, Heat & Power Co. and the City.

In connection with a notarial protest served on the Quebec Ry., Light, Heat & Power Co., by Quebec City recently, we are advised that the company, in addition to having a franchise for the operation of its street railway, has an agreement with the city in connection with supplying gas. The main difference appears to have arisen over the price of gas, and the other matters, including alleged failure to keep agreements regarding street railway affairs, have apparently been brought into the controversy by the city in order to try and secure a more complete settlement. The protest called for the establishment of a 5-minute service in Belvedere Ward, by July 17; and for the making of replies on other matters by July 20. The company's directors were called to meet July 20, and the city council's finance committee, which has charge of the matter, was called the same evening.

We are officially advised that under the contract the company was authorized to charge \$1.75 net per 1,000 cu. ft. for gas, with a minimum of 75c a month per customer. This rate was to be in effect from Nov., 1920, to Nov., 1921, and thereafter unless changed by agreement, after three months notice. On Nov. 12, 1921, the city gave notice of the cancellation of the contract as from Feb. 11, 1922, and asked for a reduction in price. The company offered to put in force a sliding scale of rates of from \$1.65 per 1,000 ft. for the first 10,000 ft. consumed a month, \$1.55 per 1,000 for the next 10,000 ft. a month, and \$1.45 per 1,000 for the excess of 20,000 ft. a month, with a minimum charge of 75c a month. This the city refused to agree to and passed a resolution, March 24, requesting the establishment of a rate of \$1.45 net per 1,000 ft., on the understanding that the company would undertake extensions for gas supply whenever required. The company notified the city that it could not agree to this, and asked for a conference. The council did not agree to a conference, but appealed to the Quebec Public Service Commission on June 27. The Commission adjourned the hearing for three months to enable data to be compiled, or an arrangement to be made. The Commission's decision seemingly not meeting with the city council's approval, a study has apparently been made of all previous contracts between the company and the city, and the council is endeavoring to insist upon increased car services in certain sections, and on street railway extensions which it is claimed have not been gone on with in accordance with the several contracts. These are questions on which the company is in a position to satisfactorily defend its action, should no arrangement be made in the meantime.

The Canadian Highway Transit Co., operating a motor bus line in Woodstock, Ont., and vicinity, is reported to have been fined by the police magistrate for having refused to carry a Woodstock, Thames Valley and Ingersoll Ry. employe to a destination three miles outside the city, in contravention of the bylaw governing the operation of taxicabs. The case has been appealed and in the meantime cases against two of the company's other drivers for breaches of the same law were adjourned to Sept. 15.

Trackless Trolley Buses, Hydro Electric Power Commission of Ontario.

The Hydro Electric Power Commission of Ontario has placed in service four trackless trolley buses on its Hydro Radial Railway, Essex Division, formerly Sandwich, Windsor & Amherstburg Ry. The chief dimensions are as follows:—

Length overall	26 ft. 0 in.
Length of body	21 ft. 2 in.
Wheel base	16 ft. 6 in.
Width over side sheets at window sills	7 ft. 5 3/4 in.
Width overall	7 ft. 6 in.
Width inside	6 ft. 11 1/2 in.
Gauge, rear wheels	5 ft. 4 in.
Gauge, front wheels	5 ft. 10 in.
Height of floor at entrance	2 ft. 6 in.
Height from road to first step	1 ft. 5 in.
Height from step to floor	1 ft. 1 in.
Height from floor to ceiling at center	6 ft. 6 in.
Height from roadway to top of roof	9 ft. 3 in.
Post spacing	2 ft. 4 1/2 in.
Seat spacing	2 ft. 4 1/2 in.
Aisle	1 ft. 6 in.

The following description was prepared when the buses were ordered and was therefore written in the future tense.

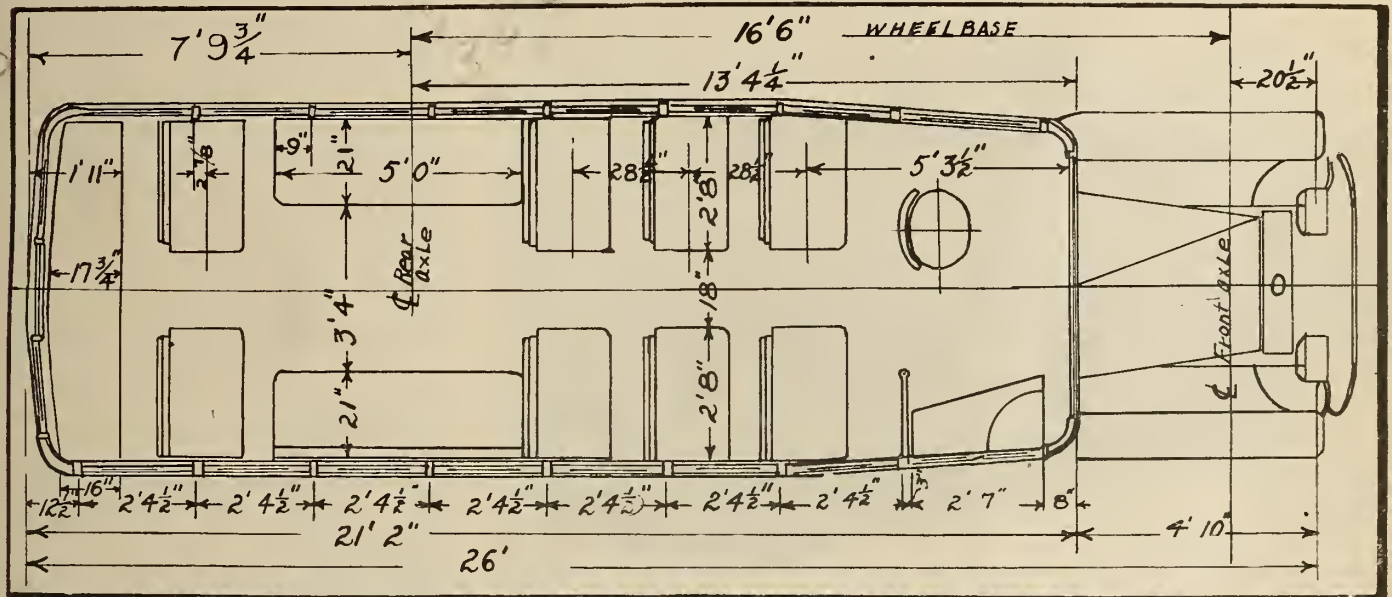
The frame will be built up of 6 x 3 x 1/4 in. heat treated alloy steel channels,

raise 13 in. In the rear there will be 3 windows, and the front of the body will be provided with a rain vision shield, 70 in. wide, with stationary green glass visor. At the right front corner will be a double folding door, with glazed glass in the upper panel and 3/16 in. wide glass in the lower panel, the door will be hung on ball bearing shaft and the leaves jointed with ball bearing butt hinges, and the closing edge will be provided with rubber tubing bumper. This door will be opened and closed by a manual operating device, located convenient to the driver. An emergency door will be provided at the left rear corner of the bus.

Electric motive equipment will consist of two 25 h.p. 600 volt motors, connected in tandem, through full universal joints between motors, and between motor and rear axle. The motors will be supported on frame channels, with cast steel brackets. The control equipment will consist of a foot pedal operated

and 1 tail light, connected with accumulator in series with the main lighting circuit and so arranged that in case of failure of the trolley circuit the auxiliary lights will be automatically cut in.

The steering gear will be of the screw and nut type, with 22 in. wheel. There will be service brakes acting on the front and rear wheels, and an emergency brake, acting on the rear wheels only, of the internal expanding type. The wheels, of 36 in. diam., will be of the Sewell cushion type, and the tires, of the cushion type, will be single, 6 x 36 in. in front, and double, 5 x 36 in. in rear. The front springs, of semi elliptic type, will be 3 x 44 in., and the rear springs, also semi elliptic, will be 4 x 64 in. The rear axle, of 3 1/2 tons capacity, will have double brake drums, and the gear ratio will be 8.66 to 1. Drawbar pockets will be provided on each end of bus to permit coupling with standard safety cars by the use of an offset bar. Heating will be by Cutler-Hammer heaters. The



Floor plan Trackless Trolley Bus, Hydro Electric Power Commission of Ontario.

with cross sills of drawn steel shapes, fitted between and riveted through the web of the channels and tied with flat plates extending from side sill to side sill. The cross sills will be of 3/16 in. material. The side sills will be of 3 x 2 x 1/8 angles. The frame will be held in square with large gussets riveted through the bottom flanges of the channel and cross sills. The body will be built as an integral part of the frame, the side posts will be riveted to the side sills, side sheets, belt rail and letter panel, and the window sills will be tightly fitted between posts and welded. The side sheets will be riveted to the side sills, side posts and belt rails. The side sheets will be of no. 16 aluminum, the belt rail of 1 1/4 x 1/4 in. steel, and window sill and letter panel of no. 18 sheet steel. The floor will be double, laid transversely, and securely nailed and screwed to side and center furring. The bottom layer of flooring will be of 7/16 in. tongue and groove material, and the top layer will be maple.

There will be 7 windows on each side of the body; the upper sash will be stationary and the lower sash arranged to

master controller, connected to motor controlled sequence switch, which will automatically control the operation of the magnetic line breaker and rheostat switches. The master controller will be so arranged as to give two running speeds through action of the foot pedal, making it unnecessary for the operator to notch up the controller. The equipment in detail will consist of two 25 h.p. motors; 1 set of 6 magnetically operated switches, mounted on panel; 1 foot operated master controller; 1 reverser; 1 double pole, magnetically operated line switch, with overload relay; 1 set of grid resistors, 30 5 in. alloy grids, 2 frames; 2 O-B trolley bases with swivel harps, 6 in. wheels and 18 in. poles; 1 double pole control snap switch, with fuses; 8 knuckle joint connectors; 1 set of rods for controller and reverser.

The lighting equipment will consist of 2 circuits of 5 lights each. On one circuit will be 2 headlights, 1 tail light, 1 step light and 1 body light. The other circuit will carry 5 body lights. In addition to the main lighting circuit there will be an O-B auxiliary lighting circuit, consisting of 2 side lights, 2 body lights

heating units will be wired in 4 circuits of 4 each and connected to thermostat. A Faraday high voltage car signal buzzer will be located at the front, and push buttons will be placed in the moulding near the center of the window space.

The interior of the bus will be finished in mahogany, and the side lining will be in mahogany veneer. The seating arrangement is shown by the accompanying plan, the total seating capacity being 29. The longitudinal seats will be over the rear wheel housing. All seats will have ventilated spring cushions, and will be upholstered and covered with cowhide, while the seat backs will be of the padded type. The operator's seat will be of the bucket type. There will be a stanchion located near the front of the car to support the fare box, and another will be located between the longitudinal seats at the rear. An aluminum hand-rail will be placed at the step well, and a brass grab handle will be placed at the side of the entrance door, at a convenient height for passengers entering. Window and door fittings will be of bronze, polished and lacquered. Four ventilators with registers will be placed

in the roof. The head lining will be of 3/16 in. agasote.

These buses were built by the St. Louis Car Co., St. Louis, Mo., the motors and control equipment being furnished by Westinghouse Electric & Manufacturing Co., and they have now all been delivered. The first bus commenced operating in Windsor on May 4, on Lincoln Road, between Tecumseh Road and Wyandotte St., 1.6 miles. Overhead construction is proceeding on the second route, beginning at the corner of Erie and Ouellette Avenues, and extending along Erie Ave. to Langlois, to Ottawa, to Gladstone, to Giles Boulevard, and back to Langlois, returning over the same route, a total distance of 1.25 miles. A third route is projected from the corner of Sandwich and Ferry Sts., to McDougall, to Wyandotte, to Bruce Ave., to Grove, and returning over the same route. One cent is charged for a transfer from the buses to the electric railway cars and vice versa. The results secured in the operation of the buses to date have more than exceeded expectations; the construction of the current collection device permits of a large cruising radius, and for ease

ley bus is rapidly becoming established, and the Commission's comprehension as to this field and its limitations will doubtless be shown to be the correct one.

International Railway Strike.

Owing to a strike of conductors, motor-men, etc., of the International Ry., Buffalo, N.Y., operation on its subsidiary line in Canada, the Niagara Falls Park and River Ry. from Niagara Falls to Queens-ton, was suspended early in July. On July 19 the matter came before the Ontario Railway & Municipal Board in Toronto, on applications by the Queen Victoria Park Commission and the Niagara Falls City Council, the company and the men's union being represented, A. Fraser, K.C., representing the company, is reported to have stated that if the men employed on the Canadian side of the river had not been associated with the union's Buffalo section, the Canadian line would not have ceased operation. The union's representative is said to have declared that it would be impossible to resume operations while the strike lasted, unless it was done under a new management. The Chairman of the Board, D.

An Unfortunate Mistake About Montreal Tramways Co.

In the report of the discussion of Messrs. Herdt and Burr's paper on valuation of street railway assets, their maintenance and depreciation, read at the Canadian Electric Railway Association's annual meeting in Quebec on June 1, H. E. Weyman, Manager, Levis County Ry., was reported in Canadian Railway and Marine World for July, on page 371, to have said: "The Montreal Tramways starved the property, or permitted maintenance to accrue, but what a different tale is told of other properties."

What Mr. Weyman did say was: "The Montreal Tramways, even in its darkest days, never starved the property, or permitted maintenance to accrue, but what a different tale is told of other properties." The copy given our printers was absolutely correct as to what Mr. Weyman did say, but the linotype operator either omitted setting up the words "even in its darkest days never," or else the line containing them was mislaid, and the sentence was given an entirely different meaning from what Mr. Weyman said. By another mistake the omission was not noticed in the proofreading. We exceedingly regret the mistake, which is as annoying to us as to anyone else concerned. It was one of those unfortunate cases where the human element failed in two instances, and it is no satisfaction to a publisher to know that mistakes are not confined to publishers' offices, but that they occur occasionally even in the best managed electric railways.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies:—

	May, 1922	May, 1922	11 mos. to May 31, 1922	11 mos. to May 31, 1921
Gross	\$827,701	\$826,039	\$9,417,543	\$9,293,353
Expenses	623,318	622,204	6,826,328	6,703,398
Net	204,383	203,835	2,591,215	2,589,955

Nova Scotia Tramways and Power Co.—Gross earnings for May, \$180,033, operating expenses and taxes, \$84,545; net earnings, \$23,488; interest and sinking fund charges, \$17,724; surplus, \$6,755; against a deficit of \$16,206 for May, 1921. Gross earnings for five months ended May 31, \$635,552 against \$653,118 for same period of 1921; operating expenses, \$489,965 against \$579,619; interest and sinking fund charges \$91,892 against \$85,321, leaving a surplus of \$53,685 against \$11,822.

Following financing done for the company recently by the Royal Securities Corporation, several of the latter's representatives have been added to the directorate, which is now as follows:—A. Stuart Pratt, of Stone & Webster, Boston, Mass., President; W. H. Covert, K.C. Halifax, Vice President; H. H. Hunt, of Stone & Webster; A. J. McAllister and W. E. S. Griswold of New York; W. C. Pitfield, General Manager, Royal Securities Corporation; W. B. Milner, Halifax Manager, Royal Securities Corporation; G. MacG. Mitchell, of G. P. Mitchell & Sons, Halifax; H. E. Mahon of Mahon's Ltd. Halifax.

The Ontario Hydro Electric Ry. Essex Division, management is reported to have announced that its cars are to be fitted with colored lights at night to designate their routes,



Trackless Trolley Bus, Ontario Hydro Electric Power Commission, Windsor Line.

of riding and handling the buses are found to be very satisfactory, while operation is economical.

We are advised by the Commission's electric railway officials that while in many trackless trolley installations in the U.S. the intention is apparently to operate the buses as a permanent proposition on well defined routes, the Commission's idea in connection with the Windsor installation is to restrict the bus operation to the outlying portions of the city, and as the city builds up, to replace the bus routes with rail lines and move the bus routes farther out from the center of the city. The capital expenditure necessary for the installation of a trackless trolley route is practically confined to the cost of the poles and the wire placed in position, which makes such a route ideal for the supplying of transportation service in areas of low traffic density. Further, when it is desirable, on account of increased traffic density, to change the bus route to a more outlying portion of a city, and replace it with a rail line, the material used in the overhead construction can be removed with but little loss and a comparatively small labor cost. There is no doubt that the field of the trackless trolley

M. McIntyre, is reported to have stated that an order would be issued directing the company to resume operating the Canadian line, and that if this was not complied with within a reasonable time, the Board would take over the management of the line and operate it.

We were officially advised, July 19, that the Board had issued an order requiring the company to commence forthwith to operate its line from Chippewa to Queenston, and to continue to operate it between 6.30 a.m. and 6.30 p.m. daily.

Winnipeg Electric Ry. Franchise—The Winnipeg City Council's special committee which is giving consideration to an extension of the Winnipeg Electric Ry. Co's franchise to 1937, resumed its sittings at the end of June. Alderman Douglas, the chairman, is reported to have stated that while progress had been made, the negotiations had not reached a stage at which it would be right to make a public statement. A press report however, states that the city is desirous of securing a reduction of fares, and the re-establishment of workmen's fares, and that the company maintains that no fare reduction can be made on the present basis of revenue.

Electric Railway Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—Work is reported to be practically completed on the reconstruction of the bridge over the Vedder River, Fraser Valley line.

The company has proposed to Point Grey municipality, a Vancouver suburb, to relocate a part of its Dunbar St. line, provided the council will regrade Alma Road to permit street car operation. This would do away with a detour by Crown St. Following this, and with the completion of the Broadway West extension, the company offers to run both Dunbar St. and Sasamat cars through to the city, giving a 20-minute service alternating. (July pg. 375.)

Grand Valley Ry.—Lake Erie and Northern Ry.—A press report states that a contract has been let to Webster & Tory, Galt, Ont., for the erection of a joint station on Main St., there, for these two lines. We were officially advised in April, that the building would be 100 x 34 ft., brick and stone being the principal materials. The foundations and walls are designed to carry a 2 story structure, but only one will be erected at present. It is expected to have the building completed in the autumn. (July, pg. 375.)

Guelph Radial Ry.—Guelph, Ont., City Council approved of the expenditure of \$150,000, to complete the rebuilding of the railway. It will not be necessary to issue new debentures, as the Council originally issued \$300,000 of debentures, one half of which were to be held as collateral. F. A. Gaby, Chief Engineer, Hydro Electric Power Commission of Ontario, laid before the council recently a statement showing the expenditures already made on reconstruction, out of the first \$150,000, amounting altogether to \$138,025.24, and distributed as follows:—Reconstruction on Wyndham and other streets, \$79,972.52; reconstruction of line to Agricultural College, \$54.68; interchange track with C.P.R., \$1,905.11; passing tracks Ontario and Gordon Sts., \$5,856.65; Surrey and Neeve street curves, \$988.74; concrete floor and car barn repairs, \$565.76; York road diamond, \$536.74; carpet mill siding, \$978.42; engineering, \$3,112.34; roadway tools, \$4,659.92; track for overhead work, \$890.53; payments on 8 one-man cars to date, \$37,674.28; office furniture, \$292; general incidentals, \$537.24. The total expenditure proposed for this year was \$71,158 exclusive of Suffolk street work. In order to rehabilitate the line fully a further expenditure of \$150,000 would be required, of which \$90,000 would be for new rails, steel ties, and other ties. The first \$150,000 was to be expended in putting the line in good operating condition, and to provide 10 one-man cars. These cars it was originally estimated would cost \$9,000 each, but they are actually costing \$11,000 each. (Feb. pg. 79.)

Hamilton Street Ry.—The Dominion Power and Transmission Co. is reported to have relaid the tracks on King St. West, between James and Bay Sts.

Hull Electric Co.—We are officially advised that the company is laying 360 ft. of new rails, and paving on Youville St. and paving a portion of its track on Bridge St.

Kitchener and Waterloo St. Ry.—A press report states that plans are under consideration for building a second track from Union St. to William St., Waterloo, Ont., and for the erection

of new car barns on Preston Road, Kitchener. The city council is reported to have approved of the submission of a bylaw to the voters to provide \$70,000 for the work. (June, pg. 315.)

Montreal Tramways Co.—Plans for laying a track on Church Ave., Verdun, to connect Wellington St. with the present terminus of the Cote St. Paul section of the Notre Dame St. line, were approved recently by the Montreal Tramways Commission, and work is reported to have been started July 12. The line is a double track one about 4000 feet long. (July, pg. 375.)

Niagara, St. Catharines and Toronto Ry.—The question of extensions and improvements of the company's lines in Niagara, Falls, Ont., is reported to be under consideration, and it is expected that some plans will be presented to the city council at an early date, when application for a renewal of the franchise will be made. (March, 1921, pg. 159.)

Ontario Hydro Electric Rys.—Essex Division—The Essex County Council is reported to have granted permission for the construction of a spur from the main line to a dock at Petit Cote, Windsor, Ont. (July, pg. 375.)

Oshawa Ry. Co. has been authorized to build a passing track on Simcoe St., 100 ft. south of John St. to Metcalfe St., Oshawa, Ont. (May, pg. 258.)

Ottawa Electric Ry.—The Hull, Que., City Council is reported to have refused to agree to the company's application to build a loop at its terminus in Hull, on the ground that an exclusive franchise was granted to the Hull Electric Co. in 1894, for the operation of an electric railway. The company made the application so that it might replace the present small cars, used on its line into Hull, with larger ones. (July, pg. 375.)

Quebec Ry. Light and Power Co.—The Quebec exhibition commissioners having requested the company to improve the car service to the exhibition grounds, among other ways, by a more direct entrance into the grounds, the company made a suggestion which was considered by the city council, July 5. The company's plans provide building a loop at Parent St., and an extension of trackage at the intersection of St. Joseph and Crown Sts., which would give passengers to the exhibition a direct route without transferring. If the city council approves, the work will probably be put in hand at once.

In connection with differences between the company and the city council as to the price of gas and other matters, the council decided July 7, to serve a notarial protest on the company, which was done July 11. The protest stated that the council is of opinion that the agreement between it and the company made in 1919 had been broken by the latter, as the company has not fulfilled its obligations regarding the service in Belvedere Ward, the extension on Charlesbourg Road, and the adoption of a route going by Lavigner bridge. The protest gave the company to July 20 to reply, and it was intimated that if this was not satisfactory, the council would consider repealing the bylaw under which the present straight 5c fare on the street cars was fixed. (Nov. 1921, pg. 601.)

Three Rivers Traction Co.—A press report states that the company proposes to build an extension on Normand Boule-

vard, and Bellefeuille and St. Philippe Streets, at an estimated cost of \$75,000.

Wellington-Waterloo Ry.—The Ontario Legislature has authorized the company to begin its construction of an extension of its line from the terminus in Bridgeport to Guelph, Ont., within three years, and to complete it within five years. Franchises for this extension are being negotiated with the municipalities interested, and it is hoped to have them arranged so that construction can be started during 1923.

We are officially advised that the Wellington-Waterloo Ry., built in 1902 as the Berlin and Bridgeport Electric St. Ry., extends now from Ahrens St. Kitchener, to half a mile beyond Bridgeport, 2.75 miles, and operates one mile over Kitchener city tracks, making a total distance of 3.75 miles operated. It has bought a right of way extending one mile beyond Bridgeport. The distance from present end of track to Bloomingdale is 1.5 miles. From Bloomingdale eastward to beyond New Germany, about 5 miles, a roadbed was graded, several years ago by the People's Ry. Co., This company had a survey and profile into Guelph which showed an easily practicable line from Bloomingdale to Guelph with no gradient exceeding 1.2%. The distance from the end of the graded line to Guelph is approximately 6.5 miles, making a total of 8 miles between Kitchener and Guelph, of entire new construction and 5 miles of ballasting and tracklaying on graded line. The total distance from Kitchener to a connection with Guelph city track would be about 15 miles. By far the most difficult part of the grading, eastward out of Bridgeport, is done. The rest of the line all the way to Guelph would be very easy grading. A bridge across the Grand River would be required at Bloomingdale and a favorable location is afforded for it. This bridge is designed of 3 reinforced concrete girder spans of 100 ft. with three approach spans of 35 ft. It is estimated that a population of 45,000, outside of the City of Guelph, would more or less use the line which would also draw from stations on the Grand River Ry. between Kitchener and Preston, also from north and west of Waterloo and west of Kitchener. There are said to be opportunities for developing considerable freight traffic on the extension, particularly from the large gravel deposits just beyond Bridgeport, and at Bloomingdale.

Winnipeg Electric Ry.—Work on the Academy Road extension, described in our last issue, is reported to be about completed. It is proposed to maintain the same routing on the line as at present, except that the cars will run on to the new terminus at Lindsay St., instead of to the former terminus at Ash St.

Considerable rehabilitation work on the city lines is reported to be in progress. Portions of the track on Osborne St. have been improved by putting in new stone set liners, and portions of the track on North Main St. are being renewed. The diamond and through lines special work at the intersection of Main St. and Higgins Ave., is to be relaid, and work is nearly completed on relaying the intersections at Main and Dufferin Sts., and Main and Euclid Sts., as soon as this is completed. The track on North Main St., will, it is said, be relaid from Higgins Ave to Redwood Ave.

Double Deck Gasoline Motor Bus, Toronto Transportation Commission.

As stated in Canadian Railway and Marine World for April, pg. 208, the Toronto Transportation Commission has made another addition to its fleet of motor buses, viz., a double deck gasoline driven bus built by Eastern Canada Motor Co., Hull, Que. It has the following general dimensions:—

Length over all	25 ft. 10 in.
Width over all	7 ft. 6 in.
Height over all	10 ft. 8 in.
Height, ground to floor of top deck.....	9 ft. 1 in.
Length, inside interior compartment.....	13 ft. 2½ in.
Width inside interior compartment.....	6 ft. 11½ in.
Height, inside interior compartment.....	5 ft. 9½ in.
Ground to rear platform	1 ft. 7 in.
Platform to floor of interior compartment.....	11 in.
Ground to front step	1 ft. 1½ in.
Wheel base	15 ft. 7½ in.

The frame is built up of special heat treated steel members and the spring gear includes 44 x 3 in. semi elliptic springs at the front, and 54 x 4 in. semi elliptic springs at the back. The steel

The interior compartment is finished in mahogany, and the interior seating arrangement includes 2 longitudinal seats at the rear and 4 transverse seats on each side of the aisle, the interior seating capacity being 21. These seats are finished in rattan. The stairs to the upper deck ascend from the rear platform, a door opens into the interior, and there is also a door at the front of the interior compartment. Four grilled ventilators are set in the ceiling, which is lined with enamelled paper-board and the interior of the bus below the windows is lined with green plyboard. The arrangement of the wheel arch in the interior compartment, in relation to the seating arrangement, is such that no inconvenience is caused passengers. All windows are of the drop sash type, and are equipped with blinds. An electric signal system is installed, the push but-

in operation, viz.: four, built by Fifth Avenue Coach Co., New York, operating on Humberside Ave. in the western portion of the city; the bus described herein, operating in the same district; one built by the Associated Equipment Co. in England, also on the same run; a gasoline-electric bus built by Tilling-Stevens Co. in England, operating on Merton St. and Mount Pleasant Road in the northern part of the city, and one built by the Leyland Co. in England, also operating in the northern part of the city. The bus service is proving itself satisfactory in every way.

Electric Railway Employees' Wages, Working Conditions, Etc.

Calgary Municipal Ry.—The city commissioners recently adopted a plan for an equal division of day and night work between the senior and junior men on Calgary Municipal Ry. The matter was discussed by the men and subsequently by the commissioners, who finally decided that the present division of one month's day work to three month's night work for junior men should be continued to Dec. 31, 1923, after which there would be an equal division of the night and day shifts between all men who have served with the street railway department for more than four years. The junior men have intimated their acceptance of the plan, but asked that the council give further consideration to the suggestion that the equal division be put in operation, Jan. 1, 1923, instead of Jan. 1, 1924. It is reported that the senior men, while not agreeing with the plan, will not oppose it. The proposal is expected to be ratified by the city council.

Ontario Hydro Electric Rys.—Essex Division—Following the notification of the management that a reduction of 5c an hour would be made in the wages of motormen and conductors, on the expiry of the agreement on June 30, the men stated that they would walk out in protest. The Windsor Trades and Labor Council passed a resolution protesting against the proposed reduction, and sent it on to the city council with a request for its endorsement. The management then decided not to enforce the reduction and asked the men to make an agreement for another year on the former terms of: 45c an hour for new men, rising to 55c an hour. Operators of one-man cars and trackless trolleys will be paid 2c an hour extra, instead of 10c an hour, for which it is reported, they asked.

Manitoba Public Utilities Commission.—The situation in regard to the Manitoba Public Utilities Commission is said to be that on May 31, the Commissioner, P. A. Macdonald, ceased to function, the Legislature having refused to vote funds to pay salaries after that date. Neither the Public Utilities Act, nor the Sale of Shares Act have been repealed, and no transfer of the duties of the Commissioner, who administered both of these acts, could be made without special legislation, which was not introduced at the last session. The order-in-council appointing P. A. Macdonald as Commissioner, and the other members of the staff has not been recalled. The Commissioner's office has been moved to 166 Portage Avenue East, Winnipeg.



Double Deck Gasoline Motor Bus, Toronto Transportation Commission.

body is double lined. The wheels are of the Morand cast steel cushion type, having an internal lining of rubber ½ in. thick between the circular sections. The rear tires are of solid rubber, with single 10 in. tread, and the front tires, also solid, are of 5 in. tread. The wheel diameter is 36 in.

The bus is driven by a Buda 4 cylinder 40 h.p. type Y-T-U engine, with cylinders 4½ in. diam. by 6 in. stroke. The engine is water cooled, the radiator being of the vertical tube design and equipped with a set of vertical protecting bars in front, circulation being ensured by a gear driven water pump. The gear box is of the 4-speed selective type, Spicer universal joints are employed in the connection from engine to rear axle, and a Clark double reduction rear axle is employed. The magneto is of the Eisemann type, gear driven. A 45 gall. gasoline tank is used, and the engine is equipped with a Zenith carburettor. Brakes include a service one operating on the cardan shaft, and an emergency one operating on the rear wheels through external contracting bands. The alemite grease system is employed.

tons in the interior being placed between the windows, and on the upper deck they are on the railing posts. The interior of the bus is heated by the exhaust from the engine, and the bus is lighted by a Westinghouse 6 volt system, there being 7 lights in the ceiling in the interior, and a step light, in addition to the headlights and tail light.

On the upper deck the slatted seats are arranged transversely on each side of a central aisle, the seating capacity of this part being 30, thus making the total seating capacity of the vehicle 51. The lower band surrounding the upper deck is of wood, surmounted by wire mesh and a wooden top railing. The spiral stairs leading to the upper deck are built up of wood steps and metal casing, with corrugated metal strips on the steps, and the stair hand railing is of brass. The seats on the top are bolted to the floor, and the bus may be converted into a single decker quickly, by removing the seat bolts and the railings. The rear platform, below the stairs, is equipped with a swivel seat for the conductor.

The Commission now has eight buses

Electric Railway Notes.

The Toronto Street Ry. Men's Union, Division 113, is reported to have about 3,500 members, the largest number in its history.

The Levis County Ry., Levis, Que., is going to add to its equipment 8 one-man safety cars, 3 sweepers, 1 rotary plough and 1 snow leveller, to replace losses by fire some time ago.

The Kitchener Light Commissioners are considering the purchase of two additional new cars similar to those recently put in operation on the Kitchener and Waterloo St. Ry.

London, Ont., City Council is reported to be collecting data as to the operation of one-man cars, as a result of an intimation that the London St. Ry. desires to place five in operation.

The New Brunswick Power Co. is reported to have placed cards 18 x 10 in. in the advertising rack of each of its cars in St. John, N. B., giving the name of the operator of the car.

The British Columbia Electric Ry. Co. is raising the dam at its Stone Lake power plant, and making preparations for the installation of a fifth unit. The cost is estimated at \$1,000,000.

The London, Ont., Assessment Commissioners reported recently to the city council that the London St. Ry. was assessed as follows: — Land \$18,655; buildings \$195,635; business \$14,375; total, \$208,665.

The Quebec Ry. Light and Power Co. is reported to be about to make a considerable expenditure on the grounds surrounding Kent House, adjacent to Montmorency Falls, to increase its attractiveness as a tourist resort.

The Board of Railway Commissioners passed orders June 6 and 9 authorizing the Hydro-Electric Power Commission of Ontario to operate Guelph Radial Ry. one-man cars over the G.T.R. and C.P.R. tracks on Woolwich St. and York Road, Guelph, Ont.

The British Columbia Electric Ry. has shipped 10 street cars from Victoria to Vancouver, their places being taken by 10 new safety cars, built recently. Two of the old 10 cars have been assigned to New Westminster, having been fitted with safety equipment.

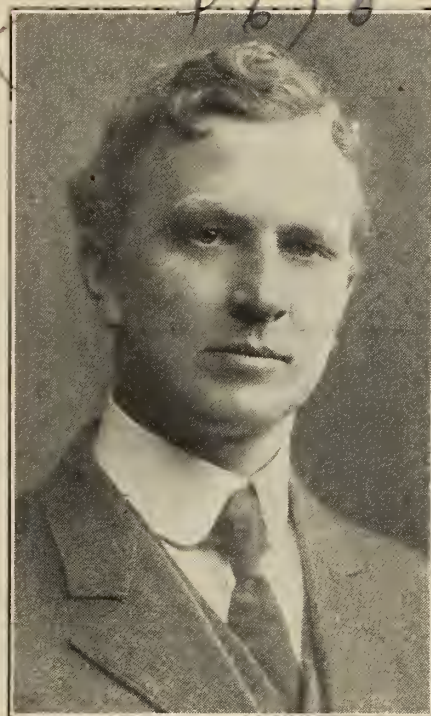
A Montreal Tramways Co's messenger, Lorenzo Berthiaume, was attacked by a couple of holdup men recently, while locking up the office at 110 De La Roche St., and was robbed of \$1,684 in cash and a quantity of tickets which he had in a bag for carrying to the head office.

The British Columbia Electric Ry. put daylight saving time in effect on its lines in Vancouver, New Westminster, and surrounding municipalities at midnight—June 30. The City of Vancouver adopted the daylight saving time to begin on June 30, and the surrounding municipalities followed suit.

Fire broke out in underground ducts leading out of the B. C. Electric Ry's Point Grey substation on July 3, throwing the railway and light and power lines in Point Grey and part of Vancouver out of business for some time. Jumpers were placed on the trolley wires immediately, and temporary cables strung through the windows of the substation, until permanent repairs could be made. The damage was estimated at about \$30,000.

Members of the Amalgamated Association of Street and Electric Railway Employees in St. John, N.B., held a reunion in the Trades and Labor Hall, there, June 30, to celebrate the first anniversary of their lock-out by the New Brunswick Power Co. About 80 members were present, and it was reported that only a few men had left the Association to re-enter the company's service. The other members were reported to be engaged in other lines of work.

The London St. Ry. has been remeasured by engineers for the London, Ont., City Council, and found to have a length of 27.9 miles. The line has hitherto been assessed as having a length of 24.33 miles. An investigation, will, it is reported, be made to determine where the responsibility for the error, if any, rests, and steps may be taken to recover from the company the difference between the



Wm. C. Hawkins,
Managing Director and Secretary, Dominion
Power & Transmission Co., and Honorary Vice
President, Canadian Electric Railway Association.

amount paid in taxation on the shorter mileage, and what should have been made on a larger mileage.

The British Columbia Electric Ry. Co. promoted courtesy education among its employes during June. W. G. Murrin, Assistant General Manager, Vancouver, in his general circular, says that by making courtesy a daily habit it is easy to win friends. A. T. Goward, Local Manager, Victoria, intimates that while the company has always endeavored to see that every courtesy is extended to the public by its employes, the idea was that June was to be a period of intensive training which it is to be hoped will be productive of lasting and beneficial results.

The question of the operation of one-man cars is reported to be causing some difference between the Port Arthur Public Utilities Commission and the city council of Fort William public utilities committee. It is stated that the Fort William City Council has threat-

ened to turn its cars at the boundary between the two cities, unless Port Arthur will operate one-man cars immediately. The operation of these cars in Port Arthur is being held back because of a difference with regard to a crossing of the Canadian National Rys., about which the city alleges it had an agreement with the old Port Arthur, Duluth and Western Ry., a record of which, it is reported, is not available.

London, Ont., City Council, on July 3, authorized the Mayor to appoint a transportation commission to enquire into the transit situation as a whole in the city, and to report to the council. The commission is to gather all data necessary to deal with the street railway situation there, so that a bylaw may be introduced and got ready for the voters to vote on, to take over the London St. Ry. at the beginning of 1924, or to extend the franchise, whichever may be found to be the best solution. The Mayor has appointed Sir Adam Beck, Chairman Hydro Electric Power Commission of Ontario, and of London Railway Commission, P. Pocock, Vice Chairman, London Railway Commission; Aldermen Childs and Drake.

The Cape Breton Electric Co., a press report states, owing to decreased traffic, put in operation on July 1, a reduced traffic schedule in Sydney, N.S. On the Avenue line a half hour schedule is being operated from early morning until noon, and from 10.30 p.m. until midnight, in place of the former 15 minute schedule which is being maintained from noon until 10.30 p.m., and on the Pier line a 20 minute schedule is being operated in place of the former 15 minute schedule. C. C. Curtis, Manager, is reported to have stated that for the five months ended May 31, the operating expenses of the company's railways exceeded the earnings by \$33,000, and that for the first 25 days in June the earnings showed a decrease of 23½%, compared with the same period of 1921.

Mainly About Electric Railway People.

William Clark Hawkins, Managing Director and Secretary, Dominion Power & Transmission Co., Hamilton, Ont., who was elected Hon. Vice President, Canadian Electric Railway Association, at its recent annual meeting at Quebec, Que., and whose portrait appears on this page, was born at Orange, N.J., Sept. 5, 1866. From Jan. 1, 1890, to July 1, 1893, he was Manager, Plymouth Electric Light Co., Plymouth, Mass.; July 1, 1893, to Feb. 1, 1896, Manager, Concord Land & Water Power Co., Concord, N.H.; Feb. 1, 1896, to Jan. 1, 1898, Manager, Columbia Water Power Co., Columbia, S.C.; Jan. 1, 1898 to July 1, 1901, Engineer, local companies committee, General Electric Co., Schenectady, N.Y., and since July 1, 1901, he has been General Manager and afterwards Managing Director and Secretary, Dominion Power & Transmission Co., Hamilton, Ont.

Geo. Kidd, General Manager, British Columbia Electric Ry., when in Europe recently went to Copenhagen to see J. Buntzen, formerly General Manager, B.C.E.R., who is living there.

Lt.-Col. G. C. Royce, General Manager, Toronto Suburban Ry., and his family, are spending the summer in Muskoka.

Electric Railway Passenger Fares.

British Columbia Electric Ry.—The bylaw passed by the City of Vancouver, providing for the extension of the 6c fare charged by the company after June 30, provides that the fare is to remain effective only until the B.C. Government provides for a board of arbitration, or court of appeal, with jurisdiction upon the matters in dispute and for one month after such board is authorized to adjudicate thereon. In the alternative, the bylaw provides for the 6c fare remaining until such time as the parties shall have entered into a permanent agreement amending or varying the franchise, which shall be mutually satisfactory and acceptable to both parties. Whichever of these dates, the entering into a permanent agreement or the expiration of one month from the authorization of a board of arbitration, is the earliest, is to be the termination of the temporary agreement extending the present fares. Further, if the legislature should fail to establish a board of arbitration or court of appeal by Dec. 15, 1922, the temporary agreement is to lapse. The agreement stipulates also that if no permanent agreement is reached and the matter goes to the board of arbitration, the onus of proof shall be upon the company to demonstrate that it is entitled to a fare in excess of 5c.

The board of arbitration, if called upon to adjudicate, must deliver an award within 90 days after its appointment otherwise the temporary agreement becomes null and void. In consideration of this temporary agreement, the company undertook to construct a double track car line on Broadway West from Trafalgar St. to Alma Road, and have it completed by Sept. 1, 1922. It is also a condition of the temporary agreement that the company shall not reduce its wages or change its men's working conditions during the agreement.

Calgary Municipal Ry.—Calgary, Alta. City Commissioner, after considering a recent report from R. A. Brown, Superintendent Calgary Municipal Ry. passed a resolution against granting any reduction of fares at present. The report compares the fares charged on the railway, with those charged elsewhere, and gives estimates showing how reductions of fares would affect the revenues. The present fares are as follows: Cash 10c; blue tickets 16 for \$1; red tickets 18 for \$1; school children's tickets 32 for \$1.

Kitchener and Waterloo St. Ry.—Plans for the improvement of this electric railway, if carried out, may, it is reported necessitate an increase of fares. V. S. McIntyre, Superintendent, is reported to have said that if this should be the case, rates would still be lower than on other electric railways.

London St. Ry. Co.—In connection with the putting in operation of a 5c fare for adults and a 3c fare for children between 5 and 12 years on June 14, a recent press report stated that a delegation to be headed by H. A. Stevenson, M.L.A., who led the opposition to the bill in the Ontario Legislature, last session, proposed to go to Ottawa to ask the Dominion Government to disallow the act. J. M. Donahue, a London lawyer, claims that the old bylaw providing for selling 7 tickets for 25c, and 9 for 25c, are still in operation, on the ground that the act passed last session does not specially refer to the sale of tickets. The company's solicitors, state

that there is absolutely no doubt that the company has the right to collect the fares it is now doing.

Toronto Transportation Commission. In announcing the reduction in children's fares, recently mentioned in Canadian Railway and Marine World for May, the new rate for tickets for children not over 51 in. high being 10 tickets for 25c, instead of 7 tickets as formerly, the Commission said:—"The consideration of the Commission, and we believe the same thing is true of car users in general, has been for those citizens who, blessed with large families, found they were unable to take advantage of the street car service to the fullest extent. We feel, therefore, that it will meet with the entire approval of the citizens at large that we should take the first possible opportunity of making this concession in the quarter in which it is most needed. In fixing the date as from the morning of July 1, children will have the advantage of the cheap fares for the public holiday on that day, as well as during the hot summer months when the schools are closed. In taking this step the Commission realizes that this low rate for children is out of proportion to the adult rate. It is a recognized principle in street railway operation that the children's fare should bear an approximate ratio to the adult fare of 1 to 2, whereas the new fare will be nearer a ratio of 1 to 3."

Ottawa Electric Railway Franchise Negotiations.—The Ottawa City Council's special committee, consisting of the mayor, the board of control, and five aldermen, which was appointed in January to discuss the renewal of the company's franchise, following the municipal voters' emphatic declaration for a renewal of the franchise, rather than a service at cost arrangement, or municipal ownership, has been meeting from time to time, and is reported to have made some progress, but as far as can be ascertained there have been no direct negotiations between the city and the company. Mr. Feustel, of Fort Wayne, Ind., who was engaged by the city council to advise it, has a staff at work in Ottawa. L. A. Herdt, D.Sc., E.E., Macdonald Professor, Electrical Engineering, McGill University, and Vice Chairman, Montreal Tramways Commission, has been retained by the company.

Hull Electric Co.'s Future.—A press report credits a Hull, Que., alderman with stating that negotiations may shortly be begun by the city council with a view of taking over the company's electric railway in Hull in 1923. The company has a franchise for 35 years, which does not expire until 1929, but there is a section in the agreement under which the city may, at any time after the expiration of 25 years, enter into negotiations for the purchase of the railway at a price to be determined upon by arbitration. We are advised that while statements of this kind have been made from time to time, the matter has not been formally put before the company. The line has 16.54 miles of first track mileage, and its operating record for 1920 was as follows: Gross earnings from operation, \$335,217; miscellaneous earnings, \$29,505; operating expenses, \$230,281; taxes, funded debt, etc., \$83,590; net income, \$55,842; car mileage, 876,935; fare passengers carried, 4,333,051; freight carried, 8,141 tons.

Ottawa Electric Railway Assessments.

The Ontario Railway and Municipal Board's recent judgment on the Ottawa City Council's appeal against the County Court Judge of Carleton's decision reversing the Ottawa city court of revision's decision as to the assessment of the Ottawa Electric Ry. Co.'s machinery, was signed by the Chairman, D. M. McIntyre. In 1921 the city's assessment department assessed the company for 1922 for \$392,330 for electric motors, water power, steam plant and other machinery, against which the company appealed to the court of revision, which upheld the assessment. An appeal was then taken to the county judge, who directed that the items making the above mentioned total be struck out, and the city council appealed against this decision.

In his judgment Mr. McIntyre quotes from the agreement and from the Assessment Acts applicable to the case and then says that it is perfectly clear that, under the terms of the Assessment Act of 1914, which applied to the case, machinery erected or placed upon, in, over, under or affixed to land is real property and therefore assessable by force of the general enactment that all real property in Ontario shall be liable to taxation. Not only is the machinery in question real property, but it is fixed machinery, used for the production of motive power and as such properly assessable under the exception in the latter part of subsec. 17. The remaining question is to what extent this conclusion is affected by the agreement. Certain of the company's property is exempted from taxation, but it is expressly stated that this exemption shall not apply to the real estate. The machinery in question does not fall under the terms "franchise, tracks and rolling stock" or in respect of things embraced under the general words "and other personal property used in and about the working of the railway." The company's contention as to the meaning of these words is too elastic. Certain of the company's real property is exempted under the agreement, but the clear meaning of such words should not be expanded so as to include real property so dissimilar in character from tracks by force of a word of such vague import as works, as the machinery in question. The judgment concludes by directing the assessment of the machinery in question to be restored to the rolls as entered by the assessment department.

In connection with this judgment, it is of interest to note that the Ottawa City Council, in applying to the Ontario Legislature for an act for certain purposes, is asking for authority to assess and levy upon all property of the Ottawa Electric Ry. Co. subject to assessment by the corporation under the provisions of the Assessment Act, such proportion of the taxes and rates for all municipal and school purposes, as would be payable by the company in 1923, if the company were not entitled to a partial exemption from taxation up to Aug. 13, 1923, under a certain agreement dated June 28, 1893, as the total number of days after Aug. 13 in 1923 shall bear to the total number of days in 1923 prior to such date."

The motor bus service which was operated for some time between Kitchener and Bridgeburg, Ont., has been withdrawn, it did not pay.

Levis County Railway and the Municipalities

The Quebec Public Service Commission's judgment on the City of Levis' petition against the Levis County Ry. Co., and the other municipalities through which it runs, delivered recently, is a lengthy document. The first part deals with the company's history and with the company's jurisdiction in regard to matters complained of, and decides that under the amendment to the Revised Statutes of Quebec, article 740, passed last session (see Canadian Railway and Marine World, June, pg. 315), St. Romuald Parish, which had objected to the Commission's jurisdiction, could not be excepted, as the matter complained of, is common to the four, indivisible and the four are necessarily parties thereto. The commission's order, to be effective and useful, should be binding on the four municipalities as well as on the company. St. Romuald Parish is therefore legally *mise-en-cause*, and this order binds it as well as the other parties.

In reviewing the merits of the case the judgment says that the figures and conclusions are merely approximate, and should be reinvestigated within 12 months after a normal system has been re-established. The Commission was called upon to value what remains of the company's property, what will be required to ensure an enterprise which will give a proper service, and at the same time to guarantee to those who supply, or have supplied the funds, a legitimate return upon the part of the investment which is of use for the purposes of the enterprise. "There can be no question of guaranteeing the interest upon all the money which has been sunk in the venture, but only upon the part which still remains as an asset, and the total therefore must be first determined in order to arrive at the fixed charges upon the concern." The value of the system as to the serviceable capital which should draw interest has been estimated by two experienced engineers, L. A. Herdt, for the company, and W. R. Russell, for Levis. The Commission, after reviewing the reports of these engineers, expressed the opinion that the theory that the visible assets should be estimated at their cost of renewal is a fair one, as otherwise the invested capital could never be fully remunerated, because of the fact that from the moment material is employed, and even before construction has been terminated and the system put in operation, it had already undergone a certain depreciation; further, the system under valuation should originally have been constructed of new material and kept in such a good state of maintenance that its cost of operation would be equivalent to that of a new system. In the present case second hand material, such as rails, was used in the original construction and reconstruction, and the company never carried any reserve fund for depreciation. The cost of renewal should not be based upon war or immediate post war prices, but rather on current prices of material under normal conditions, the valuation being made for a fairly long period, about 15 years in this case, the term of the franchise. The Commission valued the system by endeavoring to estimate the cost of labor and contract material as in the case of a new enterprise, the balance being valued at its actual or depreciated worth. Mr. Russell practically followed this method, but the Commission decided he had not made a sufficient allowance for

general expenses, and adopted Mr. Herdt's percentages in that respect. Following out this method the Commission found the total value of the company's visible assets to be \$575,096.80, of which \$107,538.73 represents general outlay. This general outlay represents 23% of the total, and closely approaches the 23.7% established in the valuation of the Montreal Tramways Co.'s system. The Commission adopted Mr. Herdt's estimates for reconstruction, but reduced them from \$227,733 to \$219,068.20, considering that an item of \$6,050 had been included twice. The estimate for depreciation of total capital of 2% was considered reasonable, and the Commission found that a return of 6% on the present capital and 7% on the new capital should be made. The total capital value of the capital upon which fixed charges should be provided was therefore \$794,165 and the total amount of the fixed charges on the percentages above mentioned would be \$65,723.89.

The probable revenue to be anticipated from the rates actually in force would be \$151,521, the Commission using as a basis Mr. Herdt's estimate of \$147,389. The cost of operation, as estimated by Mr. Herdt was \$121,941, from which the Commission deducted \$3,947, which would be saved by a recent reduction of wages of platform men, thus fixing the operating cost at \$117,994. This would leave a surplus of \$33,527 to meet the fixed charges of \$65,723.89. The only way to meet the fixed charges was by increasing the revenues or by the municipalities contributing towards operating expenses. The Commission decided that it was not feasible to charge more than 10c a passenger and per zone, and therefore directed the suppression of tickets, except for school children, and these to be sold 25 for \$1.25. This, it was estimated, would provide an additional revenue of approximately \$20,000. The Commission were of opinion that the company should be relieved of the maintenance of the part of the street between its rails and as far outside them as the end of the ties, as well as of the cost of repairs caused by municipal paving work. These two items would affect an estimated saving to the company of \$6,112 a year, thus reducing the deficit to \$6,084.89. There was no fundamental reason why the company should pay the cost of snow removal rather than the municipality. The Commission directed that the joint responsibility of the municipalities for snow removal should not exceed \$16,000, and fixed the proportions by which it should be borne. The relief to the company by this arrangement would turn the estimated deficit of \$6,084.89 into an estimated surplus of \$215.35.

These results were problematical, and might not be achieved, therefore the Commission granted the company's request to modify its schedules and zone limits. In the event of the company doing this, 15 days notice of the proposed changes should be given to the municipalities, any one of which might appeal to the Commission. The judgment concluded: "It is needless to say that this order would be ineffective were the company obliged to meet competition from auto buses or other system of public conveyance."

A summary of the order giving effect to the judgment was given in Canadian

Railway and Marine World for July, pg. 375.

We are officially advised that the City of Levis and the Town of St. Romuald decided to appeal against the Quebec Public Service Commission's judgment, but that on July 11, the City of Levis withdrew its notice of appeal, thus leaving St. Romuald alone to take any further action. This appeal if continued, will not be heard until October, and will not affect the judgment, except in so far as that one municipality is concerned in the event of its obtaining a decision. In that event the situation, so far as St. Romuald is concerned will be that the old conditions will be restored, and the company will probably not operate its cars therein during the winter.

The company is taking steps to secure capital to replace the fire loss, based on the terms of the judgment. Car barns, with repair shops attached, will be erected, and the following new cars, etc. will be bought: 8 Birney safety cars; 3 sweepers; 1 rotary plough and 1 snow leveller. The cost of the construction and equipment is estimated at from \$220,000 to \$250,000.

New Brunswick Power Co's. Weekly Pass System.

The New Brunswick Power Co. put into effect at the end of 1920 a weekly pass system on its electric railway in St. John. The pass is sold for \$1, and is good for as many rides from Monday morning until Sunday night as the buyer desires to take. The sales for the first week were 609 and in three weeks had increased to 1,532, in the seventh week to 1,625, and in the twelfth week to 1,950, since when they have varied between 1,900 and 2,042, which was the largest number issued to the end of May. The total number of passes issued during the 27 weeks was 47,873, an average of 1,769. A census of the travel on passes in the early period gave an average of five trips on week days and two on Sundays, and a recent census has not changed this basis. For May the pass travel was 49% of the total passengers carried. On the basis of 32 trips per pass per week the fare realized is practically 3½c. a trip, which is much too low, but the pass system was put into effect when the company had to face strenuous competition from its employees who had struck and were operating buses and jitneys. The management considers the principal advantage of the pass system is that passengers can be handled much more quickly, as the issuing of transfers and making change are avoided, and one-man operation is therefore made easier. The regular fares are 10c. cash, 3 tickets for 25c., or 14 for \$1.

Woodstock, Ont., City Council has been considering the amending of its bylaw relating to motor bus traffic, with a view to increasing the license fee, and to compel owners to put up a bond of \$10,000 as security for damages for injuries which may be sustained by passengers. The principal bus route is between Woodstock and Ingersoll, competing with the Woodstock, Thames Valley and Ingersoll Electric Ry., the receipts of which are reported to have been seriously affected by the competition.

Marine Department

Canadian Ship and Boat Building Industries' Statistics.

The Dominion Bureau of Statistics, Centre of Industry Branch, which is in charge of J. C. Macpherson, has issued an advance report on the ship and boat building industry for the calendar year 1920, based on reports from 81 shipbuilding and 107 boat building plants, located as follows:—

	Shipbuilding	Boatbuilding
Alberta	—	2
British Columbia & Yukon	16	23
Manitoba	2	—
New Brunswick	3	2
Nova Scotia	39	17
Ontario	11	50
Prince Edward Island	1	—
Quebec	9	13
Totals	81	107

The number, tonnage and value of the ships built or under construction and the value of repairs made to ships and boats during the year, are shown in the following table for each section of the industry. The large decrease in the shipbuilding industry in 1920, amounting to \$31,675,073 was due to the curtailing of the shipbuilding programme on the cessation of hostilities.

	Ship, no.	Value, \$	Boats, no.	Value, \$
War ships	4	5,832,227	.....	.....
Steel ships, 5 gross tons or over—				
Steam	28	21,359,046	.....	.....
Motor	1	13,000	.....	.....
Sail, with auxiliary	1	7,000	.....	.....
Sail, without auxiliary	5	150,949	.....	.....
Wooden ships, 5 gross tons or over—				
Steam	23	1,593,690	2	48,000
Motor	3	27,571	4	27,220
Sail, with auxiliary	1	35,000	1	5,065
Sail, without auxiliary	53	1,686,678	.....	.....
Unrigged	2	89,000	2	8,002
Small boats, less than 5 gross tons—				
Steam .....	.....	.....	554	124,021
Motor	11	6,894	496	264,281
Sail and row	125	14,840	6,636	510,935
Canoes .....	.....	.....	3,070	200,856
Scows, pontoons, canal boats, etc.	4	44,025	146	16,850
Ships being built, but not launched	42	15,597,326	2	6,500
Repairs to ships and boats during year, including water work .....	.....	6,832,228	.....	498,372
All other specified products .....	.....	1,525,166	.....	257,538
Totals		\$54,814,640		\$1,967,640

The gross and net tonnage of ships completed and of those in course of construction are given by classes in the following table:—

	No.	Gross tonnage	Net tonnage
War ships	4	27,166	16,616
Steel ships, 5 gross tons or over	35	68,204	43,330
Wooden ships, 5 gross tons or over	86	21,947	16,956
Ships under construction	44	95,500	61,546
Totals	169	212,817	138,448

The amount of capital invested in the shipbuilding industry in the whole Dominion was as follows:—Land, buildings and fixtures \$21,508,995; machinery and tools, \$9,457,430; materials on hand, stocks in process, etc., \$21,821,516; cash, trading and operating accounts, etc., \$10,080,348; total, \$62,868,829. The capital invested in the boat building industry was as follows:—Land, buildings and fixtures \$448,669; machinery and tools, \$209,783; materials on hand, stocks in process, etc., \$443,472; cash, trading and operating accounts, etc., \$265,693; total, \$1,367,617.

The number of persons employed in shipbuilding plants was 15,078 males and 130 females, the salaries and wages paid being \$21,588,127. The number of persons employed in boatbuilding plants was 762 males and 18 females, the salaries and wages paid being \$922,383.

Canadian shipbuilding plants used Canadian fuel valued at \$361,835 and foreign fuel valued at \$396,707. Boatbuilding plants used Canadian fuel valued

The quantity and the cost value delivered at the works of all materials used during the year, and the cost of contract work, is shown in the table below.

		Shipbuilding		Boatbuilding	
		Quan.	Cost	Quan.	Cost
Iron castings, bars, etc.....	Ton	6,657	\$ 916,674	42.0	\$9,410
Steel castings, bars and billets.....	"	3,859	588,380	9.5	2,473
Steel plates and shapes.....	"	85,305	6,694,603	18.0	3,542
Brass and bronze castings.....	"	426	327,005	7.5	9,032
Bolts, nuts, rivets, spikes and nails.....	"	6,543	766,173	156.0	32,191
Brass fittings and valves.....	"	154	150,123	7.0	5,758
Boilers and engines.....	No.	110	4,218,147	150	39,306
Dynamos	"	39	65,753	.....	.....
Lumber	m. ft.	26,183	1,667,199	4,692	296,935
Timber . . . . .	"	.....	528,942	.....	29,121
Masts, knees, spars and blocks.....	"	.....	174,900	.....	2,804
Sailcloth and sails.....	Sq. yd.	171,075	189,711	14,129	15,422
Cordage	Ton	252	157,192	2	1,700
Electrical apparatus, fittings and fixtures	.....	.....	249,692	.....	3,824
Calking materials of all kinds.....	.....	.....	80,192	.....	7,931
Paints, oils and varnishes.....	.....	.....	347,073	.....	44,561
Other furnishings and fittings, cabin, etc.	.....	.....	216,835	.....	8,569
Upholstering . . . . .	.....	.....	184,828	.....	4,065
All other materials.....	.....	.....	3,427,155	.....	98,557
Contract work .....	.....	.....	2,855,077	.....	3,228
Totals.....			\$23,805,654		\$618,429

at \$10,667 and foreign fuel valued at \$1,925.

The principal items of overhead or

Ocean and River Service Estimates Voted.

The following amounts were voted at the Dominion Parliament's recent session:—

Further Supplementary Estimates, for year ended March 31, 1922:—	
Temporary relief of distressed seamen and to cover expenses of shipping forms—	
further amount required	\$11,000
Main Estimates, year ending March 31, 1923:—	
Maintenance and repairs to Dominion steamships and icebreakers	\$1,600,000
Examination of masters and mates	20,000
Investigation into wrecks	12,300
Navigation schools	8,000
Temporary relief of distressed seamen, pay legal expenses and cost of shipping books and forms	5,000
Registration of shipping	5,000
Removal of obstructions in navigable waters	5,000
Inspection of live stock shipments	3,000
Subsidies for wrecking plants—Quebec and British Columbia	35,000
Unforeseen expenses	5,000
Life saving service, including rewards for saving life	90,000

Further Supplementary Estimates, year ending March 31, 1923:—

To provide boat to replace the C.G.S. Lampton, lost in Lake Superior	\$100,000
For compassionate allowance to relatives of officers, crew and light-keepers on board of the C.G.S. Lampton when she foundered in Lake Superior on or about April 10, 1922, and were drowned	30,500
To pay compassionate allowance to seaman Arthur Barton of the C.G.S. Stanley	500
To pay Capt. Frank Murphy for loss of schooner and personal effects as result of collision with the Departmental Steamer Aranmore in Aug., 1917	2,201

T. P. Thompson, Inspector of Boilers and Machinery, Marine Department, Kingston, Ont., is reported to have resigned on account of ill health.

miscellaneous expenses were as follows:

	Shipbuilding	Boatbuilding
Rent of offices, works, machinery	\$554,154	\$13,868
Rent of power	343,342	6,914
Insurance premiums	395,315	18,066
Taxes	213,375	14,818
Royalties, use of patents, etc.	4,523	.....
Advertising	74,967	8,571
Travelling	142,656	7,093
Repairs to buildings and machinery	1,722,273	19,571
Sundry expenses	3,474,157	40,507
Total	\$6,924,762	\$129,408

The following table gives the principal statistics of the industries for the whole Dominion for 1920 and 1921:—

	Shipbuilding		Boatbuilding	
	1920	1919	1920	1919
Plantsno.	81	78	107	99
Capital invested	\$62,868,289	\$70,854,028	\$1,367,617	\$1,260,663
Salaried employees—				
Maleno.	1,108	1,247	50	40
Femaleno.	124	137	14	17
Total salaries	\$2,432,347	\$2,537,907	\$105,774	\$79,026
Wage-earners—				
Maleno.	13,970	24,013	712	783
Femaleno.	6	32	4	3
Total wages	\$19,155,780	\$27,298,941	\$816,609	\$841,415
Cost of fuel	\$758,542	\$956,610	\$12,592	\$17,125
Power employed: unitsno.	1,520	1,541	70	79
Rating of mfrs.h.p.	39,398	31,583	643	608
Usedh.p.	28,218	22,232	594	538
Miscellaneous expenses	\$ 6,924,762	\$ 7,277,587	\$ 129,408	\$ 113,921
Cost of materials	\$23,805,654	\$35,969,327	\$ 618,429	\$ 587,624
Value of products	\$54,814,640	\$86,489,713	\$ 1,967,640	\$ 1,964,426

Mail Subsidies and Steamship Subventions Estimates.

The following estimates were voted at the Dominion Parliament's recent session for steamship services between the points mentioned:—

Further Supplementary Estimates, year ended March 31, 1922:

Canada, China and Japan, further amount required, Governor General's warrant, Sept. 21, 1921, \$88,229.16.

Main Estimates, year ending March 31, 1923:

ATLANTIC OCEAN.	
Canada and Newfoundland.....	\$35,000
Canada and the West Indies or South America, or both	340,666
Canada and South Africa.....	146,000

PACIFIC OCEAN.	
Canada and Australia or New Zealand, or both, on the Pacific Ocean.....	\$130,509
Prince Rupert, B.C., and Queen Charlotte Islands	21,000
Victoria and San Francisco.....	3,000
Victoria, Vancouver, way ports and Skagway	25,000
Victoria and West Coast Vancouver Island	15,000
Vancouver and northern ports of British Columbia	24,800
Vancouver and ports on Howe Sound.....	5,000

LOCAL SERVICES.	
Baddeck and Iona	\$9,000
Glasgow	2,000
Charlottetown, Victoria and Holliday's wharf	3,500
Grand Manan and the mainland.....	15,000
Halifax, Canso and Guysboro.....	7,000
Halifax, LaHave and LaHave River ports	6,000
Halifax and Newfoundland, via Cape Breton ports	5,000
Halifax and Spry Bay and ports in Cape Breton	6,000
Miscou and Shippegan Islands and mainland	3,300
Mulgrave and Canso	13,500
Mulgrave and Guysboro, calling at intermediate ports	7,500
Newcastle, Neguac and Esquimaux, calling at intermediate points on Miramichi River and Bay	5,000
Pelee Island and the mainland	11,000
Mulgrave, Arichat and Petit de Grat.....	10,000
Pictou, Montague, Murray Harbor and Georgetown	6,000
Pictou, Mulgrave and Cheticamp.....	7,500
Pictou, New Glasgow, and Antigonish County ports, schooner service.....	1,500
Port Mulgrave, St. Peters, Irish Cove and Marble Mountain, and other ports on Bras d'Or Lakes	6,500
Pictou, Souris and Magdalen Islands.....	24,000
Quebec, Natashquan and Harrington, and Bras d'Or and other ports on north shore of Gulf of St. Lawrence.....	85,000
Quebec or Montreal, and Paspébiac, and ports on south shore of Gulf of St. Lawrence	30,000
Halifax, South Cape Breton and Bras d'Or Lake ports	6,000
Halifax and West Coast of Cape Breton, calling at way ports	6,000
St. Catherine's Bay and Tadoussac, winter steam service	2,000
St. John and St. Andrews, N.B., calling at intermediate points	4,000
St. John and Bridgetown.....	1,500
St. John and Digby	15,000
St. John, Digby, Annapolis and Granville, along west coast of Annapolis Basin	2,000
St. John and ports on Bay of Fundy and Minas Basin	8,000
St. John, Westport and Yarmouth and other way ports	10,000
St. Stephen, Deer Island and Campobello	2,000
Sydney and Bay St. Lawrence, calling at way ports	9,000
Sydney and Whycomagh	7,000
Sydney and Bras d'Or Lake ports, ports on east and west coasts of Cape Breton	14,000
Supervision of subsidized steamship services	4,000
Supplementary Estimates, year ending March 31, 1923:	
Mulgrave and Guysboro, calling at intermediate ports, further amount required	\$2,000
Pictou, Mulgrave and Cheticamp, further amount required	3,500
St. John and Wedgeport, N.S.....	5,000
Charlottetown, Pictou and or New Glasgow, further amount required.....	6,000
Campment d'Ours Island and mainland, ferry service	1,000
Charlottetown, Victoria and Holliday's Wharf, further amount required.....	500
Halifax, Canso and Guysboro, further amount required	2,000
St. John and ports on Bay of Fundy and Minas Basin, further amount required	500

Port Mulgrave, St. Peters, Irish Cove and Marble Mountain and other ports on Bras d'Or Lakes, further amount required	1,500
St. John, Bear River and other way ports	2,000

Drydocks Estimates Voted.

The estimates and supplementary estimates for the year ending March 31, 1923, voted at the Dominion Parliament's recent session, contain the following:—

Public Works, chargeable to capital.—Esquimalt, B.C., drydock, under construction, \$1,000,000.

Public Works, chargeable to income.—Esquimalt, B.C., graving dock, traveling crane, main estimates, \$35,000; supplementary estimates, \$3,000.

Public Works, authorized by statute, chargeable to income:—

Collingwood drydock No. 1.....	\$15,000 00
Collingwood drydock No. 2.....	9,208 96
Montreal floating dock.....	105,000 00
Port Arthur drydock.....	37,741 50
Prince Rupert floating dock.....	76,970 88

\$243,921 34

Public Works, chargeable to collection of revenue: Champlain graving dock, main estimates, \$47,400; supplementary estimates, \$8,600.

Lorne graving dock, main estimates, \$34,000; supplementary estimates, \$3,200.

Esquimalt graving dock, \$22,000.

Transfer of Naval Service Department to Other Departments.

The National Defence Act, passed at the Dominion Parliament's recent session, provides for the establishment of a Department of National Defence, to be presided over by the Minister of National Defence, who shall be charged with all matters relating to defence including militia, military, naval, air and police service. There is to be a Deputy Minister of National Defence, who, it is said, will be the present Deputy Minister of Militia and Defence.

The Governor in council, may at the Minister's recommendation, appoint an officer, who shall, in relation to the Naval Service, perform all the duties vested in the Deputy Minister of the Naval Service, under the Naval Service Act, and who shall have the rank and salary of a deputy head of a department, and shall be a member of the Defence Council.

The Governor in Council may, on the Minister's recommendation appoint a Comptroller, who, under the Deputy Minister, shall be charged with all financial matters relating to the department. It is said that the present Deputy Minister of the Naval Service, G. J. Desbarats, C.M.G., will be appointed.

All the powers, duties and functions vested in any minister or deputy minister, by the Naval Service Act, 1910, are vested in the Minister and Deputy Minister of National Defence.

The following branches of the Naval Service Department were transferred to the Marine and Fisheries Department on July 1, Fisheries Protection Service, Hydrographic Survey, Patrol of Northern Waters, Radio Telegraph Service, Tidal Survey.

Dominion Canal Estimates Voted.

The following amounts were voted at the Dominion Parliament's recent session for the Railways and Canals Department:—

Further Supplementary Estimates, year ended March 31, 1922, chargeable to capital:—

Welland Canal, Port Colborne, elevator to pay balance of J. A. Jamieson's claim

Welland Ship Canal, construction, additional amount required, Governor General's warrant, Feb. 23, 1922.....

Main Estimates, year ending March 31, 1923, chargeable to capital:—

Welland Ship Canal, construction.....

Trent Canal, construction and betterments

St. Anne's lock, toward cost of highway bridge across canal at Isle Perrot.....

Rideau Canal, construction of storehouse at Ottawa

St. Lawrence Ship Canal, surveys and investigations

Main Estimates, year ending March 31, 1923, chargeable to income:—

Chamby Canal improvements

Carillon-Grenville Canal improvements.....

St. Anne's Lock improvements.....

Lachine Canal improvements

Soulages Canal improvements

Trent Canal improvements.....

Welland Canal improvements

Rideau Canal improvements

Sault Ste. Marie Canal, new steel gate lifter

Surveys and inspections of canals, including salaries and expenses of experts employed temporarily

Supplementary Estimates, for year ending March 31, 1923, chargeable to income:—

Chamby Canal improvements, additional amount required

Trent Canal improvements, additional amount required

Working Conditions on British Ships.

—A deputation from the Trades Union Congress, the Sailor's and Firemen's Union, and the Amalgamated Marine Workers' Union, waited on the President of the British Board of Trade, July 7, and complained of working conditions on board British ships. They claimed that firemen work 56 hours a week, and stewards 90 to 96 hrs., compared with a 48 hour week adopted by some other countries.

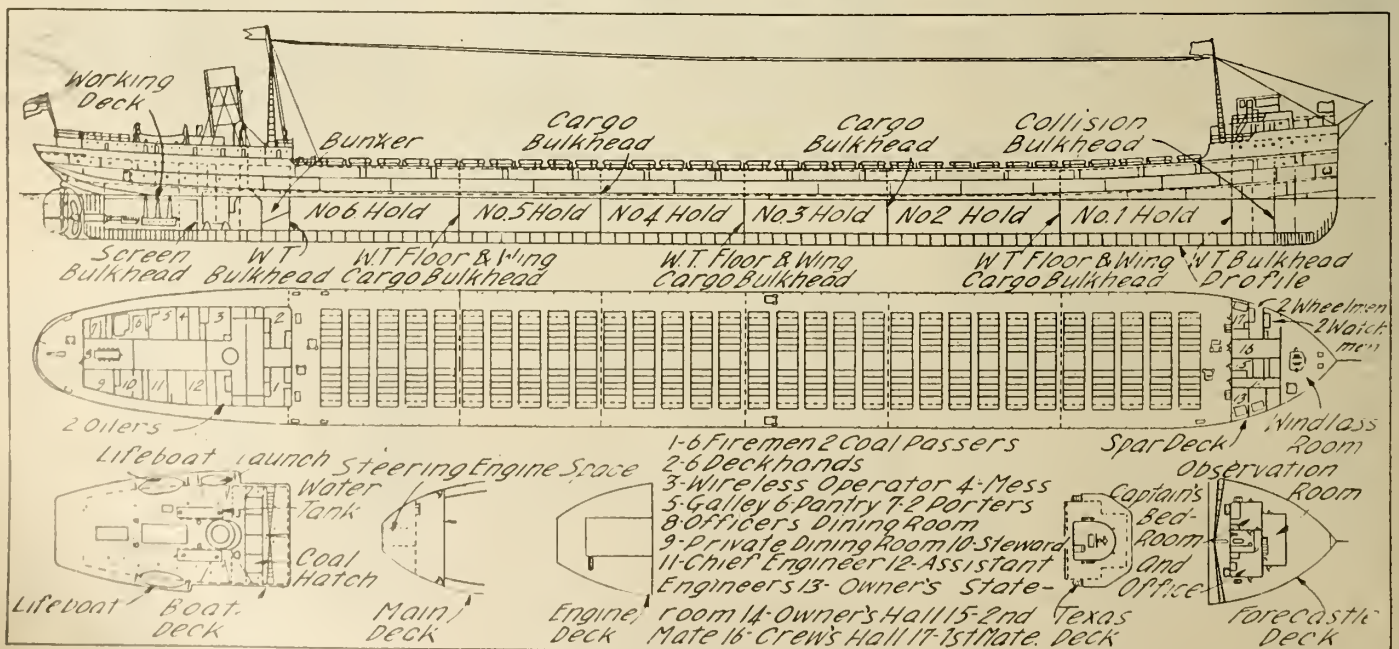
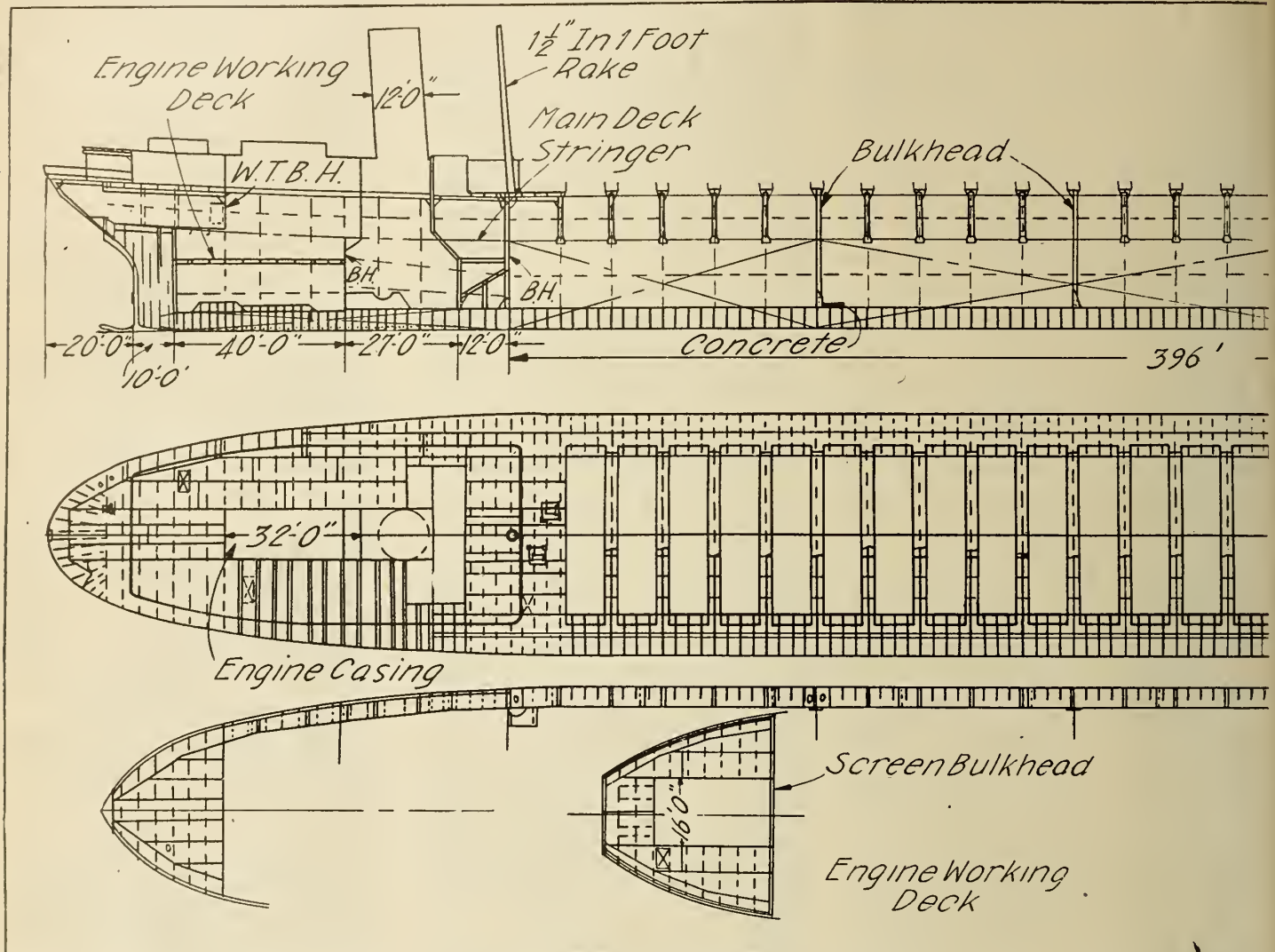
Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during June, 1922:

Articles	Canadian Canal	U.S. Canal	Total
Lumber	9	40,811	40,820
Flour	471,270	452,610	923,880
Wheat	1,359,819	11,078,225	12,438,044
Grain, other than wheat.....	4,230,209	8,702,276	12,932,485
Copper	3,759	3,891	7,650
Iron Ore	9,520	6,608,140	6,617,660
Pig Iron	40	.....	40
Stone	1,400	2,250	3,650
General Merchandise	3,169	147,429	150,598
Passengers	2,723	1,492	4,215
Coal, Soft .....	.....	247,542	247,542
Coal, hard .....	.....	.....	.....
Iron Ore .....	.....	11,424	11,424
Manufactured Iron and Steel.....	2,972	4,236	7,208
Salt	1,729	7,405	9,134
Oil	2,527	42,699	45,226
Stone .....	.....	80,665	80,665
General Merchandise	26,509	41,083	67,592
Passengers	2,865	1,621	4,486
Summary			
Vessel Passages	437	1,961	2,398
Registered Tonnage	622,924	6,733,785	7,356,709
Freight—Eastbound	187,806	7,409,520	7,597,326
Westbound	33,737	435,054	468,791
Total Freight	221,543	7,844,574	8,066,117

The Steel Bulk Freight Steamship Mathewston.

The steel bulk freight steamship Mathewston, which is under construction by Lakes service, and will be employed chiefly in the grain trade. The contract of the single deck type with 31 hatches, spaced 12 ft. centers, each equipped with



Port Arthur Shipbuilding Co. at Port Arthur, Ont., for the Mathews Steamship Co., Toronto, is intended for the Great

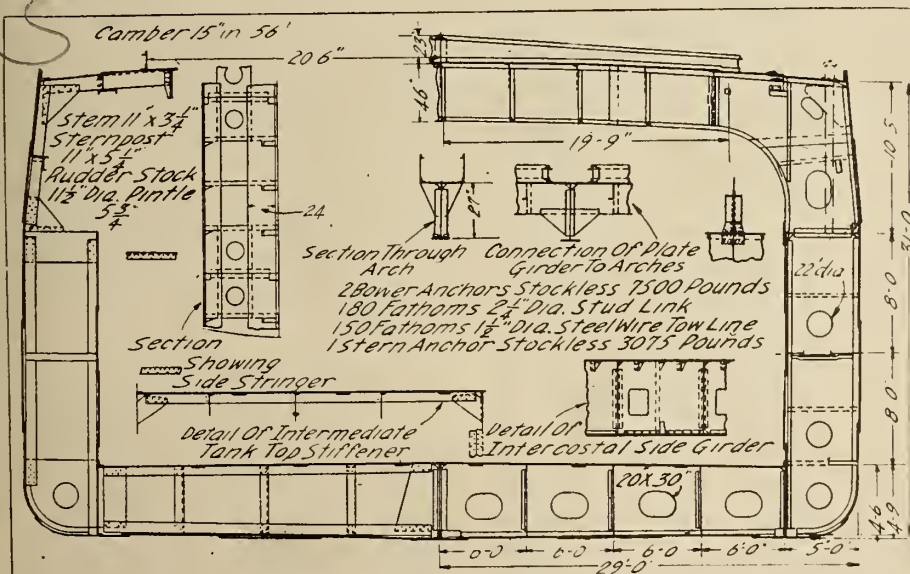
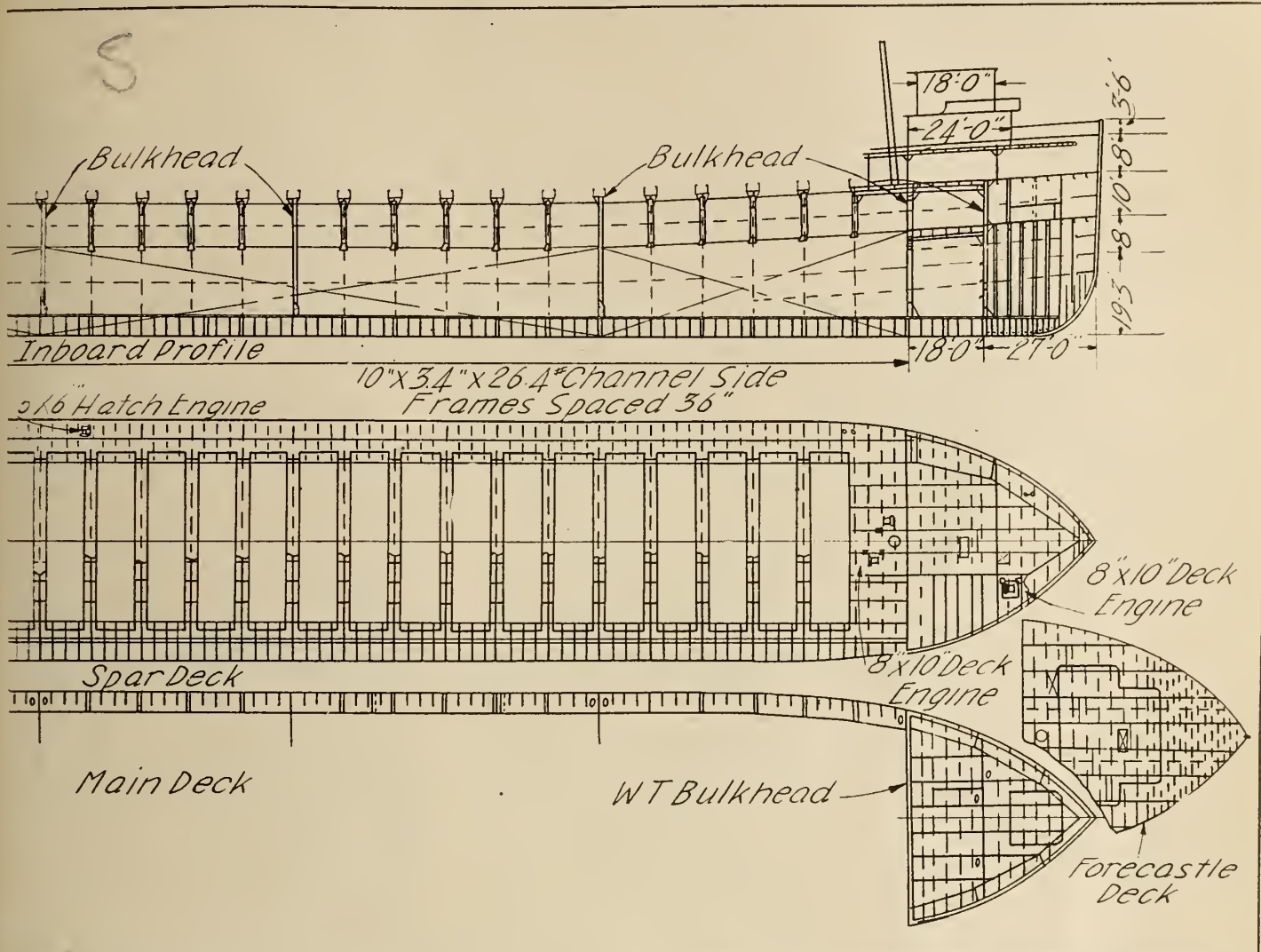
was placed at the end of Dec. 1921, and the keel was laid May 10, delivery being required by Sept. 15. She will be

sliding covers. A special feature will be the separation of the side hoppers from the water bottom, secured by con-

tinuing the hopper side plates down the tank top to bottom shell plates where watertight connection is made. Water ballast for the side tanks will be handled through separate pipe lines leading direct to the manifold, and by this method

hold will be divided into 6 compartments, each with a capacity of from 60,000 to 70,000 bush. Passenger accommodation will include 2 large state rooms with bath, and stairway leading to observation room on the forecastle deck. Accommodation

The steering gear will be of the direct screw type, located aft, with shaft control, from the wheel house, as well as a hand and steam emergency gear on top of the deckhouse aft. The main whistles will be operated by hand pulls,



with electric and hydraulic arrangements. Her dimensions will be: Length 550 ft., breadth 58 ft., depth 31 ft. The propelling machinery will consist of vertical triple expansion engines, with cylinders 25½, 41 and 67 in. diam, by 42 in. stroke, arranged with high pressure cylinder in the center, and supplied with steam by 3 Scotch boilers, each 13½ ft. diam. by 11 ft. 2 in. long, equipped with interchangeable furnaces, at a working pressure of 185 lbs. She is being built to the highest class of the American Bureau of Classification for Great Lakes service.

Esquimalt Drydock.—We are officially advised that P. Lyall and Sons Construction Co. Ltd., has resumed work on the drydock at Esquimalt, B.C., for which it has a contract from the Dominion Government. The work was suspended March 31, on instructions from the Dominion Government, pending a decision as to whether it would be proceeded with to completion, or not. The Government's decision to proceed with the work was made May 13, and mentioned in our last issue. The estimates passed by the Dominion Parliament at its recent session included \$1,000,000 on this account.

of construction, the ballast tanks will be divided into 4 compartments athwartships, and the same number fore and aft, not including the peaks and engine room space, which will eliminate so far as possible any dangerous list. The cargo

for the master and chief engineer, with offices adjoining their compartments, and the crews' quarters will all be arranged on deck, each set of rooms being laid out en suite with sleeping quarters, bath and lavatory.

Application to Suspend the Coasting Laws.

Following representations made by certain interested shippers, etc., the Minister of Trade and Commerce took up the question of grain rates from the head of the Great Lakes, and addressed communications recently to the leading Canadian lake ship owners, calling attention to a slightly lower wheat rate from Fort William to Buffalo, than to Port Colborne, and Georgian Bay Ports, the rates quoted by him being: 2c to Buffalo, as against 2½c and 3c, respectively, and he made a request for an assurance that the discrimination would be removed if the coasting laws were to be maintained. Through the Dominion Marine Association, several interviews and correspondence with the Minister have taken place, and he has been placed in possession of the facts, as of July 8, when the wheat rate from Fort William to Buffalo was 2¼c, to Georgian Bay ports 2½c, and to Port Colborne, 3c, the rates from Fort William to the seaboard being, all water to Montreal, \$9.75; through Georgian Bay ports \$11.10 and through Buffalo \$11.35. From this it will be seen that the transportation through the Canadian channels to the seaboard, is the cheaper. Since the opening of navigation, the Port Colborne route has been severely congested, and the Government elevator there, blocked, largely due to a blockade at Montreal, where elevators are used to a great extent for storage. Lake ships should have been able to return promptly to Port Colborne from Montreal and relieve the pressure, but the average dispatch was about 90 hours, whereas 12 hours should ordinarily suffice. It is stated that the port of Montreal is not being worked to its maximum efficiency, that no sufficient plan has been devised for prompt unloading and clearing, and that lake shippers, while enjoying a fair rate of freight, have been losing money owing to the use of the elevator capacity by shippers for storage. This has become so serious that lake shippers have under consideration the insertion of a demurrage clause in their contracts, in order to save further loss. In the face of this condition the admission of U.S. tonnage to the Canadian coasting trade, for the avowed purpose of breaking down the freight rate to the minimum created on the Buffalo route, would simply further congest Montreal, place the Canadian lake carriers in greater difficulty and preclude the possibility of their paying operating expenses when under the burden and loss of greater delays.

The Minister's attention was called to the reason for the rate to Buffalo, recently created. U.S. tonnage, which ordinarily enjoys the profitable carriage of coal and ore, found no movement in these commodities this season sufficient to satisfy requirements, and as usually occurs in the spring and autumn, when coal and ore are not moving, these ships enter the Canadian grain trade, and in order to keep busy, are willing to carry grain at 2c even if they do not make their operating expenses. The moment coal and ore again become available in quantities, the 2c rate will disappear.

The charge has been made that the Canadian miller is being discriminated against, and that the U.S. farmer is securing an advantage over the Canadian farmer by the retention of grain by-products in the milling business. On investigation, however, it appears that of some 30,000,000 bush. of Canadian grain

shipped via Buffalo, 27,000,000 were bonded through for export, to the seaboard, and that of the remaining 3,000,000 bush., 1,000,000 were subsequently sold for export. Pressure is being continued on the Government for the admission of U.S. tonnage, and some rather rash statements have been made by the parties concerned in the way of guarantees of dispatch and return cargoes. It is not considered likely that such representations will carry much weight with the Government under existing conditions, without the most convincing proof, and facts have been submitted which render such proof impossible.

The Canada Shipping Act, R.S.C., chap. 113, sec. 955, provides that "No goods or passengers shall be carried by water from one port of Canada to another, except in British ships," and sec. 958 reads: "The Governor in council may from time to time declare that the foregoing provisions of this part shall not apply to ships or vessels of any foreign country in which British ships are admitted to the coasting trade of such country, and to carry goods and passengers from one port or place to another." While there was reciprocity in the coasting trade between Canada and the U.S. during the war, it is not considered likely that the privileges of the U.S. coasting trade will be thrown open to Canadian ships at present, but Canadian ship owners are on record as being quite willing to have a suspension of the coasting laws, whenever such suspension is reciprocal. Without such reciprocal action the only method by which the coasting regulations could be suspended, would be by Parliament, the clause quoted above providing for their suspension by the Governor in council, being effective only in case of a reciprocal arrangement with a foreign country, which, as stated, is not, in this instance, considered likely. On the recent prorogation of Parliament, the Premier announced that it would not be called again until January, 1923, and as the matter can only be dealt with by Parliament, it is not possible for any steps in the direction of suspension, to be taken, even if such were desirable. Canadian ship owners would have less cause for complaint at present if they were enjoying their full share of the use of facilities for transshipment and unloading already provided in Canada. The views generally expressed on this subject, in the daily press, to a very great extent, tend to mislead, as the general public fails to understand the great loss entailed every day that a valuable steamship remains tied to a dock awaiting the loading or unloading of cargo.

In connection with the proposal to suspend the Canadian coasting laws, the following letter, addressed to the Minister of Trade and Commerce, by Capt. J. B. Foote, of the Toronto Insurance and Vessel Agency, is of interest:—

"If I may express an opinion, it would in my judgment be very poor policy to suspend the coasting laws, to permit U.S. ships to coast in Canada. The reasons which I advance are that at the present moment your Government, or its operating department, have 6 steel ships tied up, and out of commission at Great Lakes ports, and several others on the coast. If, as alleged, there is discrimination on the part of some Canadian ship owners, why not operate these idle ships, rather than let down the barrier to U.S. tonnage.

Again, such action, or the threat of such action, as the suspension of the law, tends to destroy any incentive there might be on the part of prospective owners to invest in new tonnage, and all of our Canadian shipyards are badly in need of orders; which, if forthcoming, would assist, directly and indirectly, to a considerable degree, in the return of prosperity to this country. Further, if the port of Montreal can be kept reasonably free of congestion, by a good export demand for grain (and the law of supply and demand governs this), it may be assumed that the movement out of that port will only be limited by its capacity to handle all water shipments; both Canadian and U.S. I am not at the moment financially interested in either ships or shipbuilding plants; so that my viewpoint is reasonably free from bias or self-interest."

The World's Shipbuilding.

Lloyd's report on shipbuilding throughout the world, for the quarter ended March 31, shows that there was a total of 955 ships having a gross tonnage of 3,679,622, under construction, not including any which may be building in Germany, for which country no figures were available. Of this gross tonnage, 437 ships of 2,235,998 gross tons were building in the United Kingdom; 31 ships of 136,266 gross tons in the United States, and 487 ships of 1,307,358 gross tons in other countries, exclusive of Germany. The tonnage is classified as follows:—United Kingdom, steam 397, gross tonnage 2,099,507; motor, 29, gross tonnage 133,991; sailing 11, gross tonnage 2,500; United States, steam 22, gross tonnage 111,976; motor, 6, gross tonnage 19,945; sailing, 3, gross tonnage, 4,345; other countries, steam 348, gross tonnage 1,144,224; motor, 79, gross tonnage, 139,587; sailing, 50, gross tonnage, 21,547.

Included in the tonnage under construction in other countries, are the figures for British Dominions, as follows:—Australia, steam 9, gross tonnage 18,350; Canada, steam 10, gross tonnage 12,264; sailing 6, gross tonnage 6,225; Hong Kong, steam 7, gross tonnage 22,110; others, steam 4, gross tonnage 4,278; motor 1, gross tonnage 100; sailing 1, gross tonnage 175; total of 38 ships with a gross tonnage of 63,502.

The tonnage under construction in the United Kingdom is about 404,000 tons less than what was on hand at the end of 1921, and about 1,563,000 tons less than the tonnage under construction there a year ago. The figures given above do not include any ships of less than 100 tons.

The Ice Breaking Steamship J. D. Hazen, which was built for service in the St. Lawrence River, but was sold to the Russian Imperial Government, during the war, for operation in the White Sea, and which has been at Cherbourg, France, for some time, has finally been rebought by the Dominion Government, and we were officially advised, July 20, that she was expected to sail for Canada within a few days, in charge of Capt. John Hearn, of Quebec, Que. A special cable to the Toronto Mail & Empire, July 21, stated that the steamship had been seized at Cherbourg, France, by the local authorities, on the complaint of the crew, who contend that their wages have not been paid.

Canadian Government Merchant Marine Operation, Etc.

Officers of Ships.—The following changes of chief engineers have taken place since those advised in our last issue: Canadian Coaster, C. Christian; Canadian Forester, J. J. Francis; Canadian Logger, A. Cunningham; Canadian Navigator, F. C. Brown.

The s.s. Canadian Commander, outward bound from Chatham, N.B., with lumber and general cargo, ran ashore at Plate Point, Little Miquelon, July 3. The wrecking s.s. Lord Strathcona and the wrecking schooner G.T.D. were dispatched immediately to her assistance, and she was reported to be ashore in a bad spot, and it was anticipated that some difficulty would be experienced in refloating her. The engine room, stoke hold and after hold were reported to be full of water, and it was at first stated that she was considered a total loss. Later advices, however, stated that she was in no particular danger. The bulk of her cargo was lightered with the assistance of the steam tug La Canadienne of Halifax, the trawler Sadie Mac, of Sydney, N.S., and the Red Cross Line s.s. Sable I, and she was refloated, July 16, and taken into St. Pierre.

Canadian Trooper Ltd., as owner of the s.s. Canadian Trooper, is suing the Norwegian s.s. Otta for salvage services, when the latter ship was in distress through the breaking of her rudder stock about 500 miles from St. John's, Nfld., whither she was bound, in Oct. 1921. The claim represents the Canadian Trooper as valued at \$599,200, and at the time she had a cargo aboard, valued at \$5,533. A wireless call to all ships, from the Otta was answered by the Trooper, and she eventually got the Otta in tow and took her to St. John's. The cost of piloting has been fixed at \$9,576; and expenses incurred at St. John's, \$2,783.54. The Otta is valued at \$181,600, and her cargo at the time of salvage, at \$141,142. For the defence, it is claimed that there was no such risk as alleged by the Trooper, nor such a state of circumstances with regard to the value of the ship or otherwise, as to give rise to such claim, and the owners left themselves with the Court as to whether the Trooper was entitled to any salvage award, and submitted that, in any event, the claim was grossly excessive. At the time of writing (July 16), judgment had not been given.

Montreal Sailings.

Liverpool Service.—Canadian Conqueror, Aug. 19; Canadian Pioneer, Sept. 2.

London Service.—Canadian Ranger, Aug. 10; Canadian Constructor, Aug. 24.

Glasgow Service.—Canadian Squatter, Aug. 4; Canadian Runner, Aug. 18; Canadian Navigator, Sept. 1.

Cardiff and Swansea Service.—Canadian Carrier, Aug. 16.

Australia and New Zealand Service.—Canadian Spinner, Aug. 26.

Barbados, Trinidad and Demerara Service.—Canadian Beaver, Aug. 2; Canadian Harvester, Aug. 16; Canadian Coaster, Aug. 30.

Hamilton, Bermuda, Nassau, Kingston and Belize Service.—Canadian Fisher, Aug. 3; Canadian Forester, Aug. 24; Canadian Fisher, Sept. 14.

Newfoundland Service.—Canadian Sapper, Aug. 13 and 29.

Vancouver Sailings.

Australia and New Zealand Service.—Canadian Traveller, Aug. 5; Canadian

Scottish, Sept. 5; Canadian Highlander, Oct. 5.

Oriental Service.—Canadian Winner, Aug. 10; Canadian Inventor, Sept. 15.

India Service.—Canadian Transporter, Aug. 20.

Parliamentary Vote.—The estimates for the year ending March 31, 1923, passed at the Dominion Parliament's recent session contained the following item:—Loan to Canadian Government Merchant Marine Ltd., repayable on demand with interest at a rate to be fixed by the Governor-in-council, upon such terms and conditions as the Governor-in-council may determine, and to be applied in the payment of—(a) Deficits in operation of the company and of the ships under the Company's control during year ended Dec. 31, 1921; (b) working capital and deficits in connection with such operation during the 15 months ended March 31, 1923; (c) capital expenditure in connection with the ships under the company's control \$4,360,720.

Prince Rupert Drydock and Engineering Co., Prince Rupert, B.C. An appropriation of \$130,000 was included in the supplementary estimates passed by the House of Commons, at its recent session, to settle some indirect claims in connection with the building of the steamships Canadian Britisher and Canadian Scottish. Some opposition developed to the item being included, as it was felt that the Government was in no way responsible for the claims, it having met all demands covered by the contract with the builders, now in bankruptcy. The Minister of Marine, however, stated that he was satisfied that the claims for which the appropriation was asked, were justified.

Lighthouse and Coast Service Estimates Voted.

The following amounts were voted at the Dominion Parliament's recent session:—

Further Supplementary Estimates, year ended March 31, 1922:—

Breaking ice in Thunder Bay, Lake Superior and other points deemed advisable for the good of navigation, further amount required \$16,000

Main Estimates, year ending March 31, 1923:—

Agencies, rents and contingencies..... \$210,000

Salaries and allowances to lightkeepers..... 650,000

Maintenance and repairs to lighthouses..... 850,000

Construction of lights and aids to navigation, including regulation of traffic in Detroit river and such other places as may be necessary..... 400,000

Marine Signal Service 80,000

Administration of pilotage..... 300,000

Maintenance and repairs to wharves..... 10,000

Breaking ice in Thunder Bay, Lake Superior and other points deemed advisable for good of navigation..... 40,000

Pensions to pilots 8,700

Allowance to Harbor Master, Amherstburg, for supervision of lights and buoys on St. Clair River, Detroit River and Lake Erie; and other services in connection with lighthouse service for seasons of navigation 1921 and 1922 1,200

Supplementary Estimates, year ending March 31, 1923:—

Marine Signal Service, further amount required \$9,000

Administration of pilotage, further amount required to provide for Sydney pilotage district 44,000

Compassionate allowance to John Davidson, formerly lightkeeper at Cape Mudge, B.C. 500

Canadian Wheat via Panama Canal.—During January, February and March, the shipments of Canadian wheat from Vancouver to European ports, via the Panama Canal, totalled 40,758 tons.

The Receiving and Shipping of Grain at Montreal.

The Grain Elevator Commission, which was appointed by the Dominion Government recently, to study the proper balancing of the elevator facilities east of Fort William and Port Arthur, at the different lake and ocean ports, consisting of M. P. Fennell, General Manager and Secretary, Montreal Harbor Commission, chairman; R. A. C. Henry, Special Engineer, Railways and Canals Department; and C. J. Smith, Manager, Montreal Warehousing Co., visited Prescott and Kingston, Ont., recently to obtain information in regard to elevator facilities there, and looked into the question of approach channels, depths of water anchorages, etc., and also looked over several other ports between Prescott and Kingston.

The Grain Clearance Board, consisting of M. P. Fennell, chairman; T. R. Enderby, Operating Manager, Canada Steamship Lines Ltd.; E. N. Todd, General Foreign Freight Agent, C.P.R., and C. J. Smith, Manager, Montreal Warehousing Co., has arranged a system of transportation of grain into and out of Montreal, which it is claimed, will eliminate all congestion, and enable ships to be loaded with a minimum of inconvenience. As a part of this system, the Board looks after the movement of grain from Georgian Bay and Port Colborne elevators to Montreal.

The activities of the Grain Elevator Commission and the Grain Clearance Board gave rise to the following Kingston, Ont. press dispatch, "The members of the Montreal Harbor Commission who were in Kingston for a short time on their way westward, have undertaken to handle all grain passing by water through Canada, and have taken over the Government elevators at Port Colborne." We are officially advised that the Montreal Harbor Commissioners have no intention whatever of taking over the Port Colborne elevator, and the explanation given above, will explain how the report arose.

Naval Service Estimates Voted.

The following amounts were voted at the Dominion Parliament's recent session:—

Main Estimates, year ending March 31, 1923:—

Maintenance of Royal Canadian Navy.....\$1,500,000

Hydrographic Survey and maintenance and repairs of Hydrographic steamships 350,000

Fisheries Protection Service and the repairs and maintenance of fishery protection steamships 345,500

Radiotelegraph Service and building and maintenance of wireless stations and general administration of radiotelegraphy 440,400

Tidal and Current Survey..... 30,000

Patrol of northern waters..... 15,000

Customs dues 500

Pay of temporary officers and clerks at headquarters, Halifax and Esquimaux dockyards 20,000

Marine Public Works Contract.—The Dominion Public Works Department has awarded a contract for dredging at Squamish, B.C., June 29, to Vancouver Dredging and Salvage Co., Vancouver, at \$6 a cub. yd. for class A, and 28½¢ a cub. yd. for class B, materials to be measured in situ.

The Mount Royal Steamship Co., Ltd. Montreal, is being sued by the Guaranty Trust Co., New York, for \$798,100 unpaid notes. The President of the company is Jas. McNaught, 10 Broadway, New York.

Dominion Wreck Commissioners' Enquiries and Judgments.

Enquiries have been held and judgments delivered in connection with the following casualties.—

Collision with Bridge by s.s. Canadian Squatter.

Held at Chatham, N.B., June 14, into the collision of the Canadian Government Merchant Marine s.s. Canadian Squatter with the Morrissey bridge across the Miramichi River, between Newcastle and Nelson, June 4, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. R. A. MacLean and C. Mitchell, as nautical assessors. The evidence showed that a very defective and dangerous system is used with respect to the approach to the bridge. Though recognized by pilots as unsatisfactory, nothing has been done beyond complaint to the pilot commissioners, where apparently it ended. It is evident that though signals were given timely, pilots had to await the goodwill and readiness of the bridge man to obtain an opening, and hence a dangerous custom was established in bringing ships very close to the bridge before it was operated, and, as the pilot expresses it, it was the only thing they could do to get it opened. No system of signals has been established, nor has the bridge employe any specific instructions, when, in the event of unforeseen happenings, the bridge could not be operated timely. The court did not expect an employe to be consistently on the bridge from sunrise to sunset, but it maintained in view of the fact that he is to supervise traffic to and from the bridge, with regard to the speed of vehicles, that his absence from his post from noon to 6 p.m., about the time he received the signal, was unjustified, and not in accordance with the rules governing these bridges. With respect to the pilot, who has had many years of service without his conduct being questioned, he has followed a dangerous custom in approaching a bridge with valuable property to a point where ships have to meet eddies, etc., and while uncertain as to whether something unusual or unsuspected would happen to cause delay in opening the bridge. This custom is of the pilots' own creation and the court assumed that whatever complaints were made, they were of a very weak and indifferent kind, as no attention was evidently given to them. The court did not think that the speed of the ship was too great to meet the conditions existing. Two signals were given in ample time to permit the bridge-man to be at his station. The master saw that everything was done in accordance with the custom as related to him by the pilot, and from his point of view the ship appeared too close to the bridge, and it being closed, the anchor was let go with appropriate orders to the engine room. Unfortunately, the wrong anchor was let go, which necessitated a speed ahead order to straighten the ship's head. The error was considered excusable. The master's duty in such a case was to insist, when at a safe distance, that the bridge be open before proceeding, but the pilot's assertion that it was necessary to almost touch the bridge before any attempt would be made to open it, was considered as extenuating. The court therefore found that the bridge tender, L. Coughlin, was neglectful in his duties, and was the chief factor in the accident. The pilot, G. Sutton, was found at fault for following a dangerous custom, and his license was suspended for three

months. The master, Capt. F. W. Boulton, was exonerated, but cautioned to use his own judgment in future. The court recommended that a signal be hoisted on a flag pole at the operating tower, and hauled down when the bridge is about to open, and that the instructions to the bridge operator be more clearly established as to duties and responsibilities, and that regulations should be framed by the harbor master for the governance of pilots, so as to avoid possibility of a recurrence of similar accidents.

The nautical assessors both dissented from the court's decision, Capt. R. A. MacLean laying the blame for the accident on the New Brunswick Government, on the ground that invariably ships have been compelled to approach the draw-bridge very closely before the draw would swing, owing to the traffic on the bridge, and he believed that both the master and pilot of the Canadian Squatter had no doubt that the approach would swing as usual, but as it did not, he considered they took the very best steps to avert a catastrophe in view of the fact that the bridge was thronged with people at the time. He recommended that both master and pilot be exonerated. Capt. C. Mitchell attributed the accident entirely to the bridge keeper, on account of his failure to be at his post during the hours of navigation, when the bridge might be required to be open at any time. He appeared to have been left to form his own rules and regulations and his hours of attendance. He had no signal of any description which would by day warn any approaching ship when he was not at his post, or that the bridge could not be opened through any other cause. He recommended that the master and pilot should be exonerated as they followed the usual custom, which has been practised since the bridge was built in 1914.

Grounding of Car Ferry Scotia No. 1.

Held at Mulgrave, N.S., June 17, into the grounding of the Dominion Government car ferry Scotia No. 1, near Borden, P.E.I., May 7, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. N. E. Morris and A. Ganion, as nautical assessors. The evidence showed that the ship had two compasses, both absolutely unreliable, on account of carrying numbers of steel cars, 15 being carried on the trip when the grounding occurred. No log was set, as it could not be used effectively owing to the currents. During the trip there was a thick fog and slow speed was ordered and maintained until the grounding. Casts of the lead were taken three times, and at the last cast, three fathoms was found. Hearing both bell and whistle from the shore, the master, Capt. J. M. McKinnon, ordered helm hard aport and full speed astern, but the ship grounded. The court found that the master adopted every precaution which prudence and good seamanship demanded. His last order was proper, as he heard the bell and whistle on his starboard bow, and the speed of 1½ knots an hour was, under the circumstances, justified. He was therefore exonerated from blame, the grounding being attributed to the currents, which were northerly in the vicinity, the velocity being underestimated. The course could not be determined, owing to slow speed, and the unreliability of the compass rendering any accurate knowledge of the effect of the current impossible.

Mina Brea-Long Sault-Manon L. Collision.

Held at Montreal, June 24, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Lapierre and A. Lefebvre, as nautical assessors, into the collision between the Imperial Oil s.s. Mina Brea, and the steam tug Long Sault, owned by Lachance Ltd., Quebec, Que., and the barge Manon L., in tow, in the River St. Lawrence, near Three Rivers, May 28. The court found that J. B. Angers, pilot of the s.s. Mina Brea, was in default for inattention and bad lookout, involving wrong movements of the helm and ship, contrary to good seamanship and rules of the road, and ordered him to pay \$200 in two instalments by July 15, and Aug. 15, respectively. W. A. Poole, second officer of the s.s. Mina Brea was severely reprimanded for indifferent lookout, and failing to call the master as instructed at the first appearance of danger. Capt. A. Geddes, master of the s.s. Mina Brea, was cautioned as to his responsibilities as master, and the owner's attention was called to that fact. In regard to the tug and tow, the court considered that while much could be said about their doing, it was of opinion that in view of the situation created by the Mina Brea, they must be given the benefit of the doubt. The master of the barge was considered responsible for the damage to the barge by hard astarbording his helm when fast to the tow line, and as the law does not compel a barge to have a certificated master, the court severely reprimanded him. The court stated that it was aware, from experience, that through lack of knowledge or strongheadedness, on the part of masters of ships, barges and small boats, generally, deep draft ships have been placed in positions of jeopardy, causing great anxiety and uneasiness to pilots and officers of large ships, and for this reason, was lenient with respect to the action of the s.s. Mina Brea.

Keywest-Glenmavis Collision.

Held at Montreal, June 26, into the collision between Keystone Transport's s.s. Keywest, and the Great Lakes Transportation Co's s.s. Glenmavis, May 9, in the Welland Canal, near Rami's Bend, both ships being damaged. The evidence showed that the master of the Glenmavis was on deck and saw the Keywest's lights. He exchanged the usual one blast signal when about 100 ft. distant, they being head on, the Keywest being more to the middle of the canal. The Keywest struck of the Glenmavis a glancing blow, and he ordered full speed ahead with starboard helm, and then full speed astern, the Glenmavis striking the abutments on the right hand side of the canal, damaging her starboard bow, this being due to the Keywest not giving the Glenmavis sufficient room. The master of the Keywest stated that his ship was at slow speed, and that, being light, he had kept close to the canal bank, and he claimed that the Glenmavis had encroached into the port side of the mid-ship line of the canal. The master was steering and the wheelsman was on the bridge looking out. The court found that the Glenmavis was alone to blame for the damage caused. The Keywest was held to be under the influence of a port helm in accordance with the rules, and the starboard order of full speed astern on the Glenmavis, indicated a sudden

movement without refection, and consequently, the damage done was due to her own manoeuvres, and also indicated that she was going faster than stated, and as she was the downbound ship, she had to exercise more care. The court did not feel that the case warranted the suspension of the master's certificate, as the first impact could have been brought about by the suction of either ship, which must take place when ships pass at such close range at a speed, which, although in accordance with canal regulations, must be considered hazardous, especially in places where the usual spaces are narrowed by abutments. The full speed astern order was wrong, but was done in the excitement of the moment, and showed lack of judgment, for which the court reprimanded and cautioned the master of the Glenmavis, Capt. Angus Mackay.

A Seamen's Wages Suit.

Before the Quebec Superior Court, recently, five employees, two engineers and three stokers of the s.s. Rock Ferry, owned by George Hall Coal Co., sued for two months wages, claimed to be due, and the company claimed for loss owing to the delay of the ship, caused by the insubordination and consequent discharge of the men. The trouble occurred in 1920, when on a voyage out of Montreal. The master had a dispute with the second engineer, whom he discharged, stating that he would be allowed to leave the ship on her return to Montreal. The man insisted on an instant discharge, and demanded to be put ashore at Three Rivers, but as no call was to be made there, the master stated that he could leave with the pilot. He still insisted on being discharged at Three Rivers, and the remaining men backed him up, claiming that they were acting according to their union agreement, and stated that if the ship was not put in at Three Rivers, they would allow the fires to go out and halt its further voyage. The master therefore immediately put in at Sorel, communicated with the shipping master at Montreal, and discharged all the men, waiting for a new crew. A mistake was, however, made in not paying the men their wages then due, they being entitled to that, and no more, the master claiming that the wages due were forfeited against the cost of the delay to the ship. Judgment was given for the men for the amounts actually due to the date of their discharge, and in favor of the company for delay, the actual balance being in the company's favor, but the judgment declared that the claims were compensated, costs in each case going with the judgment.

Quebec Top Wharfage Rates Reduced.

—A Dominion order in council has been passed confirming the Quebec Harbor Commissioner's bylaw 94, replacing the original bylaw 94, providing a tariff of top wharfage rates on goods landed and shipped at the port, and providing for a slight reduction in the tariff for certain commodities, to bring the Quebec harbor rates into harmony with the Montreal ones, which were reduced recently. The decreases are on the following commodities, per ton, coal, bituminous, from 7½c to 7c; coke, 10c to 9c; flour, 12c to 11c; and grain, 7c to 6c.

The Hudson's Bay Co. s.s. Baychimo, 3,500 tons, will, it is stated, be run between Vancouver and Petropavlosk, Siberia, during the summer.

General Shipbuilding Matters Throughout Canada.

Steamship for Marine Department.—The Dominion Parliament, at its recent session, voted \$100,000 to provide a steamship to replace the C.G.S. Lambton, which was lost in Lake Superior early in the year.

North Vancouver, B.C. Ferry Steamboat.—North Vancouver City Council has again had under consideration, tenders for the construction of a new ferry for the city's service. Tenders have been received from Wallace Shipbuilding and Drydock Co., North Vancouver, for \$249,000 and Napier and Millar, Ltd., Glasgow, Scotland, for \$200,925. It was decided to prepare bylaws covering each tender, and to submit them to the municipal voters at an early date.

Port Arthur Shipbuilding Co., Port Arthur, Ont., will probably launch the s.s. Mathewston, for Mathews Steamship Co., Toronto, about Aug. 12, and make delivery by the middle of September.

Prince Rupert Drydock and Shipyard, Prince Rupert, B.C. did the following work during June:—Canadian Government Merchant Marine s.s. Canadian Skirmisher, 8,370 tons, docked, cleaned, painted and generally overhauled and repairs made to 3 frames in shell plating. 15 fishing ships were docked, cleaned and painted; 4 barges were docked, cleaned, painted and repaired, and 2 tugs and 2 yachts were given general overhaul.

Sorel Shipyard—The estimates for the year ending March, 31, 1923, voted at the Dominion Parliament's recent session, provide \$90,000 for the Government Shipyard at Sorel, Que., comprising offices, shops and laborers.

Victoria Machinery Depot Co., Victoria, B.C., did the following repair work during June:—C.P.R. s.s. Princess Royal, docked, painted and hull and engine repairs; Canadian Government s.s. Armisties, docked, painted, and repaired; Dominion Public Works Department dump scow 306, docked, painted and repairs to door, and dredge Ajax, repairs; s.s. Silver Spray, docked, painted and stern bearing repairs; steam tug Point Ellice, boiler repairs; steam tug Nora, docked, painted and repairs to rudder; steam tug Spray, boiler room repairs; s.s. Grainer, docked, painted and bottom repairs; s.s. Orion, engine room repairs; yacht Scaramouche, docked and rudder repairs, and two scows, docked, painted and general repairs.

Yarrows Ltd, Victoria, B.C., did the following repair work during June:—Canadian Government Merchant Marine s.s. Canadian Inventor, 5,497 tons, repairs to ballast pumps; Canadian Government s.s. Restorer, 3,180 tons, welding operation: Coastwise Steamship and Barge Co. s.s. Amur, 907 tons docking, cleaning and painting, extensive underwater repairs and engine room and boiler repairs; s.s. Griffco, 1,463 tons, docking, cleaning and painting, and drawing tailshaft; C.P.R. s.s. Princess Adelaide, 3,061 tons, repairs to feed heater; Bowring and Co. s.s. El Lobo, 4,800 tons, minor engine room repairs; Pacific Construction Co., steam tug Burrard Chief, new propeller; dredge John Lee, docking, cleaning and painting; Union Steamship Co. of British Columbia, s.s. Camosun, 1,369 tons, new propeller blades. Several scows were docked, cleaned and painted.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

22. May 22.—61, British Columbia, Vancouver Island, west coast, Clayoquot Sound, Hankin Rock, buoy to be discontinued. 62, British Columbia, Juan de Fuca Strait, Carmanah light station, new lighthouse under construction, temporary light to be exhibited.

23. May 29.—63, Ontario, Lake Ontario, Bay of Quinte, Belleville, dredging. 64, United States, St. Clair River, Port Huron ship channel to be closed temporarily. 65, United States, Lake Superior and St. Mary River, radio compass stations established.

24. May 30.—66, British Columbia, Vancouver Island, Clayoquot Sound, Browning Passage, off Usatzes Point, day beacon established. 67, British Columbia, Johnstone Strait, approach to Port Harvey, additional particulars of shoal reported in the approach.

25. May 31.—68, Nova Scotia, entrance to Beaver Harbor, character of buoys to be changed. 69, Nova Scotia, Cape Breton Island, Sydney Harbor, pilotage.

26. June 1.—70, British Columbia, Vancouver harbor entrance, color of buoys to be changed, buoys to be established. 71, British Columbia, Queen Charlotte Islands, Blunden harbor, corrected particulars of uncharted rock. 72, British Columbia, Seaforth channel, Gunboat Passage, uncharted rock. 73, British Columbia, Laredo channel, depth on shoal.

27. May 5.—74, British Columbia, Strait of Georgia, Fraser River, alteration in lighting system.

28. June 6.—75, Nova Scotia, Bay of Fundy, Harbourville, new lighthouse established. 76, New Brunswick, North Coast, Miramichi Bay, Horseshoe Bar, buoy to be changed in position, character of buoy to be changed. 77, Quebec, Gulf of St. Lawrence, off Heath Point, radiotelegraph installed on lightship. 78, Quebec, St. Lawrence River, between Quebec and Montreal, St. Maurice River, buoys established.

29. June 12.—79, Nova Scotia, Bay of Fundy, Minas Basin, Avon River, wreck removed. 80, Nova Scotia, Bay of Fundy, Eatonville, light discontinued. 81, Prince Edward Island, north coast, Malpeque Bay, Darnley Basin, change in position of front range light. 82, Quebec, Gulf of St. Lawrence and lower St. Lawrence River, lights to be exhibited for survey purposes, caution to navigators.

30. June 13.—83, Ontario, Georgian Bay, Castor Island, light established. 84, Ontario, Georgian Bay, Opechee Island, light established. 85, United States, St. Lawrence River, Colborne or Little Round Island, wreck, lights established. 86, United States, Lake St. Clair, wreck buoy established. 87, United States, Lake St. Clair, 20 ft. channel, changes in buoyage.

31. June 14.—88, Ontario, Lake Huron, Tobermory, radiotelegraph station closed temporarily. 89, Ontario-Michigan, Detroit River, Livingstone Channel, light to be established, gas buoy to be discontinued. 90, Michigan, Detroit River, Livingstone Channel, light established, buoy discontinued. 91, United States, Lake Huron, southern end, wreck no longer a menace to navigation, gas buoy to be withdrawn.

Atlantic and Pacific Oceans.

The British s.s. Norburn, outbound from Matane, Que., with deals for Liverpool, collided with an iceberg in Belle Isle Strait, July 3, considerably damaging her bows. She proceeded at slow speed to St. John's, Nfld., where temporary repairs were made.

The Anchor-Donaldson Line's s.s. Cassandra was withdrawn from her service between Montreal and Glasgow, during July, and her sailings on July 14 from Glasgow, and July 28 from Montreal, were cancelled. A number of minor repairs are being made in readiness for her sailing from Glasgow, Aug. 17.

The Cairn Line s.s. Cairndhu, outbound from Montreal, collided with and sank the Sincennes-McNaughton Line steam tug Spray, of Montreal, July 6, causing the loss of six of the tug's crew. The Sincennes-McNaughton Line immediately labelled the s.s. Cairndhu, for \$60,000 for the loss of the tug, and the ship was released on bonds being furnished by Robert Reford Co., the agents.

The Donaldson Line s.s. Orthea, inbound to Montreal, collided with the British s.s. Airedale, outbound from Quebec, in the St. Lawrence River, a little west of Father Point, July 3, during a heavy fog. The wrecking tugs Bellechasse and Gopher were immediately dispatched from Quebec to her assistance, and she was beached near White Island, July 5, to save her from sinking. She is stated to be considerably damaged, and the s.s. Airedale is said to have her bow shattered from the water line to the hawse pipes. The s.s. Orthea was refloated, July 18, and taken to Quebec.

Maritime Provinces and Newfoundland.

An order in council has been passed approving regulations for the guidance of pilots passed by Bras d'Or Lakes Pilotage District Commissioners, covering the ports, harbors and bays of the Bras d'Or Lakes, and in the Great and Little Bras d'Or.

Senator Dandurand stated in the Senate recently in answer to a question, that engineers are to be sent to Cape Tormentine, N.B., to inspect the wharfage, and the surroundings, and see what dredging is necessary, in order to restore shipping facilities there, and that dredging will be proceeded with during this summer.

Steamship companies operating at Halifax, N.S., gave notice, recently, of the cessation of the existing wage agreement, with the Longshoremen's Association, and also of their intention to decrease wages from 55c an hour for day work, and 65c for night work. After some negotiations between the parties concerned, an agreement was arrived at, by which the existing rates of wages are to continue in effect until Nov. 30, when they may be subject to revision.

Province of Quebec.

The Public Works Department received tenders, July 21, for repairs to the roadway on the north embankment of the Soulanges Canal.

During June, 986 ship passages were made through the Lachine Canal, compared with 822 in May. The shipments of wheat totalled 9,989,933 bush. com-

pared with 4,997,331 in May, but there was a considerable falling-off in shipments of corn, barley, etc.

Work was started, July 11, on the dredging of the St. Charles River, this being the first portion of the harbor development scheme, undertaken by the Quebec Harbor Commissioners, under the bill passed last session of the Dominion Parliament authorizing the advancing of \$1,500,000 to the commissioners, for harbor development.

Ontario and the Great Lakes.

The s.s. Rosemount owned formerly by Canada Steamship Lines, and now by Aube Steamship Co., Montreal, has had her name changed to Aube.

The Public Works Department received tenders to July 20 for dredging at the eastern gap, Toronto harbor. A total of 57,000 cub. yds. is to be excavated.

The Hamilton City Board of Control has passed the harbor commissioner's plans for development works in the harbor. Among the work to be undertaken is the cutting of a canal at Stipes Inlet.

The Northern Navigation Co.'s s.s. Noronic, grounded on a sand bar in the Upper St. Marys River, July 13, and was released by Canada Steamship Lines' s.s. Emperor, early the following morning without damage.

The Railways and Canals, and Public Works Departments, have been requested to sweep and deepen the St. Marys River Channel, to 21 ft. in consequence of the triple grounding of the s.s. Valcartier early in July.

The s.s. Turret Cape grounded in the Welland Canal July 9, due, it is stated, to high wind. She was released later in the day, traffic having been held up for several hours, owing to the grounding being sideways, the ship blocking the whole channel.

The Mathews Steamship Co.'s s.s. Huronton was reported ashore at St. Denis, near Coteau, July 17, when downbound with grain. The Donnelly Salvage and Wrecking Co.'s steam tug Mary P. Hall and a lighter were immediately dispatched from Kingston, to refloat her.

Dominion Public Works Department dredge 109 arrived at Goderich early in July, to undertake extensive dredging operations in the harbor. A part of the island is to be removed and a large part of the harbor is to be deepened, preparatory to a considerable increase in the elevator storage capacity.

Canada Steamship Lines' s.s. Valcartier, while passing through the channel in the St. Marys River, July 3, grounded three times, but without apparent damage. She was carrying a cargo of 5,884 tons, some 400 tons short of full load, and was drawing 19 ft. 2 in. It is stated that the heavy, and shifty winds caused a rise and fall of the water at intervals.

The U.S. Lake Survey reports the stages of the Great Lakes in feet above mean sea level, for June as follows:—Superior, 602.20; Michigan and Huron, 580.54; St. Clair 575.46; Erie 572.91; Ontario 246.75. Compared with the average June stages for the last 10 years Superior was 0.24 ft. below; Michigan and Huron 0.40 ft. below; Erie 0.09 ft. below; Ontario 0.19 ft. below.

The steam tug John R. Moore, registered as owned by Pearl M. Moore, Port

Stanley, was offered for sale by tender on July 25, by the Collector of Customs and Excise, Toronto. She was built at Port Stanley in 1911, and is screw driven by engine of 6 h.p. Her dimensions are: length 68 ft., breadth 16.6 ft., depth 9 ft.; tonnage, 63 gross, 43 net. She was recently concerned in a case involving a breach of the Ontario Temperance Act.

An act passed at the Dominion Parliament's recent session constitutes Trenton Harbor comprising all the navigable waters of the River Trent from its mouth to the head of natural navigation at the first dam south of the G.T.R. bridge, and all the Bay of Quinte waters inside or north of straight lines drawn from Myers Point to the west point of Baker Island, thence southwestward to the point at which an extension of Rear St., Trenton, southerly, meets the Bay of Quinte shore. The mayor of Trenton, for the time being, and two persons appointed by the Governor in council, shall be commissioners.

Manitoba, Saskatchewan, Alberta and Northwest Territories.

The Purchasing Commission of Canada, received tenders to July 25, for the purchase of the Public Works Department's steam tug J. H. Montgomery, lying at Selkirk, Man. She was built there in 1913, and is screw driven by engine of 10 h.p. Her dimensions are: length 64.6 ft., breadth 16.2 ft., depth 7.4 ft., tonnage 76 gross, 52 net.

The Hudson's Bay Co.'s steamboat Athabasca River was launched at McMurray, Alta., June 3, and christened by Mrs. John Sutherland, wife of the company's chief engineer there. The Athabasca River sailed from McMurray, June 15, on her maiden trip to Fitzgerald, and will be operated regularly on the Athabasca-Mackenzie route during the navigation season.

British Columbia and Pacific Coast.

The Coastwise Steamship and Barge Co. Ltd., Vancouver, has been granted supplementary letters patent, increasing its capital stock from \$250,000 to \$500,000.

The Presbyterian Church in British Columbia has had launched at Vancouver additional mission steamboat for service to the Queen Charlotte Islands. She is 40 ft. long with 9½ ft. beam, has accommodation for five passengers, and will probably be named Sky Pilot.

The Hudson's Bay Co.'s auxiliary powered ship Lady Kindersley, sailed from Vancouver, during June, for Herschel Island, Baillie Island, Coronation Gulf and other Arctic posts, on her second Arctic trip, and is expected to return during September. She carried a large shipment of canoes and motorboats for the Eskimos.

The Air Board of Canada has established an air harbor at Esquimalt, and mariners are cautioned that seaplanes will use for alighting and taking off, an area of half mile square from the southerly point of Patterson Point, on the west side of the harbor, to a point about 180 yds. east of Dyke Point, thence to the southwest point of Ashe Head, thence to about 60 yds. from high water mark at Rose Bank and north to the point of commencement. The hangar is about 100 ft. north of Inskip Island.

G. M. Massey U.S. representative, Manchester Ship Canal Co., Manchester, Eng., visited Vancouver early in July to endeavor to establish a direct service between Vancouver and Manchester. At present, traffic goes to Liverpool, and is transhipped to Manchester, either by water or rail, at additional cost. He pointed out the advantages of direct shipment, and stated that ships of 12,000 tons can navigate the ship canal to Manchester, with safety, and that the port is well equipped with unloading facilities and storage capacity.

The Grand Trunk Pacific Coast Steamship Co's s.s. Prince John, is being used for a series of cruises to Queen Charlotte Islands. The first sailing was from Vancouver, July 1, the second, July 15, and they are arranged fortnightly there-Queen Charlotte Islands as a general after. The object is to establish the tourist route, in conjunction with Canadian National Rys. Calls are made at 14 points, and then the ship proceeds to Prince Rupert, where tourists have the option of taking one of the company's steamships back to Vancouver or Victoria, or of returning over the same route by the Prince John.

The Anderson Co. of Canada has sold the three steamships, Ramon Marimon, formerly Minneapolis; Eduardo Sala, formerly St. Paul; and Brandon, all at one time running in the lake freight trade out of Ogdensburg, N.Y., to D. Sullivan & Co., Chicago, Ill. It is said that they are to be returned to the lake trade. The first named ship was built in Chicago in 1897, and has the following dimensions: Length, 238 ft.; breadth, 42 ft. 2 in.; depth, 22 ft. 2 in.; tonnage, 2,029 gross, 1,222 net, equipped with triple expansion engine, 17, 29 and 47 in. by 36 in. stroke, 132 n.h.p. The second ship was built in 1897 and is a duplicate of the first. The third ship was built at Detroit, Mich., in 1910, and measures as follows: Length, 244 ft.; breadth, 43 ft. 2 in.; depth, 27 ft. 2 in.; tonnage, 2,432 gross, 1,431 net. She is equipped with quadruple expansion engines 17½, 25½, 37 and 54 in. by 36 in. stroke, 175 n.h.p.

The capital stock of G. S. Mayes Tug Co., Ltd., Tug Mouton Ltd., and Tug Samson Ltd., all of Halifax, N.S., has been reduced from \$40,000 to \$20,000, in each case.

Mainly About Marine People.

David Drummond, whose appointment as Agent, C.P.R., and Canadian Pacific Steamships Ltd., Southampton, Eng., was announced in a recent issue, was born at Sheddens, Renfrewshire, Scotland, Oct. 12, 1884, and entered transportation service in 1899, since when he has been, to 1909, in various departments, Allan Line, Glasgow, Scotland; 1909 to 1916, secretary to Chairman, and London Secretary of the company, Allan Line, London, Eng.. During the war he acted as Embarkation Staff Officer at United Kingdom ports for the Canadian Expeditionary Forces. In 1919 he was appointed to the General Manager's Department, Canadian Pacific Ocean Services, Ltd., London, Eng.; 1920 to 1921 General Freight Agent, same company, Liverpool, Eng.; 1921 to 1922 Freight Claim Agent, C.P.R., and Canadian Pacific Steamships Ltd., Liverpool, Eng.

E. Hawken, Assistant Deputy Minister of Marine, and Frank Macdonnell, Chairman of Board of Steamship Inspection, Ottawa, who went to Europe in March, in connection with the proposed purchase of the ice breaking steamship, J. D. Hazen by the Marine Department, had not returned to Ottawa up to July 8, and we were then advised that the date for their return was indefinite.

H. E. Kane, Port Agent, Canadian Government Merchant Marine, St. John, N.B., has resigned and has joined the firm of Nagle & Wigmore, there, who have been appointed local agents for the various lines controlled by the International Mercantile Marine Co., New York.

Sir William Nelson, founder of the Nelson Line, operating steamships out of London and Liverpool, Eng., to foreign ports throughout the world, died at London, Eng., July 7.

William Newman, for several years, Works Manager, Polson Iron Works, and latterly, master wrecker for John E. Russell, harbor contractor, etc., Toronto, died at St. Catharines, Ont., June 29, from injuries sustained when he fell into the hold of the s.s. Joyland, which was undergoing repair in the Port Dalhousie drydock. He was born at Kingston, Ont. in 1873, and had lived in Toronto, for

about 20 years. During the war, he acted as a naval architect for the Emergency Fleet Corporation, U.S. Shipping Board, and was an inspector of building operations at different points in the U.S.

H. C. Schofield, local manager at St. John, N.B., for Robert Reford Co., steamship agents and managers, returned there July 13, from England. He is reported to have stated that shipping conditions in Great Britain are not satisfactory, and that owing to a shortage of cargoes, numbers of ships are tied up.

H. B. Smith, President, Collingwood Shipbuilding Co., and Halifax Shipyards Ltd., has been re-elected a director of the British Empire Steel Corporation. Dr. W. L. McDougald, President, Montreal Harbor Commission, and J. F. M. Stewart, of Toronto, have been added to the board.

W. J. Stewart, Chief Hydrographer, Naval Service Department, was voted \$1,000 at the Dominion Parliament's recent session, as allowance in relation to questions under consideration by the International Joint Commission during the year 1922-23.

P. D. Sutherland, General Passenger Agent, Ocean Traffic, C.P.R., Hong Kong, China, arrived at Vancouver, July 3, on the s.s. Empress of Russia, for a short visit to Montreal, and expects to return to Hong Kong on the first Vancouver-Orient trip of the s.s. Empress of Australia.

Welland Ship Canal Construction Contract.—As stated in Canadian Railway and Marine World for July, the contract for combined sections 3 and 4, Welland Ship Canal, has been awarded to P. Lyall and Sons Construction Co., Montreal. The work, which will be in charge of H. M. Scott, who has been transferred from the Esquimalt dry dock construction, for which the same company is the contractor, was commenced June 29. The contractors' headquarters for the Welland work are at Thorold, Ont. The contractor will probably let sub-contracts for rock and earth excavation, and possibly for concrete work, if it can be done at satisfactory prices.

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Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Dominion Bridge Co. has issued a stock list of steel shapes, and other metal products, for immediate shipment, containing weights, safe loads for beams, channels, angles, etc., and general information. Copies can be obtained on application to the Toronto office, 20 Victoria St.

Transportation Conventions in 1922.

Aug. 15 to 17.—International Railroad Master Blacksmiths Association, Chicago, Ill.; W. J. Mayer, 15 Hotel Sherman, Chicago, Ill.

Aug. 23 to 25.—American Association of Railroad Superintendents, Kansas City, Mo.; J. Rothschild, 400 Union Station, St. Louis, Mo.

Sept. 5 to 7.—American Railway Association, Division 5, Mechanical, Equipment Painting Section, Cleveland, Ohio. V. R. Hawthorne, 431 South Dearborn St., Chicago.

Sept. 12 to 15.—Traveling Engineers Association, Chicago, Ill.; W. O. Thompson, 1177 East 98th St., Cleveland Ohio.

Sept. 19 to 21.—Roadmasters and Maintenance of Way Association, Cleveland, Ohio; P. J. McAndrews, Chicago and Northwestern Ry., Chicago, Ill.

Sept. 20 to 22.—American Railway Association, Telegraph and Telephone Section, Colorado Springs, Col.; W. A. Fairbanks, 75 Church St., New York.

Oct. 2 to 6.—American Electric Railway Association, Chicago, Ill.; J. W. Welsh, 8 West 40th St., New York.

Oct. 10, 11.—American Association of Passenger Traffic Officers, Louisville, Ky.; W. C. Hope, Central Rd. of New Jersey, 143 Liberty St., New York.

Oct. 17 to 19.—American Railway Bridge and Building Association, Cincinnati, Ohio; C. A. Lichty, 219 North Waller Ave., Chicago, Ill.

Oct. 17 to 20.—American Association of Dining Car Superintendents, San Francisco, Cal.; L. A. Stone, Chicago and Eastern Illinois Ry., Chicago, Ill.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities—Canadian Counsel, W. D. Lighthall, K.C., Montreal.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—D. N. Gill, Comptroller, Ottawa Electric Ry., Ottawa, Ont.

Canadian Freight Association (Eastern lines)—G. C. Ransom, Chairman, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western lines)—F. W. Thompson, acting Chairman, 805 Boyd Block, Winnipeg.

Canadian Passenger Association—Eastern Lines, G. H. Webster, 54 Beaver Hall Hill, Montreal; Western Lines, E. J. Stone, 306 Union Station, Winnipeg.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club—W. A. Booth, 53 Rushbrooke St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Canadian Traffic League—R. J. Fitzgerald, 93 Wright Ave., Toronto.

Dominion Marine Association—F. King, K.C., Counsel, Kingston, Ont.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, Des Moines, Iowa.

Niagara Frontier Summer Rate Committee—James Morrison, Canadian National Rys., Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, General Secretary, 263 St. James Street, Montreal; Western Operating Committee, E. J. Stone, 306 Union Station, Winnipeg.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacramento Street, Montreal.

Transportation Club of Toronto—W. J. Hotrum, 595 Runnymede Road, Toronto.

Transportation Club of Vancouver—C. A. Dorflier, 450 Hastings St. West, Vancouver, B.C.

Winnipeg Traffic Club—A. J. Barber, 114 Cadomin Bldg., Winnipeg, Man.



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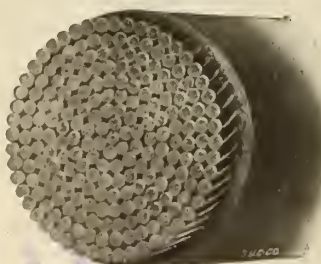
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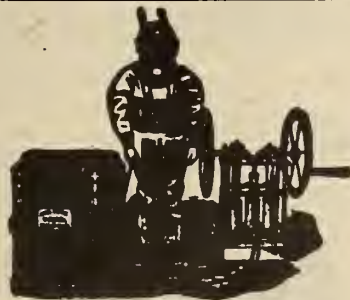
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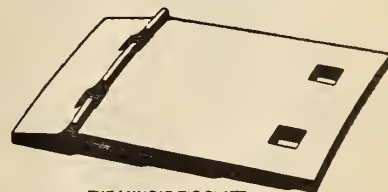
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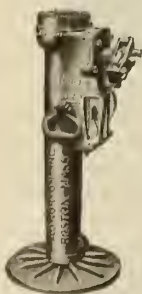
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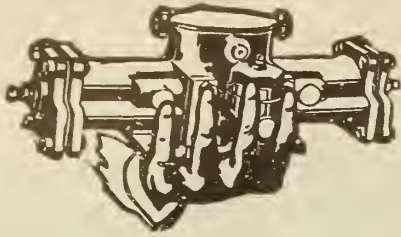


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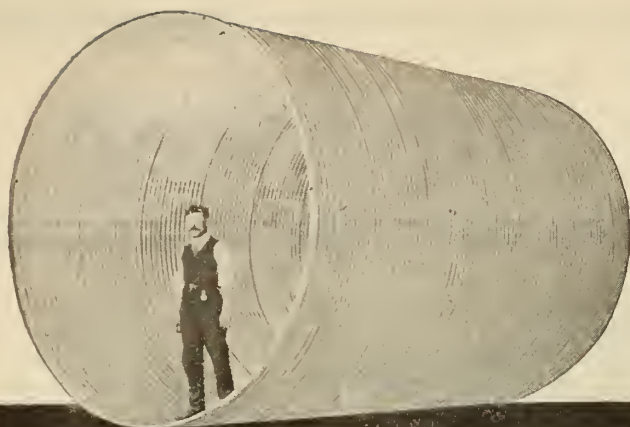
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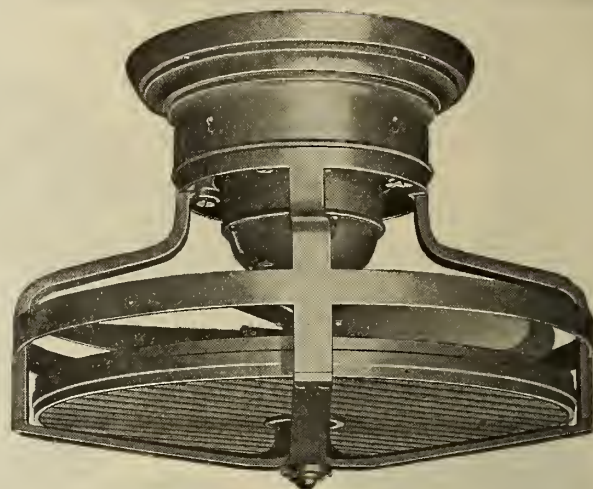
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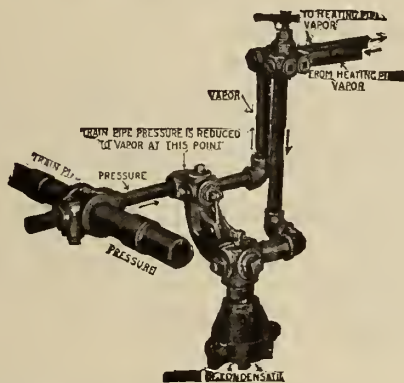


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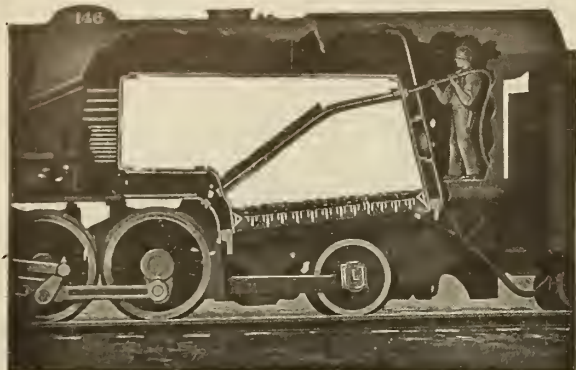
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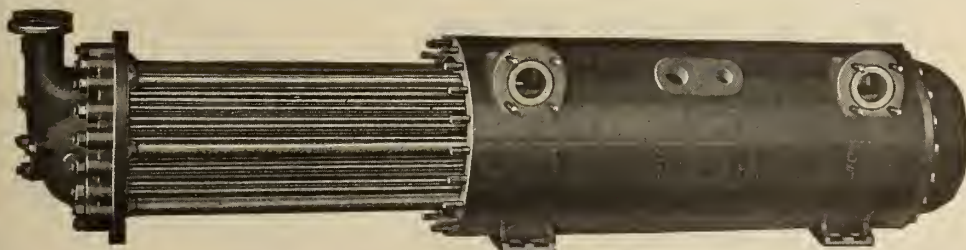
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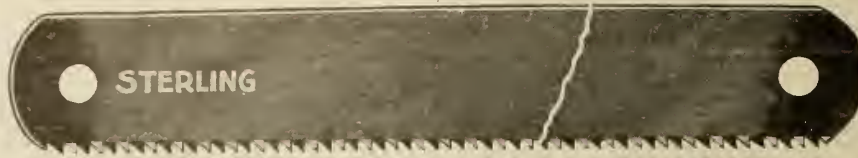
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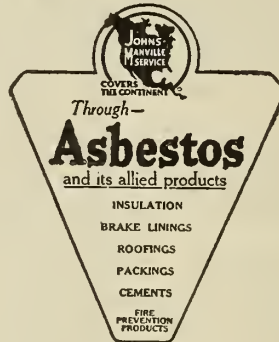
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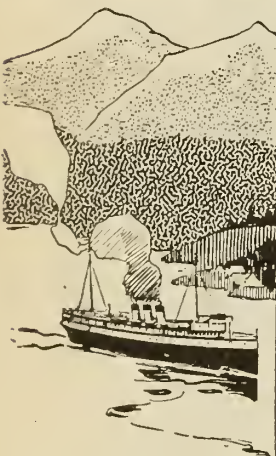
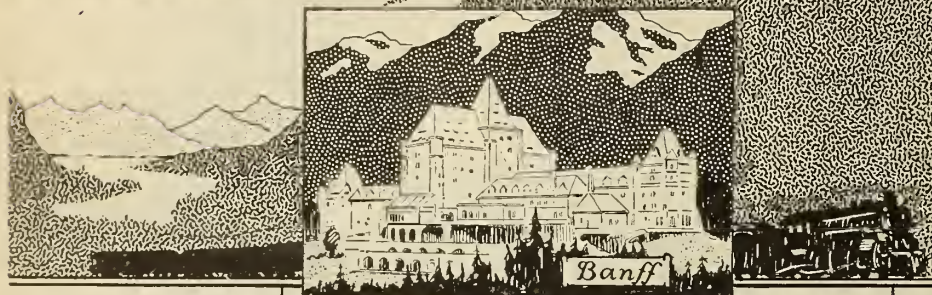
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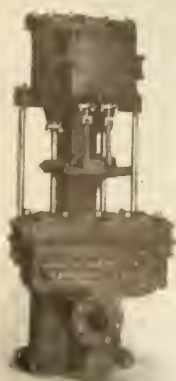
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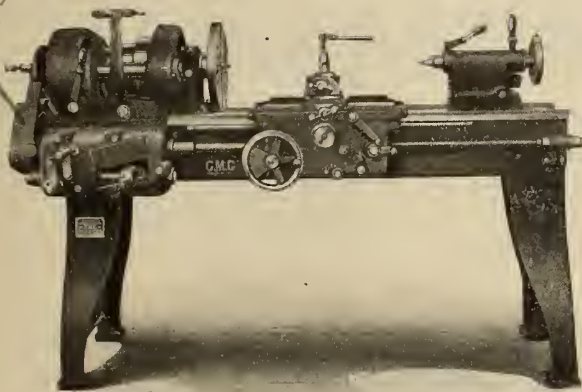
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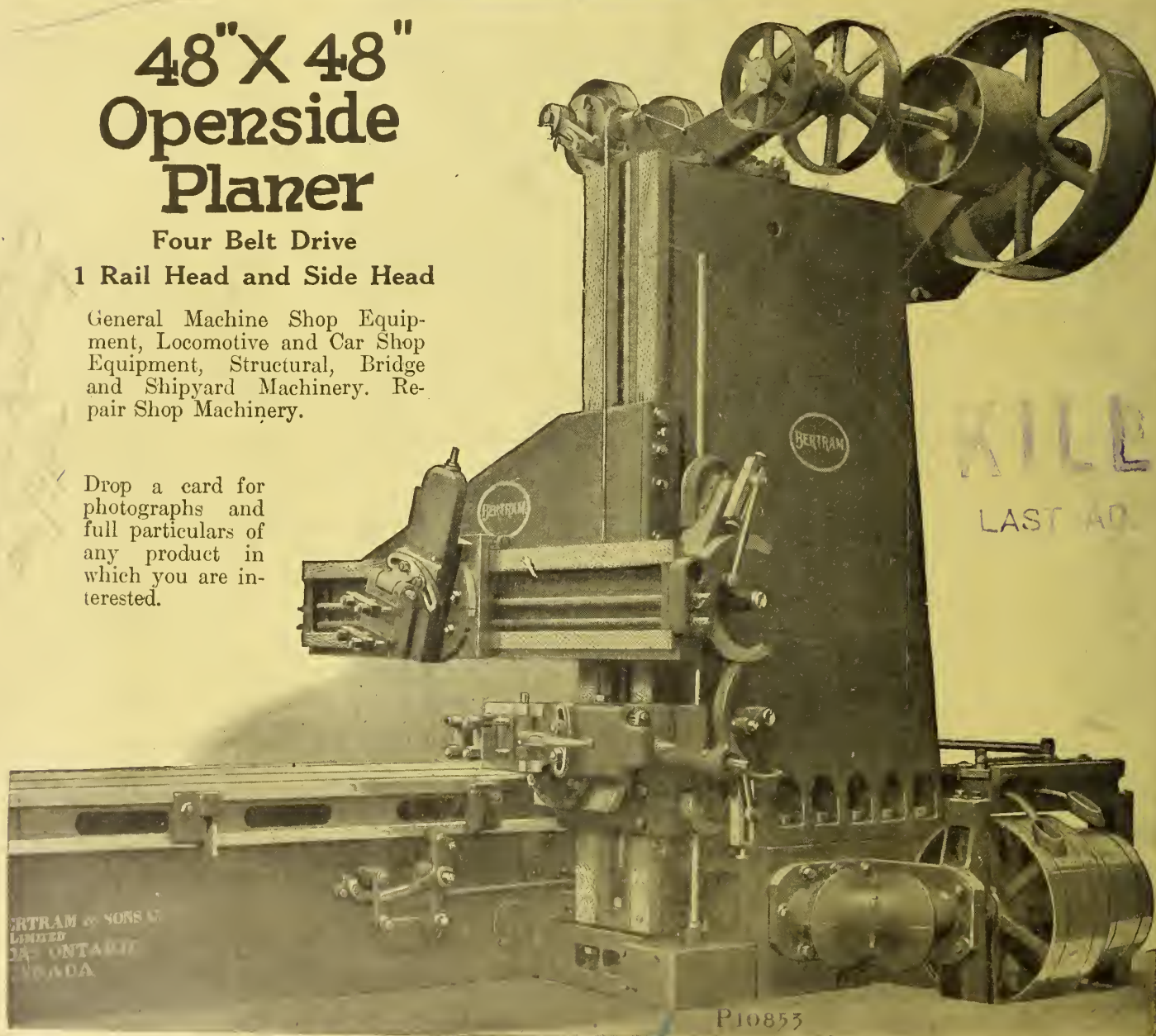
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Number 295.

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Single Punch and Shear, 12"
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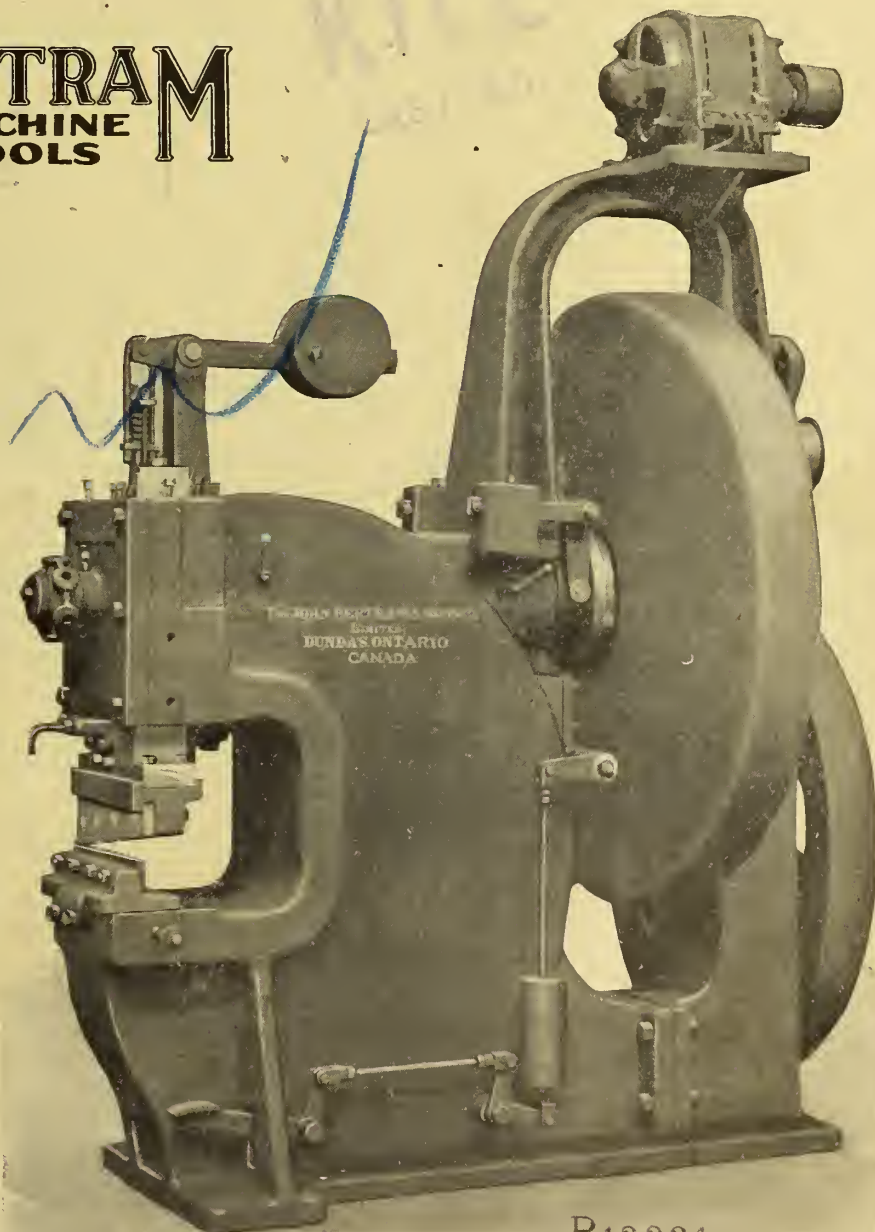
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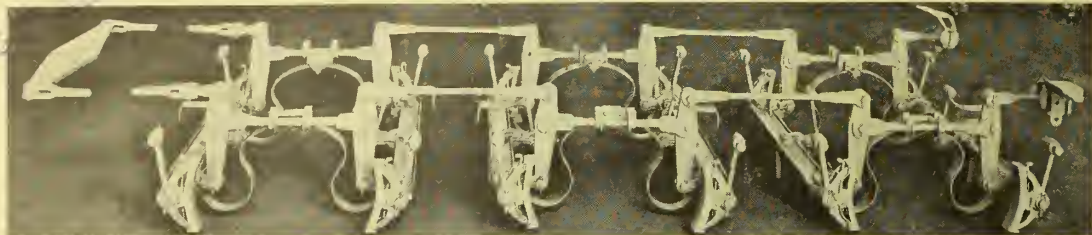


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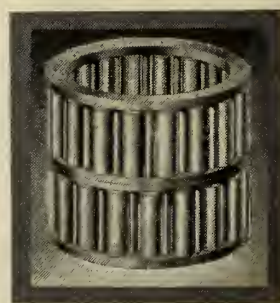
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Dearborn Chemical Company

of Canada, Limited

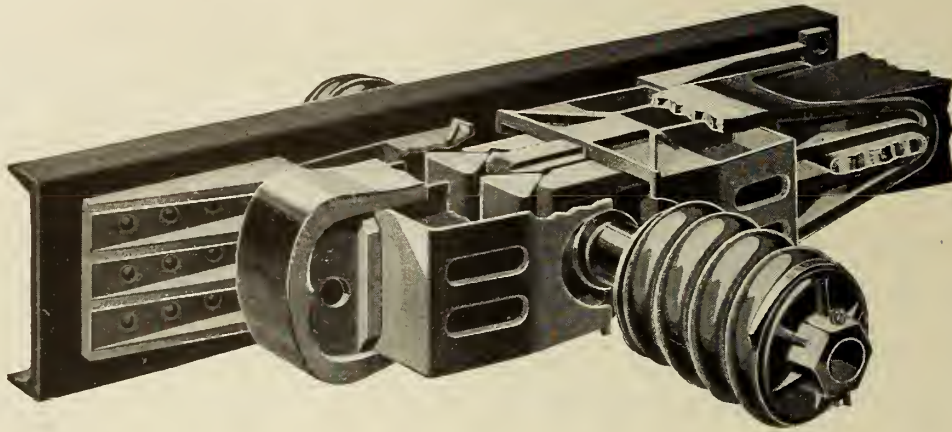
2454-2464 Dundas St. W.

TORONTO, CANADA

Supreme in Service and in Results

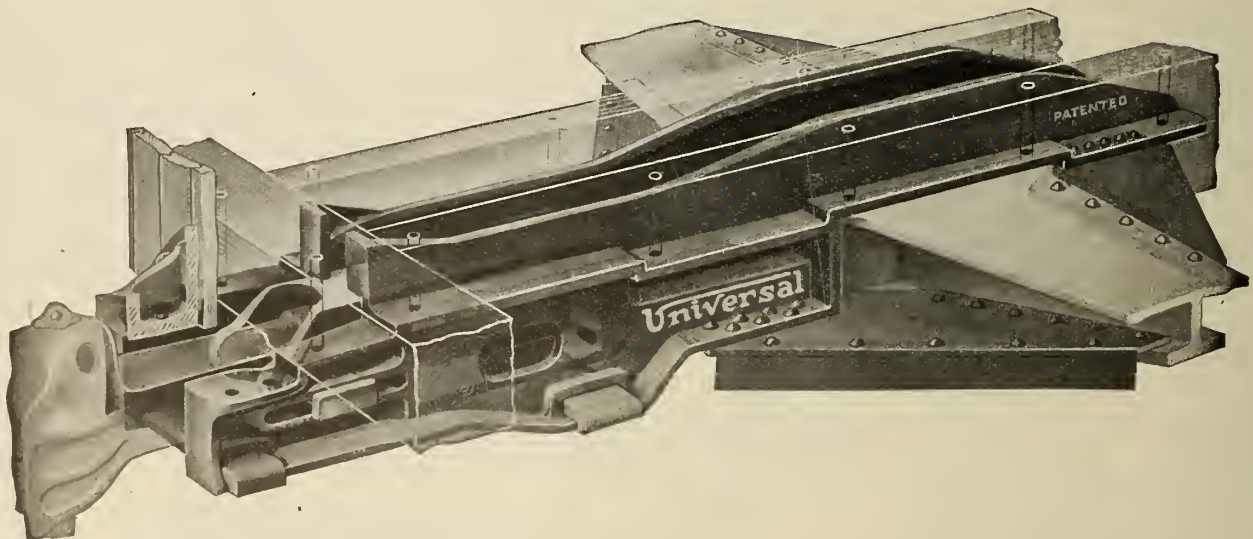
CARDWELL FRICTION DRAFT GEAR

MADE IN CANADA



Universal ATTACHMENTS

MADE IN CANADA



REENFORCING DRAFT ARMS
TANDEM SPRING DRAFT RIGGING
TWIN SPRING DRAFT RIGGING

CAST STEEL YOKES
DRAFT LUGS or PLATES
FRICTIONLESS SIDE BEARINGS

MADE IN CANADA

WEBB. G. KRAUSER

Transportation Building, MONTREAL

O-B Trolley Materials Ready Whenever You Are



O-B Service to electrified and electrifying roads deals with transmission, distribution and collection of power from generator to motor.

Before there were any electrified steam roads, this company was manufacturing trolley materials.

In the meantime, most of the steam roads which have electrified have used O-B Materials.

Whenever the decision comes to electrify all or part of your road you will find O-B Specialists ready to work with you and O-B Products ready to work for you.

*Have you a copy of
"Steam Road Electrification?"*



The **Ohio Brass** Co.
Mansfield - Ohio

Products: Trolley Material; Rail Bonds; High Tension Porcelain Insulators; Third Rail Insulators; Electric Railway Car Equipment.



Welding Tubes in
Locomotive Firebox

using

Wilson Plastic Arc System

G. D. PETERS & CO., LTD.

1001 New Birks Building
MONTREAL



POLE LINE HARDWARE

WIRE
Copper and Galvanized

RIVETS
BOLTS, NUTS
WASHERS
SCREWS



POLE STEPS
GUY CLAMPS
CROSS ARM
BRACES
ANCHOR
RODS

GENERAL OFFICES

HAMILTON

AND

MONTREAL

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Canada's
Commerce
Carriers

Canadian Government Merchant Marine, Limited



REGULAR FREIGHT SERVICES

From Montreal and Quebec in Summer
From St. John, N.B., and Halifax, N.S.,
in Winter.
To the United Kingdom, Liverpool, London,
Glasgow, Cardiff, Swansea, etc.
To Barbadoes, Trinidad and Demerara.
To Havana, Cuba, and Jamaica.
To South America, Rio de Janeiro, Santos,
Montevideo and Buenos Aires.
To India, Dutch East Indies and Straits
Settlements via Mediterranean.
To Australia and New Zealand via Panama Canal.

To St. John's, Newfoundland.

From Vancouver, B.C.
To Sydney and Melbourne, Australia.
To Auckland, Wellington, Dunedin, and
Lyttleton, New Zealand.
To China and Japan.
To India and Straits Settlements.

Pacific Coastal Service.
Sailings every ten days.
From Vancouver and Vancouver Island ports.
To Seattle, San Francisco and Wilmington.

REGULAR FREIGHT AND PASSENGER SERVICE

Every three weeks from Montreal in Summer and Halifax, N.S., in Winter,
To Hamilton, Bermuda, Nassau, Kingston, and Belize.

Superior First Class Accommodation.

Excellent Cuisine.

B. C. KEELEY, General Agent, Vancouver, B.C.

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R. B. TEAKLE, General Manager, W. A. CUNNINGHAM, General Freight Agent,
230 St. James Street, Montreal, P.Q.



Canadian National Railways



For best results in welding and cutting

—DOMINION OXYGEN

—PREST-O-LITE DISSOLVED ACETYLENE

By placing within easy reach of every manufacturer an unlimited supply of fuel gas and oxygen—

By using cylinders light in weight, easy to handle, and leak-proof—

By a policy of liberal cylinder loans—

By filling all orders the day they are received—

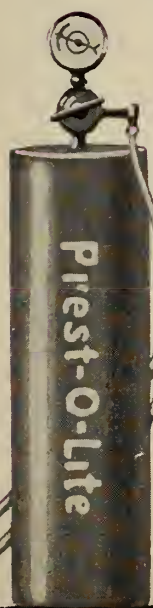
Dominion Oxygen service will take care of your requirements efficiently and at the lowest prices. Send your orders by wire, telephone, or mail to our nearest Distributing Station.

DOMINION OXYGEN COMPANY, LIMITED

*Operating the Welding and Cutting Gas Division of
PREST-O-LITE COMPANY OF CANADA, LIMITED*

Hillcrest Park, Toronto

Shawinigan Falls, Quebec, Montreal, Hamilton, Merritton,
Welland, Windsor, Winnipeg.



Alloy Steel Reciprocating Parts Are Practicable

DIFFICULTIES which have heretofore made alloy steel reciprocating parts almost impracticable have been overcome by the development of Carbon-Vanadium, the Normalized* Forging Steel:

Heat Treatment

Carbon-Vanadium steel is not quenched or tempered. Its high physical properties are secured by the Vanadium content and a simple annealing.

Repairs

Not having been quenched or tempered, Carbon-Vanadium steel is not materially affected by the heating required for straightening or other repairs.

Price

Being the simplest of all alloy steels, Carbon-Vanadium is moderate in price.

Delivery

Carbon-Vanadium steel can be obtained promptly from a number of steel makers and forging companies whose names we will gladly furnish.

*

NORMALIZED
*means heated and
allowed to cool
in still air; not
quenched or tem-
pered.*

You can reduce the dynamic augment of your new locomotives by specifying reciprocating parts of Carbon-Vanadium Steel.

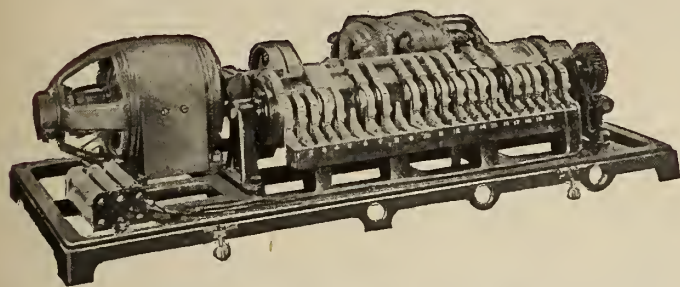
VANADIUM CORPORATION OF AMERICA

CHICAGO
208 So. LaSalle St.

120 Broadway
New York

DETROIT
849 Book Bldg.

Automatic Means Economic



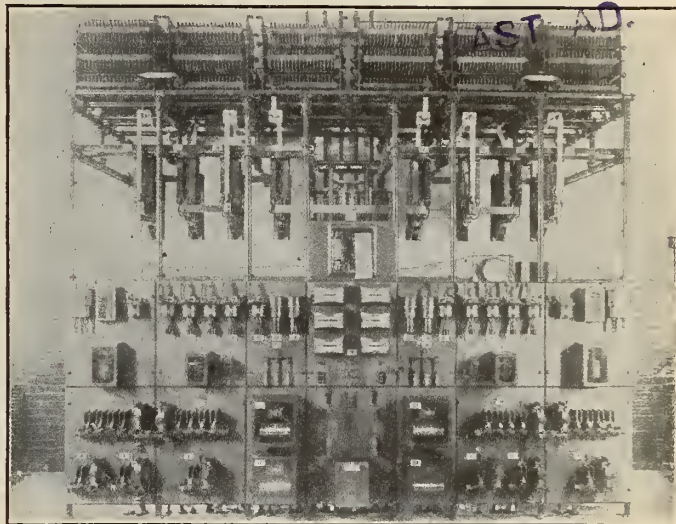
MOTOR DRIVEN MASTER CONTROLLER

The Motor Driven Master Controller can be considered as the "brains," with the contact-maker voltmeter and the underload relay as the "eyes" of an Automatic equipment.

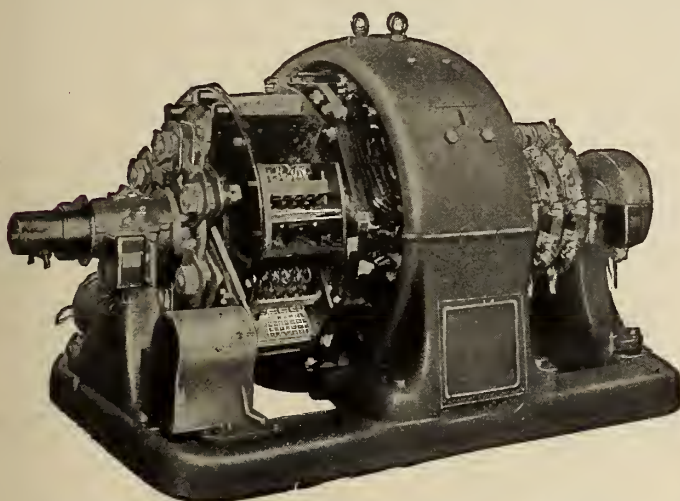
The voltmeter registers the load demand and starts the controller. The controller then fixes the sequence of events and closes or opens the various control devices in the pro-

IN Electric Railway Operation the Automatic Substation effects a great saving in labor, cuts down transmission losses and raises schedule speeds.

KILL



SWITCHBOARD FOR AUTOMATIC CONTROL OF TWO SYNCHRONOUS CONVERTERS



SYNCHRONOUS CONVERTER—AUTOMATIC OPERATION

per order and at the proper time during the starting operations. It serves at once electrically and chronologically to interlock the various breakers, contractors, relays, etc.

After the machine has been delivering load and the economical demand ceases, the underload relay acts to shut down the station and advance the controller to its initial position ready for the next start.

Canadian General Electric Co., Limited

HEAD OFFICE  TORONTO

Branch Offices: Halifax, Sydney, St. John, Montreal, Quebec, Cobalt, Ottawa, Hamilton, London, Windsor, South Porcupine, Winnipeg, Calgary, Edmonton, Vancouver, Nelson and Victoria.



The Heavy Traffic Car — Front-Entrance Center-Exit

“Pay-As-you-Pass” Method of Fare Collection

Quick passenger interchange is the reason why the Peter Witt Front-Entrance Center-Exit type car appeals to railways having to provide service in the heavy traffic districts. The wide front-entrance and center-exit permit passengers to enter and

leave in double column, and the collection of fares on the “pay-as-you-pass” system, mostly while the car is in motion, eliminates delays and speeds up service. The Peter Witt Car is ideal on lines where quick loading and unloading is of vital importance.

Fifty Cars of this type were recently delivered to the Toronto Transportation Commission.

CANADIAN BRILL COMPANY, LIMITED

PRESTON, ONTARIO

Affiliated in the construction of all types electric railway cars with

The J. G. Brill Company, Philadelphia, U.S.A.
American Car Company, St. Louis.

The G. C. Kuhlman Car Co., Cleveland.
Wason Mfg. Company, Springfield, Mass.



Q & C Rolled Steel Step Joints

The confidence that maintenance men, throughout the country, have in the quality of products that bear the Q & C signature is a confidence that has been handed down from veteran to apprentice for the past thirty years.

In the step joint, as in all Q & C devices, is found a quality and design that assures safety, strength and economy—three necessities in efficient railroading.

We offer a rolled steel step joint, open hearth, heat treated, annealed, re-inforced, and pressed to fit any "T" section of rail. A heavily re-inforced head (as shown on the cut) stiffens the bar against vertical or lateral deflection. The depending flange at the center adds greatly to the strength at this point where re-inforcement is most needed.

May we perform a service by sending blue prints or literature?

We also manufacture, Derails, Replacers, Rail Braces, Rail Benders, Rail Saws, Guard Rail Clamps, Guard Rail Braces, Rolled Steel Step Joints, Bonzano Thomson Joints, Electric Snow Melters, Snow Flangers, Snow Plows.

OUR BRANCH OFFICES SPAN THE DOMINION

The General Supply Co. of Canada, Limited

Montreal

356 Sparks Street, Ottawa

Winnipeg

Toronto

Vancouver

North Bay

Moncton





Remember Last Winter?

Remember when the locomotives came in covered with snow. Remember the delays, when overhauling, due to the condition of the engines—and the almost continual fog in the roundhouse, which further hampered the men.

You can eliminate this fog completely and a good many of your other weather troubles, annoyances and delays by installing a Sturtevant "hot blast" system.

Our engineers, without obligation, will be glad to co-operate with you in making the needed improvements.

Only a few months more and your troubles start all over again. Get in touch with a Sturtevant engineer today so as to allow plenty of time to plan and make the necessary installation.



B. F. Sturtevant Co. of Canada, Ltd.

Montreal

Galt

Toronto

TERRITORIAL REPRESENTATIVES

Empire Engineering and Supply Co., Edmonton, Alberta.
Kipp-Kelly, Ltd., Winnipeg, Man.



IN railroading a short cut is never considered without counting the cost. The advantages to be gained in time saving and increased operating efficiency are carefully weighed against the expense. A tunnel is never bored through a mountain without knowing exactly where it is to come out.

Attempting to cut lubrication costs by purchasing cheap lubricants—without consideration of the effect on fuel consumption and wear of equipment—means simply that you have not "counted the cost." The cost of oils cannot be construed as the cost of lubrication. On the contrary, every extra ton of coal, every dollar spent for repairs, made necessary through inferior lubrication, is a part of lubrication costs. Not theory, but fact—in which every authority on lubricating engineering concurs.

Weighed in the scales of service GALENA OILS not only render the highest type of lubricating efficiency, but are found to be the most economical as well. The fuel saving accomplished through their use amounts alone to much more than the price difference between "Galena" and any other railroad lubricants. Equipment is protected and preserved by their lasting high quality film; repairs and replacements of bearing parts are reduced to a minimum and maximum mileage is obtained. A comparison of lubricating conditions on roads under Galena lubrication with those where other oils are used, is a sure and reliable method of distinguishing service value. It has never failed to furnish convincing evidence of the actual economy of Galena lubricants.

*"More miles to the pint,
Better service to the mile!"*



Galena-Signal Oil Company

of Canada, Limited

Toronto

Montreal



THERE'S no doubt about the service you'll get from a roofing bearing the Barrett name. Our seventy-five years of roofing experience is a sure indication of reliability.



Everlastic "Rubber" Roofing

THE recognized standard among so-called rubber roofings. It has *made good*—on every kind of steep-roofed building—under every condition of climate. It's dependable. It's more widely used than any other brand.

Waterproofing materials of selected grade, careful manufacturing methods, moderate price, make Everlastic "Rubber" Roofing the best value roll roofing sold. Made in three weights—light (1-ply), medium (2-ply) and heavy (3-ply) Rolls contain 108 square feet. Nails and cement with each roll.

Insist upon "Barrett Everlastic" when you want good roofing for any steep roof.

Everjet Industrial Paints

YOU get best results by using paint specially made for your purpose.

Everjet Industrial Paints are made for every industrial need. Everjet Boiler Paint, Machinery Paint, Dipping Paint, Smokestack Paint, Bridge Paint, Penstock Paint, together with Everjet Elastic Carbon Paint, cover the entire field—each is unequalled in its class.

Quick-drying, durable and inexpensive, these paints are proof against water, steam, acids and alkalis. Their base is the same as our famous Barrett Specification Pitch.

Put your paint problems up to us.



The *Barrett* Company
LIMITED

MONTREAL

TORONTO

ST. JOHN, N.B.

WINNIPEG

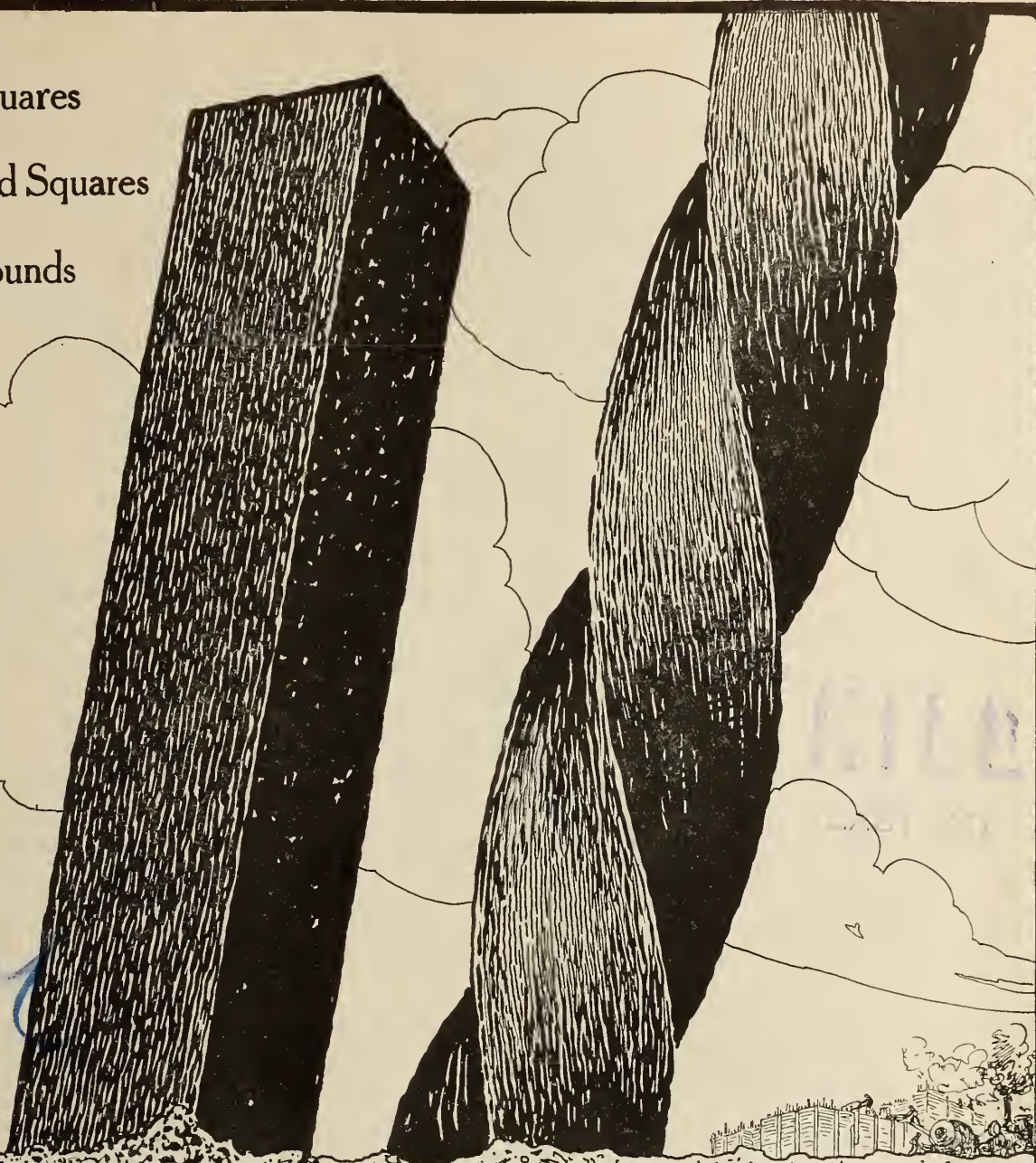
VANCOUVER

HALIFAX, N.S.

Squares

Twisted Squares

Rounds



BARS for REINFORCED CONCRETE

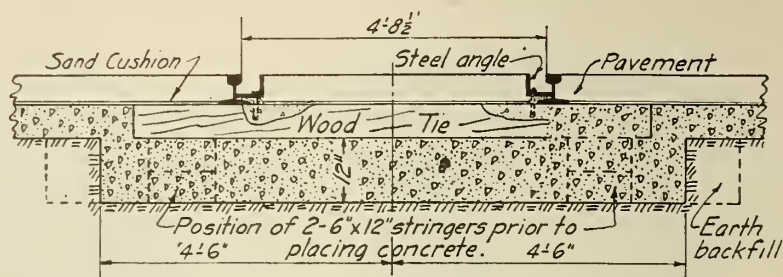
DOMINION IRON & STEEL COMPANY, LIMITED
NOVA SCOTIA STEEL & COAL COMPANY, LIMITED

Units of the

British Empire Steel Corporation, Limited

CANADA CEMENT BUILDING, MONTREAL

From ore to finished product—All within the Empire



CROSS SECTION OF CONCRETE BASE
A. T. & S. FE. RY.

SOLID CONCRETE CROSSING, ATCHISON, TOPEKA & SANTA FE
RAILWAY.

Concrete For Railway Grade Crossings

Railway engineers have experimented with several types of Concrete crossing, in the effort to obviate the expense of frequent renewal.

Besides the pre-cast slabs in use by certain large Railroads, there are many successful installations of the monolithic type to indicate that even where fairly high speeds are reached by the trains, rigid track construction at street crossings gives excellent service.

A cross-section of one such installation is shown above, as used by the Atchison, Topeka & Santa Fe Railway.

Construction for these crossings was accomplished without interruption to traffic. First, excavation was made along and under the tie-ends to a depth of 13 inches, and 2 timber stringers placed just outside the rails and wedged up to give the ties a firm bearing.

The middle of the track was then excavated and filled with concrete; which was packed under the ties and allowed to set for two weeks. The stringers were then removed and Concrete filled in under and between ties to their ends.

The angle irons forming the flangeways are anchored into the Concrete above the ties by means of embedded bolts. The Concrete paving rests directly on the ties and Concrete base.

Reinforcement above ties and between rails, consists of woven wire mesh 26 inches wide.

Train speed of 20 miles an hour prevails over some of the crossings thus constructed; and experience indicates that even at such speed the Concrete does not make a noticeably "hard spot."

CANADA CEMENT COMPANY LIMITED

Canada Cement Company Building

Phillips Square Montreal

Sales Offices at Montreal Toronto Winnipeg Calgary

SPECIFY
CANADA CEMENT
UNIFORMLY
RELIABLE

**CANADA CEMENT
CONCRETE
FOR PERMANENCE**

We maintain a Service Department to co-operate in all lines of work for which Concrete is adapted. Our library is comprehensive and is at your disposal at all times without charge.



To Holders of Five Year 5½ per cent. Canada's Victory Bonds

Issued in 1917 and Maturing 1st December, 1922.

CONVERSION PROPOSALS

THE MINISTER OF FINANCE offers to holders of these bonds who desire to continue their investment in Dominion of Canada securities the privilege of exchanging the maturing bonds for new bonds bearing 5½ per cent. interest, payable half yearly, of either of the following classes:—

- (a) Five year bonds, dated 1st November, 1922, to mature 1st November, 1927.
- (b) Ten year bonds, dated 1st November, 1922, to mature 1st November, 1932.

While the maturing bonds will carry interest to 1st December, 1922, the new bonds will commence to earn interest from 1st November, 1922, **GIVING A BONUS OF A FULL MONTH'S INTEREST TO THOSE AVAILING THEMSELVES OF THE CONVERSION PRIVILEGE.**

This offer is made to holders of the maturing bonds and is not open to other investors. The bonds to be issued under this proposal will be substantially of the same character as those which are maturing, except that the exemption from taxation does not apply to the new issue.

Holders of the maturing bonds who wish to avail themselves of this conversion pri-

vilage should take their bonds **AS EARLY AS POSSIBLE, BUT NOT LATER THAN SEPTEMBER 30th**, to a Branch of any Chartered Bank in Canada and receive in exchange an official receipt for the bonds surrendered, containing an undertaking to deliver the corresponding bonds of the new issue.

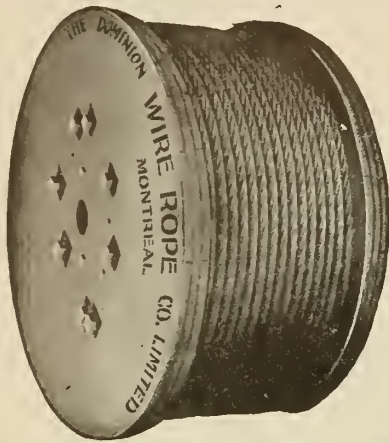
Holders of maturing fully registered bonds, interest payable by cheque from Ottawa, will receive their December 1 interest cheque as usual. Holders of coupon bonds will detach and retain the last unmatured coupon before surrendering the bond itself for conversion purposes.

The surrendered bonds will be forwarded by banks to the Minister of Finance, at Ottawa, where they will be exchanged for bonds of the new issue, in fully registered, or coupon registered or coupon bearer form carrying interest payable 1st May and 1st November of each year of the duration of the loan, the first interest payment accruing and payable 1st May, 1923. Bonds of the new issue will be sent to the banks for delivery immediately after receipt of the surrendered bonds.

The bonds of the maturing issue which are not converted under this proposal will be paid off in cash on the 1st December, 1922.

W. S. FIELDING,
Minister of Finance.

Dated at Ottawa, 8th August, 1922.



Wire Rope

All Constructions—All Sizes—All Lengths

Suitable For

CRANES—DERRICKS—STEAM SHOVELS—DREDGES
COALING TOWERS—TOWING—MOORING ETC.

We know the best rope to recommend for each particular requirement.
Let us advise you

THE DOMINION WIRE ROPE CO., LIMITED

Head Office: MONTREAL

Branches: TORONTO, WINNIPEG

GENERAL SERVICE CARS

**OTIS
DUMP CARS**
PATENTED

THE MOST
PRACTICAL CAR
FOR ALL
BULK FREIGHT.

DUMP THE
MATERIAL AND
SAVE TIME
AND MONEY.
ALWAYS READY
FOR USE.



THERE ARE
THOUSANDS OF
OTIS CARS IN USE
IN COAL AND
GENERAL SERVICE.
A SIMPLE EASY
OPERATING
LEVEL FLOOR
GONDOLA CAR
THAT DUMPS
THE ENTIRE LOAD.

Made in All Sizes and
Capacities for Regular
or Special Require-
ments.

The HART-OTIS CAR CO., Limited, MONTREAL

—SOLE PATENTEES FOR GENERAL SERVICE CARS FOR CANADA—

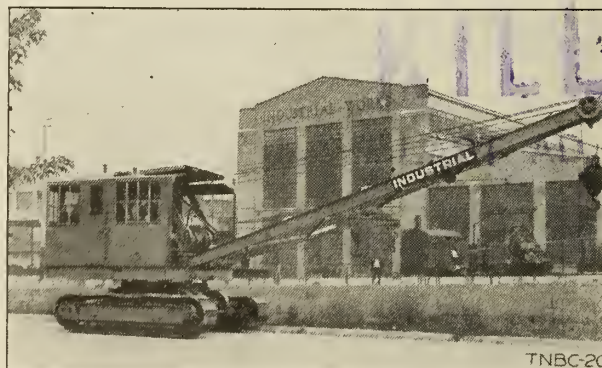
"Industrial" Crawling Tractor Cranes

This Crane has been de-
veloped to meet the need
for a full revolving crane
which can be operated in-
dependently of rails.

Ideal for handling coal,
sand, gravel and slag with
grab bucket.

Equipped with gasoline
engine.

One man operated.



This Crane, with half a
century of crane building
success behind it, is pre-
eminently adapted to the
needs of many.

The utmost care has been
taken to combine the ne-
cessary strength and light
weight.

We would be glad to tell
you all about this outfit.

We can furnish "Industrial" Locomotive and Wrecking Cranes of all Capacities
Pile Drivers—Pillar Cranes—Buckets.

Branch:
**108 Mail Building
TORONTO**

F. H. Hopkins & Co.
Limited

Head Office:
MONTREAL

Tested Processes in File Making

In the course of fifty years specialization in file making we have developed processes that ensure uniform quality in our files.

When you order one of the following brands, you get the result of fifty years' experience and perfected processes.

Kearney & Foot
Great Western
American
Arcade
Globe

**NICHOLSON
FILE COMPANY**
PORT HOPE ONTARIO



Don't take chances

—Use 2A Semaphore Oil

DON'T permit your signal machinery to be gummed up with inferior lubricating oil, you know what the results are in failures and shortened life of the apparatus.

The amount of lubricating oil required for your signals is small, the cost of the best lubricant is an insignificant item, the importance of it is paramount.

Model 2A Semaphore Oil gives efficient lubrication at 60° below zero—it retains its viscosity at high temperatures, in other words its lubricating qualities are not impaired by sudden changes in temperature from the highest to the lowest points reached in any climate.

It is a high-grade lubricant especially selected for signal service. It is the result of careful work and study by our engineers in cooperation with the foremost lubricating experts of the country.

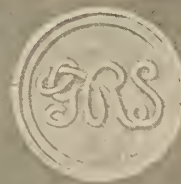
For your protection and convenience, 2A Semaphore Oil is furnished in quart cans bearing our label; every can being filled and sealed in our works with oil that has passed our rigid tests.

Prevent trouble
Use 2A Semaphore Oil
Order it today

GENERAL RAILWAY SIGNAL COMPANY
OF CANADA LIMITED

LACHINE

QUEBEC





BETTER SERVICE

"Better Service" in electric railway operation means more cars, shorter headways and shorter running time.

You may not always be able to get more cars, but you can give the shorter headways and better running time just the same.

How? By speeding up the cars you have, so that the same car will come around oftener, get the patrons there faster and carry more of those patrons in the day's run.

With what? *National Pneumatic Door and Step Control*, which eliminates time losses due to manual operation, and with *Safety Interlocking Door Control*, which eliminates time losses due to hand-cord signals, and to delays in starting the car immediately upon closing of the doors.

National Pneumatic Company

Originators and Manufacturers of

National Pneumatic

Door and Step Control

National Pneumatic

Motorman's Signal Lights

National Pneumatic

Safety Interlocking Door Control

National Pneumatic

Door and Step Operating Mechanism

National Pneumatic

Multiple Unit Door Control

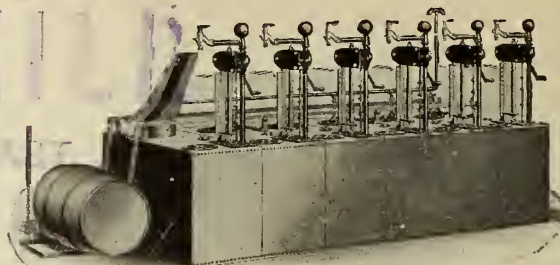
Make your peak periods produce maximum profit and efficiency

National Pneumatic Co., Inc.

50 Church St., New York Edison Bldg., Chicago

Works: Rahway, N.J.

Manufactured in Canada by Dominion Wheel & Foundries, Ltd., Toronto, Ont.



Reduce Storekeeping Costs

At central or local storehouses where oils are drawn almost constantly, speed is an important factor.

Years ago Bowser engineers recognized this and designed the Bowser quick return pump. The double cog rack assures easy operation whether light or heavy oils are handled. Quick return gears carry the return stroke—one turn being equal to five on the discharge. This feature alone cuts the pumping time in half.

A meter built into the pump head assures an accurate check on store records at all times. The sturdy construction assures dependable service for years.

Write today for Booklet C-14 and let Bowser engineers give you facts and figures from other railroads who have reduced storekeeping costs with Bowser Equipment.

Bowser Equipment is MADE IN CANADA by

S. F. BOWSER & CO., LTD.

Toronto - Canada

Branch Offices and Service Departments throughout Canada and in principal cities abroad.

BOWSER
ESTABLISHED 1885
ACCURATE MEASURING PUMPS

BOWSER PRODUCTS

For Handling Gasoline and Oils Wherever Sold or Used	
Filling Station Pumps and Tanks for Gasoline.	Carload Oil Storage Tanks.
Portable Tanks for Oil and Gasoline.	Dry Cleaners' Underground Naptha Clarifying Systems.
Storage and Measuring Outfits for Paint Oils, Kerosene and Lubricating Oils.	Richardson - Phenix Oil Circulating and Filtering Systems and Force Feed Lubricators.
Power Pumps.	

Write for Booklets



"Safety" Horizontal Exhaust Fan

There's a world of difference between "what is the price?" and "what will it cost?"—as every purchasing agent knows. And purchasing is seen at its best when "the right price" is arrived at as much by consideration of the probable after-costs as of the initial price. With a product taking its real value from its earnings as an investment—such a product as car lighting equipment, for instance—quality should be the decisive factor in determining the right price, because quality is that which determines earning power. Safety Car Lighting Equipment has to its credit long records of performance proving it to be the most economical, when measured by the true standards of economy.

"Made in Canada"

**THE
SAFETY
CAR HEATING AND
LIGHTING
COMPANY**

Montreal

New York

FLANNERY F.B.C. WELDED FLEXIBLE STAYBOLT

insure better and stronger boilers—eliminate leakage—decrease application costs, and greatly strengthen the wrapper sheet.

REMEMBER THIS--THREE styles of "F.B.C." WELDED SLEEVES replace thirty-two styles of Threaded Sleeves.



Can you afford to overlook F. B. C. Welded Staybolts for new equipment or repairs?

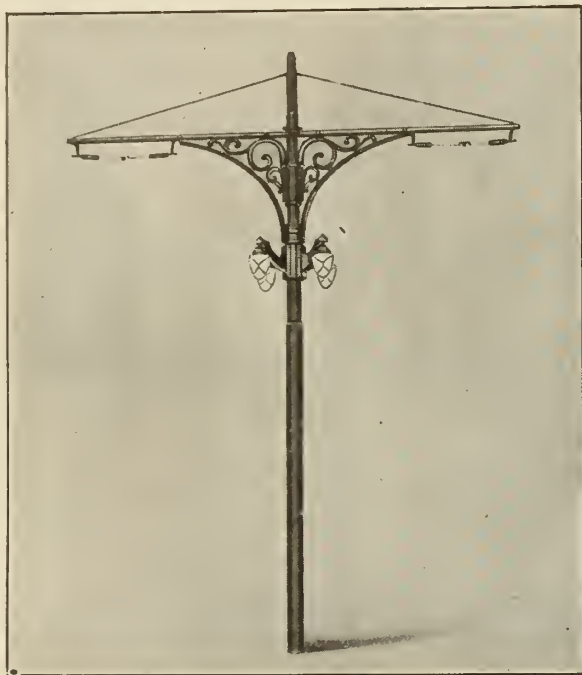
**FLANNERY
BOLT CO.**

Vanadium Bldg.,
PITTSBURGH, PA.

We also manufacture
Tate Flexible
Threaded Staybolts
— Forged Crown
Stays — Realock
Nuts.

*Manufactured and sold in
Canada by Canadian-Allis
Chalmers, Limited, Toronto.*

PAGE-HERSEY TUBULAR POLES



**MADE IN CANADA
FROM P&H PIPE**

All sizes and weights
for the various purposes required and
to suit all styles of fittings.

**NEAT — UNIFORM — ORNAMENTAL
DURABLE — STIFF — STRONG
ENDS CHAMFERED TO SHED
WATER**

Ideal for
**ELECTRIC LIGHT—POWER
TELEPHONE—TELEGRAPH
AND STREET RAILWAY LINES
AND FLAG POLES**

PAGE-HERSEY TUBES, LIMITED *Head Office: 100 Church Street - Toronto, Canada*



The Star Brass Works

Largest Exclusive Trolley Wheel Makers in the World.

Kalamazoo

Michigan



Canadian Representatives:

Northern Electric Company, Limited

Montreal - Halifax - Ottawa - Toronto - London - Winnipeg - Regina - Calgary - Vancouver

**Dawson & Co., Limited, 148 McGill St., Montreal
352 Donald St., Winnipeg**

CANADIAN STEEL-TIRE AND WHEEL COMPANY, LIMITED

Locomotive and Car Wheel Tires
Steel Tired Wheels of all kinds

Works:
Montreal East

Office:
Transportation Bldg., Montreal

—REFRIGERATION—

MARINE and LAND

Improved — “Clothel” System — Patented
(ETHYL. CHLORIDE)

Some recent orders:—

S.S. “Canadian Cruiser” and “Constructor”
S.S. “Canadian Freighter” and “Transporter”
C.O₂. Plant “Princess Louise” C. P. Ry. Co.

Send your Refrigeration problems to:—

The Canadian Clothel Refrigerating Co., Limited
17 St. John St., Montreal

For Railroad, Hotel and Steamship Upholstery

CHASE "CHASE" MATERIALS



The trade mark "Chase" stands for seventy-five years' leadership in manufacturing.

CHASE GOAT BRAND CAR PLUSH: This product, made from the fleece of the Angora Goat, has been the choice of railroads and steamship lines for over thirty years. It is DURABLE—FAST IN COLOR—RICH APPEARING—MOST SANITARY.

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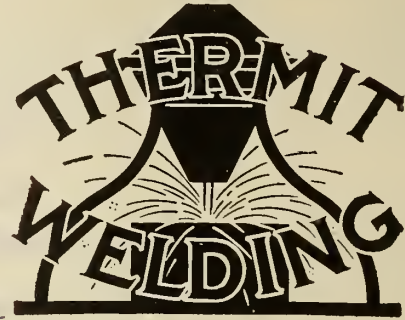
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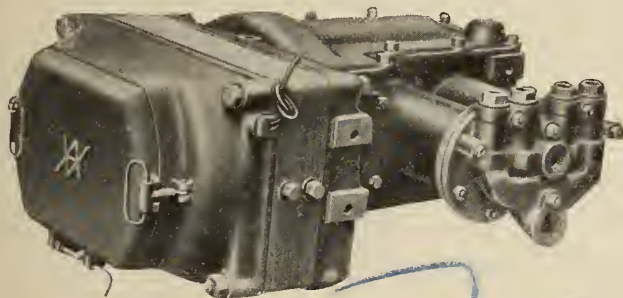
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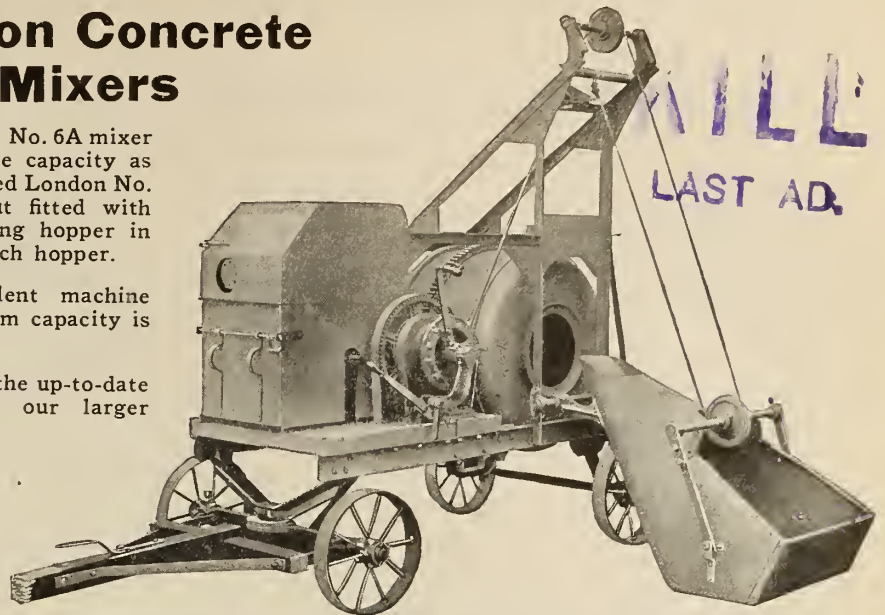
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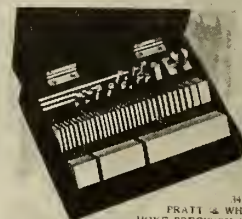
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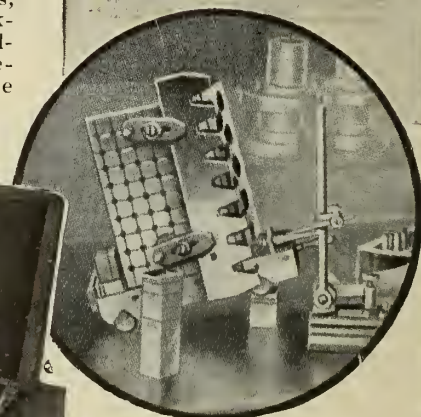
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Canadian Railway and Marine World

September, 1922

Locomotive and Train Employees' Hours of Service.

The Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen made a joint application to the Board of Railway Commissioners on May 3, 1919, as follows: "The locomotive enginemen have been for many years endeavoring to secure adequate regulations respecting the hours of service of railway employees. Provision has been made in the Railway Act, whereby the Board may make regulations limiting or regulating the hours of duty of any employees, or classes of employees. Believing that regulation of the hours of service of railway employees is in the interest of safety to the travelling public, and of the employees in connection with the operation of trains, on behalf of those we represent we hereby make application for an order of the Board prescribing such regulations as may be deemed necessary in connection therewith." The application was made under the provisions of the Railway Act, 1919, sec. 287, sub-sec. 1, paragraph J, which provides that: "The Board may make orders and regulations limiting or regulating the hours of duty of any employees, or class, or classes, of employees, with a view to the safety of the public and of employees."

On Sept. 27, 1919, the brotherhoods' officers requested the Board to let the application stand, owing to the matter requiring further consideration by them. The application was subsequently renewed Jan. 29, 1921, and notices were sent out by the Board for a hearing, in Ottawa on June 21.

In addition to the two brotherhoods above mentioned, the Railway Association of Canada, the individual Canadian railways, and the two train service brotherhoods were represented. The railways and the conductors' and trainmen's brotherhoods opposed the application. The Railway Association was represented by C. P. Riddell, General Secretary; the C. P.R. by E. P. Flintoft, Assistant General Solicitor; the Michigan Central Rd. by W. B. Kingsmill, Solicitor, and D. W. Donahue, Division Superintendent, St. Thomas, Ont.; the G.T.R. by W. C. Chisholm, K.C., General Solicitor, and C. G. Bowker, General Superintendent, Ontario Lines; the Canadian National Rys. by A. Fraser, General Solicitor, and D. Crombie, Transportation Assistant to Vice President, Operation and Maintenance; the Toronto, Hamilton & Buffalo Ry. by H. T. Malcolmson, Superintendent; the New York Central Rd. by H. Scott, Superintendent, Ontario Division; the Algoma Central & Algoma Eastern Rys. by W. H. Farrell, General Manager, Algoma Eastern Ry. The Brotherhood of Locomotive Firemen and Enginemen was represented by W. L. Best, Chairman, Canadian Legislative Board; the Brotherhood of Locomotive Engineers by Byron Baker, Legislative Representative, Ash Kennedy and W. G. Dewar; the Brotherhood of Railroad Trainmen by W. J. Babe, Canadian Vice President; the Order of Railway Conductors by S. N. Berry, H. K. Barker and R. A. MacDonnel; the G.T.R. members of the Brotherhood of Railroad Trainmen by J. Maloney,

System Chairman of Grievance Committee.

Byron Baker, in supporting the application, said that the requests were made primarily in the interests of safety, both of railway employees and the travelling public. He outlined the conditions prevailing in railway service, and maintained that it is for a man in locomotive or train service to be in good condition to carry out his work properly. He said that trains are often delayed for many hours, mentioning the worst cause of delay as being inexperienced firemen, and that if it were known what hazards long hours in train service create, it would not be necessary for him to appear and beg for an order to enforce reasonable hours.

W. L. Best said that the legislation desired would have the effect of protecting the employees against themselves. Employees would often go out when they had no business to do so, either to get home quicker, or to make more mileage, when their agreements gave them the right to book rest at the terminal. This brought up the question of what arrangements are in force between the railways and their employees in connection with rest, and Mr. Best stated that on the Grand Trunk Pacific, locomotive men and firemen are not required to leave the home terminal until they have had at least 8 hours rest if requested, such rest to be entered when booking in. At other terminals they are allowed 6 hours rest if requested, and are allowed to hold their locomotive, while if a man is called before his rest is up, he has the privilege of booking further rest. W. C. Chisholm stated that G.T.R. employees who have been on service for 12 hours or more may have 8 hours rest before they may be again called for service, and, provided advance notice is given the dispatcher, locomotive men on the road may have 8 hours rest after being in continuous service for 16 hours. It was also stated that the Canadian National Rys. and C. P.R. schedules provide that locomotive men may have the rest they desire either on the road, after 12 hours service, or at either terminal. Mr. Best claimed, however, that the schedule rules regarding rest do not bring about the desired result, and it soon became evident that the only reason they do not do so is because the employees in many instances do not take advantage of the rights the rules give them. Chief Commissioner Carvell said that he was not sure that if a man was in good physical condition and wanted to go out, he should be prevented from doing so, whereupon Mr. Best referred to rule G, which states that railway men must not use intoxicating liquor on duty, or frequent places where it is sold. He urged that this rule was made for the benefit of employees and all concerned, although there were lots of employees who considered they had a right to drink if they felt like it. In the same way, he urged, the proposed hours of service rule might be found to be in the interest of all concerned. No definite limitation on hours of service was mentioned in the

application. The U.S. law provides for a 16-hour limitation, and Mr. Best stated that while many of his lodges thought 14 hours would be a reasonable maximum, he was of the opinion that the 16-hour law should be put in at first, for the sake of uniformity with the U.S. practice. He said a brotherhood convention had resolved to petition the U.S. Congress for a reduction in the number of hours from 16 to 12 as a maximum, but that no action had been taken. While Mr. Best was giving testimony, it was stated that it would be practically impossible to have the locomotive men's hours of service regulated, without the same regulations applying to the trainmen. He agreed to this, and said that the proposed regulations would, in addition to protecting his men against excessive hours and against themselves, protect them against other employees whose movements would affect them.

The conductors' and trainmen's representatives opposed the application. On behalf of the conductors, S. N. Berry said that it was felt that it would be quite inconsistent to rob a man of his individuality and make a machine of him rather than a human being. He pointed out that the conductors' contracts with the various railways provide for rest rules, and, as in the case of the locomotive men, they are the judges of their own condition. He said: "If a man cannot judge his own physical condition, I am sorry for him, and I do not think he would make a desirable railway employee, especially in the important positions we are representing here today." In connection with the application of the 16-hour law in the U.S., he said that it costs his organization a great deal of money, operates to reduce the men's earnings, denies them the comfort of their homes, and does not give them any real relief. He said the idea of a train crew getting within a few miles of home with their train, and then being tied up under the law, did not appeal to him, and Canadian employees did not want such a law. W. J. Babe, for the trainmen, stated that the schedule agreements covering hours of service and opportunity for rest are eminently satisfactory, and that every trainmen's lodge had gone on record as opposed to the hours of service regulation asked for. H. K. Barker, General Chairman, Canadian National Rys., Western lines conductors, said that his men could book rest after 12 hours on way freight and 14 hours on through freight; he said he felt sure that if a 16-hour law was passed the railways would try to remove the privileges now enjoyed by the men, and for that reason the men did not want to see the proposed regulation introduced.

C. P. Riddell, General Secretary, Railway Association of Canada, pointed out that the regulations would have to apply to complete train crews and not alone to locomotive men; he outlined how operating costs would be increased if the men were not permitted to take trains through, by sidetracks in the neighborhood of terminals becoming congested, and by the expense of sending out addi-

tional crews to bring in the trains that were tied up. He claimed that as the present schedules give the men opportunity for all the rest they need, and that the majority of the men concerned oppose the regulation proposed, it would be undesirable from the employees' viewpoint as well as from that of the railways.

E. P. Flintoft, Assistant General Solicitor, C.P.R., argued against the application along the same lines, and added that

the idea of tying up trains between terminals was undesirable, for the reason that the men could not get proper rest on the road anyway. He emphasized the additional unnecessary cost in railway operation which would be caused.

C. G. Bowker, General Superintendent, Ontario Lines, G.T.R., presented technical evidence to show that the proposed rules would be prejudicial to the interests of both the men and the railways. This was corroborated by D. W. Dona-

hue, Division Superintendent, Michigan Central Rd., St. Thomas, Ont., and D. Crombie, Transportation Assistant to Vice President, Operation and Maintenance, Canadian National Rys, who claimed that such a rule would add very materially to the cost of transporting grain when the annual peak load was being handled to the head of the Great Lakes.

After W. L. Best had been examined on the application, the hearing was concluded and judgment reserved.

Interstate Commerce Commission Orders Installation of Automatic Train Control.

Canadian Railway and Marine World for February, pg. 69, contained details of Interstate Commerce Commission's tentative order, requiring 49 specified U. S. railways to show cause why they should not equip one division of each of their respective lines with some form of automatic train control by July 1, 1924. Subsequent hearings held by the Commission, at which the majority of the roads advanced reasons as to why the installations should not be made were dealt with in Canadian Railway and Marine World for May, pg. 242. The chief reasons advanced by the roads were as follows: 1. There has not been any automatic train stop or train control device developed to an extent which would justify the installation contemplated. 2. The railways have not had any opportunity to make adequate service tests of devices which differ fundamentally in their principles of operation from those now installed, and in operation under service conditions. 3. Independently of the tentative order, every reasonable effort is being made by the railways to co-operate with the Commission for the purpose of testing and developing devices which will best meet operating requirements. 4. The order requires a much greater number of, and more extensive, installations than are warranted, in view of the present state of the art. 5. The costs of installation and maintenance of automatic train stop or train control devices are high, and not within the carrier's financial ability at present. In this connection it was argued that the enforced installation of automatic train control would prevent many of the roads specified from going ahead with installations of automatic block signals which were contemplated, and it was argued that signal installations are more important than train control, as the former, in addition to providing for safety of operation, are large factors in increasing line capacity.

Notwithstanding the objections so strenuously put forth by the railways at the hearings, the Commission ordered, on June 13, that the tentative order of Jan. 10 be made absolute, and that the 49 railways specified should proceed forthwith to equip the designated division on each with automatic train control, the installations to be completed by Jan. 1, 1925, six months later than specified in the tentative order. The roads and divisions named in the order are identical with those in the tentative order, with the exception that the Cincinnati, New Orleans & Texas Pacific Rd. has been directed to equip between Cincinnati and Chattanooga, instead of between Cincinnati and Knoxville, and the St. Louis-San Francisco has been directed to equip between Springfield, Mo., and Tulsa, Okla., instead of between Springfield and St. Louis. The Michigan Central Rd. is ordered to equip between Chicago and

Detroit, and the Pere Marquette Rd. between Grand Rapids and Detroit. The railways are ordered to begin without delay to select the devices to be used, and to file monthly reports with the Commission, beginning on or before Jan. 1, 1923, showing in detail the progress made.

In a report accompanying the order, the Commission said: "The cost per mile of road and per mile of track cannot be stated generally. The cost for locomotive apparatus and for roadside or track apparatus will therefore be given, together with the cost of the installations which have been under observation. From the various figures submitted by respondents and by proprietors and manufacturers, it appears that the cost of locomotive apparatus for an intermittent control device of the ramp type ranges from \$400 to \$1,000; for an intermittent control device of the induction type, from \$375 to \$2,100; and for a continuous control device, induction type, from \$1,000 to \$3,000. Assuming one indication point per block, the cost of track equipment of the ramp type is from \$200 to \$550 per block; of the induction type, intermittent control, from \$400 to \$2,000, and of the induction type, continuous control, from \$300 to \$1,000. On the Chicago & Eastern Illinois installation the average maintenance cost per locomotive per month over a three months period was \$13.02; per ramp per month, over the same period, \$2.74, and per mile of track per month, \$2.27. On the Chesapeake & Ohio installation the average per locomotive per month over a six months period was \$12.23; per ramp per month, over same period, \$5.68, and per mile of track per month, \$18.12. On the Chicago, Rock Island & Pacific installation, the average per locomotive per month, over a nine months period, was \$110.33; per ramp per month, \$12.43, and per mile of track per month, \$9.44."

The Commission's report also said: "From Jan. 1, 1906, to Dec. 31, 1921, there were 26,297 head-on and rear-end collisions on U.S. railways. These resulted in death to 4,326 persons and injury to 60,682. The damages to railway property alone amounted to \$40,969,663. The annual average of these collisions were 1,643, the average number killed 270, and the average number injured 3,792. The average damage to railway property amounted to \$2,560,603 a year. Losses due to damage to lading are not included in these figures. If to the large property losses there be added the death losses, and the damages paid for persons injured, the total amount will be very great."

Under the Commission's order the permissive feature common to some train control systems already developed, and which is provided for in the American Railway Association's joint committee's recommendations, will not be allowed.

This feature provides for a locomotive man being able to forestall an automatic brake application, and proceed when he knows that it will be all right for him to proceed, even though the automatic stop is against him. The Commission has ruled that such a feature would make the automatic control system subject to the locomotive man's judgment, and, observing that this factor of human judgment is the one which automatic train control is designed to eliminate, has ruled that any system adopted must not include the permissive feature.

The definitions, functions, requirements and specifications of a train control system were set out by the Commission in an appendix to its order. They were based upon facts developed by the Commission in its investigations, upon the requisites laid down by the Block Signal and Train Control Board in its report in 1910, the requisites of the Railway Signal Association reported in 1914, the requisites adopted by the American Railway Association in 1914, the recommendations made by the U.S. Railroad Administration Train Control Committee, in 1919, and those adopted by the American Railway Association's joint committee on automatic train control in March, 1921.

The Commission, in its order, has recognized the possibility of installing an automatic train control system unaccompanied by an automatic block signal system, by ordering that the installation of automatic train control devices shall not necessarily be limited to roads or portions of roads already equipped with automatic block signals.

The C.P.R.'s Quebec District Association officials held their regular monthly meeting in Quebec, recently. Following breakfast at the Chateau Frontenac, the business meeting was held, at which Col. J. S. Dennis, C.M.G., Chief Commissioner of Colonization & Development, spoke on matters connected with his department; S. Gidlow, General Secretary, St. John's Ambulance Department, C.P.R., spoke on First Aid; and F. R. Haney, Claims Adjuster, spoke on the prevention of accidents. The members were then given luncheon on the C.P.R. s.s. Empress of France. Following this the Harbor Commissioners took them round the harbor, and to the Quebec bridge; the Quebec Ry., Light & Power Co. conveyed them to Ste. Anne de Beaupre and to Montmorency Falls, dinner being served at the Kent House. On returning to Quebec they made a tour of the city in observation cars.

Locomotives on United States Railways, increased in the seven years ending with 1913, by 23½% and their total tractive power increased 50%. In the seven years ending with 1920 the number of locomotives increased only 2.3% and their tractive power only 23%.

Canadian National Railways' Locomotive Terminal, Longue Pointe, Montreal.

Complete new locomotive terminal facilities for the Canadian National Rys. at Longue Pointe, Montreal, were finished early this year. They were made necessary by increasing business and the inadequacy of the original terminals, which consisted chiefly of a 4-stall frame locomotive house and a frame coaling trestle, built in 1903. The old facilities were located south of the C.N.R. L'Assomption Subdivision line, about 1,000 ft. east of First Ave., near the easterly end of Ontario St., while the new facilities have been constructed in a new location, north of Boyce St., practically in line with the old layout. The accompanying location plan, fig. 1, shows the new terminal facilities to the northwest of the L'Assomption Subdivision line, the old layout being shown southeast of that line. The yard to the right of the old locomotive terminal is used as a general classification yard, and the track at the extreme right connects with the Harbor Commission's tracks and industrial spurs. The new terminal, as shown in the accompanying layout plan, fig. 2, consists of locomotive house, turntable, and outside track arrangement, machine shop, coaling plant, water tank, stores building, bunkhouse, ash handling facilities, and passenger car yard.

The locomotive house, of the part circle type, is of brick, on concrete foundations, and has 10 stalls. Each stall is 14 $\frac{3}{4}$ ft. wide at front, 21 $\frac{3}{4}$ ft. wide at rear, and 100 ft. deep. The house is completely equipped with tender truck, locomotive truck and driver wheel pits. The locomotive pits, 58 ft. long, are of concrete, and sloped for adequate drainage, and the house is equipped with cinder floor between pits. The roof is of 2-in. t. and g. sheathing, covered with felt, tar and gravel, and its slope is $\frac{3}{4}$ in. in 1 ft. The house is equipped with wood ventilators and wood smoke jacks, and is piped for steam, water and compressed air. The turntable is of the through type, 86 ft. long over all, carried on a concrete centre pier and circle wall. The table is operated by compressed air motor. The locomotive house is fitted with tin clad doors.

The machine shop, located in relation to the locomotive house, as shown in fig. 2, and connected thereto by tin clad fire doors, is of brick on concrete foundations, 21 in. thick. The shop is 53 x 127 ft. The roof, of 2-in. plank, tar and gravel covered, is supported by steel central columns set on concrete piers, and has a slope of $\frac{3}{4}$ in. in 1 ft. The shop is provided with a concrete floor, 6 in. thick, and the large window space affords adequate natural lighting. It is a one-bay structure and has a monitor, running longitudinally, fitted with large window area and ventilation facilities. Lavatory facilities are provided in the shop.

The boiler room portion of the machine shop is 52 ft. 9 $\frac{3}{4}$ in. x 37 ft., and is equipped with three boiler pits and concrete piers. Space for cold storage, and facilities for economical handling of coal, are provided. The boiler room is fitted with 2 locomotive type boilers, of about 60 h.p. each, fitted with automatic boiler feed, and the necessary pumps, compressors, etc., are also installed. The heating system for the terminal is of the sealed automatic type, supplied with steam from the boilers in the boiler room. In addition to heating the locomotive house and machine shop, the same system also heats the stores building and bunkhouse,

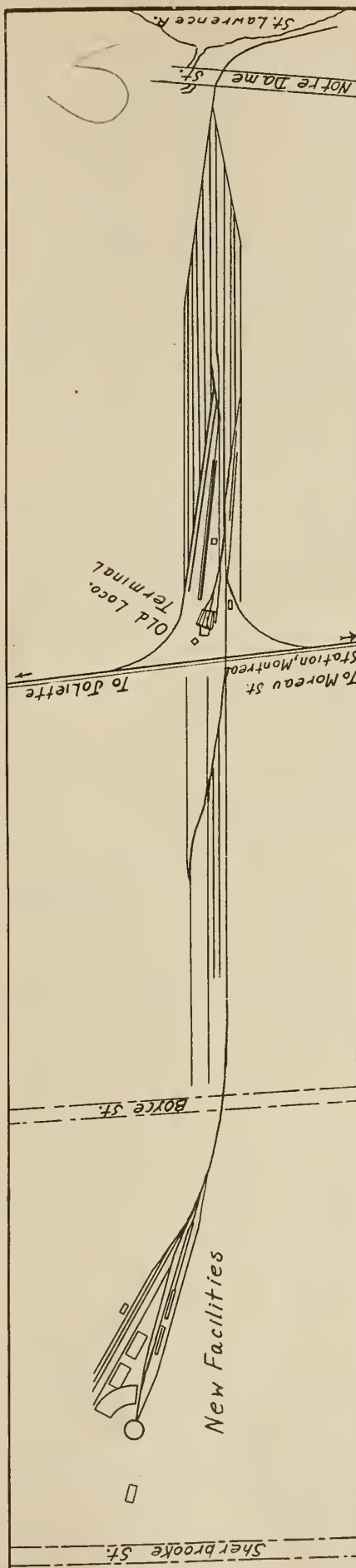


Fig. 1 Location of New and Old Locomotive Terminals, Canadian National Rys., Longue Pointe, Montreal.

and supplies steam to the lines used for heating passenger equipment occupying tracks in the car yard. Drainage in the machine shop and boiler room is provided by pipe laid in conduit. The machine shop is equipped with the usual complement of lathes, drills, shapers, etc., necessary for efficient handling of running repairs.

The stores building, 32 x 93 ft., is of brick veneer on concrete foundations, and equipped with roof covered with asbestos shingles. It has a basement, a portion of which is used for oil tanks, which are provided with pumps located on the main floor. The remainder of the basement is used for storage of material of the heavier class, and the main floor equipped with bins and shelving, is used for storage of locomotive supplies. The stores building also includes the locomotive foreman's office, and locomotive crew registering room, and lavatories.

The coaling plant, of 200 tons capacity, is of wood, on concrete foundations, and delivers coal to locomotives on two tracks. It includes an elevated trestle, up which the cars are run, and from which the coal is dumped to the hopper below and elevated by continuous chain buckets. The mechanism is operated by electric motor. The sandhouse is of frame and is equipped with a concrete firewall between the sand store room and the drying room. The sand is elevated to the sand pocket on the coal chute by compressed air pressure, and delivered to locomotives on either coaling track by the gravity system. The ash handling facilities are of the depressed track type. The locomotive tracks are supported on cast iron columns located 5 $\frac{1}{2}$ ft. c. to c., set on concrete piers, and the ashpit tracks are 3 ft. 8 in. below the level of the locomotive tracks.

In addition to the outside tracks for locomotive handling and storage, the terminal includes 3 car tracks, with capacity for storage of 38 passenger cars. Each track is equipped with air, water, and steam connections, the air and steam being supplied from the boiler room in the machine shop.

The water supply is obtained from the City of Montreal, the connection having necessitated laying a main from St. Catherine St. to Boyce St., on First Ave., and along Boyce St. to the railway property, where a meter chamber has been built and a meter installed. From this point to the different buildings, 6-in. cast iron pipe, with lead joints, has been laid. In addition to the extension of the water mains, the city built a sewer on Boyce St., to which the C.N.R. connected an 18-in. vitrified tile sewer, running from the turntable pit to Boyce St., with connections from the different buildings. Manholes have been located 150 ft. apart. The water tank, consisting of wooden tub and framework, supported on concrete foundations, is of 60,000 imp. gal. capacity, and the standpipe, of the Sheffield-Johnson no. 10 type, is supported on concrete foundations.

As shown by fig. 2, the terminal has two inbound and two outbound locomotive running tracks, in addition to the car yard tracks, elevated tracks to coaling plant and depressed tracks to ashpit. In addition to the construction of tracks in the terminal itself, it was necessary to rebuild the line between the C.N.R. main line and Boyce St., reducing the grade and relaying 80-lb. rail, which is also laid throughout the yard. The layout

contains approximately 11,000 ft. of trackage, of which 3,000 ft. are passenger car tracks. The grading for the tracks involved the handling of 7,000 cu. yd. of material, principally clay.

The terminal is used for handling of locomotives operating on the Quebec District, Montreal Division, L'Assomption Subdivision, which extends from the Moreau St. station, in the eastern end of Montreal, to Joliette, Que., 36.3 miles, and also for locomotives running past Joliette and operating on the St. Lawrence Subdivision, which extends from Joliette to Quebec, 140.2 miles. At present from 9 to 15 locomotives a day are handled at the terminal.

The construction of the new terminal was begun in Sept., 1920, and was completed in Jan., 1922. With the exception of the coaling plant, sandhouse and turntable, all of the work was done by the railway's own forces. The coaling plant was supplied by Williams & Wilson, Montreal, and the turntable by Canadian Bridge Co., Walkerville, Ont. The general layout of the terminal was designed under A. F. Stewart, then Chief Engineer, Eastern Lines, Canadian Northern Ry., Toronto, now Chief Engineer, Canadian Government Rys., Moncton, N.B. The buildings were designed by G. C. Briggs, then Architect, Eastern Lines, Canadian National Rys., Toronto, now

Rate on Blister Copper from Port Colborne to U.S. Points.

The International Nickel Co., refining nickel at Port Colborne, Ont., and Constable Hook, N.J., complained in Jan., 1921, to the U.S. Interstate Commerce Commission against the Grand Trunk Ry., and the Director-General of U.S. Railroads, as agent, that the 5th class rate of 35c. charged on 26 carloads of blister copper from Port Colborne to Constable Hook and Chrome, N.J., was unreasonable, in that it exceeded the subsequently established rate of 23.5c. Reparation was sought. Three of the shipments moved over the G.T.R. to Suspension Bridge, N.Y., 22 miles, and thence over the Lehigh Valley Rd. to Constable Hook, 466 miles. Other shipments moved over the G.T.R. to Black Rock, N.Y., 20 miles, thence over the Delaware, Lackawanna & Western Rd. to Taylor, Pa., and thence over the Central Rd. of New Jersey to Constable Hook and Chrome, 452 and 458 miles respectively.

Complainant began operating its plant at Port Colborne early in the summer of 1918, and on July 30, 1918, asked defendants to establish a commodity rate on blister copper from Port Colborne to the destinations mentioned above, stating

tion of the Interstate Commerce Commission's jurisdiction, it was stated in the decision that "In view of the variance of opinion entertained with respect to our jurisdiction in the premises, it seems desirable that our ruling in this case, which is fairly characteristic of those presenting the same issue of law, should be reviewed by the courts, in order that the extent of our jurisdiction may be judicially established for our guidance in similar cases as they may arise." Commissioner Esch dissented from the majority conclusion, and stated, "Whatever may have been the rule prior to the enactment of the Transportation Act, 1920, an amendment therein made to the Interstate Commerce Act specifically restricts our jurisdiction over foreign commerce to that part of the transportation taking place within the U.S. It is clear from the report of the majority that the unreasonableness of the through rates assailed inhered in the divisions received for that part of the transportation which took place within Canada, and that the charges received for that part of the transportation within the U.S. were not unreasonable. In my opinion we cannot undertake to render a decision affecting the charges for transportation beyond the borders of the U.S."

Canadian National Railways Pension Fund.

The following questions were asked in the House of Commons recently, by C. A. Gauvreau, Temiscouata, Que., and answered by the Minister of Railways:

Q.—Is it the intention of the Railways and Canals Department or "the Board of Commissioners of the Canadian National Rys." to reorganize the pension fund of its railways so as to increase the pensions to employees, and if so, when? A.—Investigation is being conducted, and it is hoped shortly to present for consideration a complete pension scheme for the Canadian National Rys.

Q.—Is it the Railways Department's intention to increase the pension paid to old employees of the Intercolonial Ry., and if so, when? A.—The current estimates of the Department include a vote of \$50,000, the same as in 1921, to provide for increasing the minimum compensation from \$20 a month to \$30, for employees who have been superannuated under the Intercolonial Ry. Provident Fund.

New Non-temper Brittle Steel.—H. H. Ashdown, of Sir W. G. Armstrong, Whitworth & Co., Manchester, in a paper presented recently before an English technical association, gave information concerning a new steel which he claimed to be superior to any of the modern alloy steels, in its mechanical, physical and general properties. He stated that it is impossible to make it temper brittle. He pointed out that while many nickel chrome steels possess excellent mechanical properties, they reveal inconsistency in impact tests, and that the new steel, known as "Vibrac," in addition to exhibiting better mechanical properties, particularly in regard to elastic limit, could, if subjected to any normal treatment after tempering, be either furnace-cooled or cooled in air, thus cutting out all risk of distortion, and yet give higher impact values than nickel chrome steels treated under the most favorable conditions.

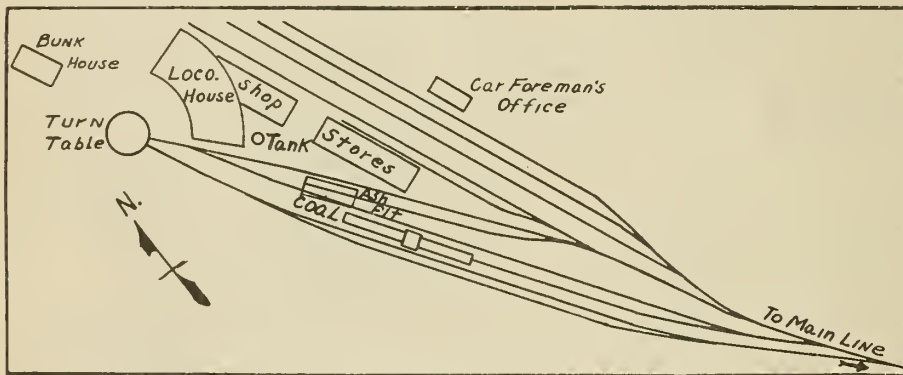


Fig. 2. Layout Plan, Canadian National Rys. Terminals, Longue Pointe, Montreal.

Architect, Western Lines, C.N.R., Winnipeg. The construction work was done under the direction of H. T. Hazen, acting Chief Engineer, Canadian Northern Ry. lines east of Port Arthur; R. A. Baldwin, District Engineer of Construction, being in direct charge of grading and track work, and E. Hedley, Superintendent of Buildings, being in charge of building construction.

G.T.R. Dining Car Conductor Fined.—J. H. Lovell, conductor of a G.T.R. dining car, was fined \$400 and costs, by the London, Ont., Police Magistrate, recently, for having 28 bottles of whisky in the International Limited's dining car. He pleaded that he knew nothing of the presence of their liquor, but the magistrate held that as he was in charge of the car he must be held responsible. It is said the case will be appealed.

G.T.R. Recreation Club.—A recreation and athletic club for the company's office staff on the Island of Montreal was formed recently with the following officers: Honorary President, H. G. Kelly; Honorary Vice Presidents, W. D. Robb, J. E. Dalrymple, R. S. Logan, F. Scott, J. M. Rosevear, D. E. Galloway; President, E. R. Harwood; Vice Presidents, E. W. Burns, A. S. Mitchell, Mrs. W. J. Gaudion; Secretary, I. S. Edmunds; Treasurer, H. P. Walsh.

that shipments would begin to move late in August. A joint commodity rate of 23.5c. minimum 40,000 lbs., became effective March 10, 1919. At the hearing it was shown that the G.T.R. hauled the shipments a little more than 20 miles, or less than 5% of the total distance, but received as its division 35% of the total revenue. The commodity rate established, subsequently, was divided in the same manner. In view of the G.T.R.'s refusal to participate in the hearing, no evidence was presented in defence of the disproportionate division received by it. It was contended that the division received by the lines within the U.S., 22.7c. for a haul of about 460 miles, was not excessive or unreasonable.

The committee's decision, given recently, states that the charges assailed were unreasonable to the extent that they exceeded those that would have accrued at a rate of 23.5c. per 100 lb.; that complainant made the shipments as described and paid the charges thereon; that it had been damaged in the amount of the difference between the charges paid and those found reasonable, and that it is entitled to reparation from the Director General of Railroads, as agent, with interest.

On account of part of the haul being in Canada, which brought up the ques-

Birthdays of Transportation Men in September.

Many happy returns of the day to:—
Wm. Aird, ex Master Mechanic, Locomotive Works, G.T.R., Montreal, now of Barrie, Ont., born in London, Eng., Sept. 3, 1843.

W. B. Bamford, District Freight Agent, C.P.R., Nelson, B.C., born at Belleville, Ont., Sept. 10, 1863.

O. E. Becker, Chief Dispatcher, Canadian National Rys., Saskatoon, Sask., born at Montreal, Sept. 20, 1873.

G. T. Bell, Passenger Traffic Manager, G.T.R., Montreal, born there, Sept. 7, 1861.

E. J. Blais, Foreman Tinsmith, Canadian National Rys., Transcona, Man., born Sept. 26, 1876.

V.T. Boughton, ex-Assistant Superintendent, Chapleau Division, Algoma District, C.P.R., Chapleau, Ont., now of New York, born at Troy, N.Y., Sept. 9, 1888.

E. R. Bremner, ex-Division Freight Agent, Ottawa Division, G.T.R., Ottawa, born at Toronto, Sept. 9, 1875.

W. B. Bulling, ex-Assistant Freight Traffic Manager, Eastern Lines, C.P.R., Montreal, born there Sept. 16, 1858.

W. E. Burke, General Traffic Manager, Canada Steamship Lines, Montreal, born at Belleville, Ont., Sept. 23, 1881.

A. D. Cartwright, Secretary, Board of Railway Commissioners, Ottawa, born at Kingston, Ont., Sept. 30, 1864.

A. S. Dawson, Chief Engineer, Natural Resources Department, C.P.R., Calgary, Alta., born at Pictou, N.S., Sept. 6, 1871.

W. E. Duperow, General Passenger Agent, Canadian National-Grand Trunk Pacific Rys., Winnipeg, born at Stratford, Ont., Sept. 4, 1872.

R. S. Elworthy, General Agent, Passenger Department, Ocean Traffic, C.P.R., Chicago, Ill., born at London, Eng., Sept. 10, 1877.

✕ H. G. Foreman, Assistant Treasurer, Canadian Northern Ry. System, Toronto, born there, Sept. 2, 1882.

C. B. Foster, Assistant Passenger Traffic Manager, Eastern Lines, C.P.R., Montreal, born at Kingston, N.B., Sept. 30, 1871.

G. J. Fox, Superintendent, Calgary Division, Alberta District, C.P.R., Calgary, Alta., born at Montreal, Sept. 24, 1883.

W. H. Gordon, Trammaster, C.P.R., Field, B.C., born at Montreal, Sept. 21, 1875.

R. S. Gosset, Auditor of Disbursements, Canadian Northern Ry., Toronto, born there, Sept. 28, 1879.

E. Goulet, Agent, C.P.R., New Westminster, B.C., born at Quebec, Que., Sept. 1865.

W. B. Howard, District Passenger Agent, C.P.R., Toronto, born at Chatham, N.B., Sept. 15, 1877.

W. R. Howard, dispatcher, C.P.R., Brownville Jct., Me., born at St. Andrews, N.B., Sept. 14, 1871.

Lt. Col. J. E. Hutcheson, General Manager, Montreal Tramways Co., Montreal, born at Brockville, Ont., Sept. 15, 1858.

G. C. Jones, Assistant to President, G.T.R., Toronto, born at Clyde, N.Y., Sept. 24, 1869.

C. B. King, Manager, London St. Ry., London, Ont., born at Galena, Ind., Sept. 12, 1871.

S. King, London, Ont., formerly in car building service, born at Thetford, Norfolk, Eng., Sept. 12, 1853.

C. C. Labrie, Purchasing Agent, Canadian National Rys., Vancouver, B.C., born at Quebec, Que., Sept. 8, 1882.

R. E. Larmour, General Freight Agent, Eastern Lines, C.P.R., Montreal, born at Brantford, Ont., Sept. 26, 1868.

C. D. MacKintosh, Superintendent, Lethbridge Division, Alberta District, C.P.R., Lethbridge, Alta., born at Auckland, New Zealand, Sept. 24, 1882.

W. A. Mather, General Superintendent, Saskatchewan District, C.P.R., Moose Jaw, born at Oshawa, Ont., Sept., 1885.

J. A. Morice, Foreign Freight Agent, C.P.R., Toronto, born at Stratford, Ont., Sept. 17, 1878.

M. B. Murphy, Manager, Winnipeg Joint Terminals, Winnipeg, born at Napa, Cal., Sept. 11, 1866.

J. Paul, District Freight Agent, Canadian National Rys., Winnipeg, born in Euphrasia Tp., Ont., Sept. 13, 1858.

W. J. Pickrell, Master Mechanic, New Brunswick District, C.P.R., St. John, born at London, Ont., Sept. 15, 1880.

H. T. Rawlings, ex-Lake Forwarding Agent and Fuel Inspector, Canadian National Rys., now Vice President, Baier Coal Co., Cleveland, Ohio, born at London, Eng., Sept. 27, 1883.

C. S. Richardson, District Freight Agent, C.P.R., Buffalo, N.Y., born at New York, Sept. 26, 1870.

W. D. Robb, Vice President, Transportation and Maintenance, G.T.R., Montreal, born at Longueuil, Que., Sept. 21, 1857.

A. Scott, Division Engineer, Island Division, Canadian National Rys., Charlottetown, P.E.I. born at Kirkcaldy, Scotland, Sept. 6, 1884.

F. A. Shaw, General Agent, Freight Department, Canadian National-Grand Trunk Rys., Cleveland, Ohio, born at Smiths Falls, Ont., Sept. 29, 1872.

J. M. Silliman, ex-Engineer, Maintenance of Way, Susquehanna Division, Delaware & Hudson Rd., Oneonta, N.Y., now of Fabre, Que., born at Easton, Pa., Sept. 8, 1885.

F. W. Sterling, ex-District Freight Agent, C.P.R., Edmonton, Alta., now of Quelch and Sterling, Vancouver, B.C., and Shanghai, China, born at Thornbury, Ont., Sept. 13, 1879.

Hon. L. C. Webster, President, Webster Steamship Co., and First Vice President, Dominion Marine Association, born at Quebec, Que., Sept. 30, 1871.

F. G. Wood, Ontario Freight Agent, Canadian Government Merchant Marine, Toronto, born there, Sept. 15, 1890.

H. A. Young, Northern Navigation Co., Sarnia, Ont., born at Brooklyn, N.Y., Sept. 1, 1864.

Speedy Travelling.

Simpson—"Well, talking about railway travelling, I was in a train the other day that travelled 60 miles within the hour."

Smart—"Yes, that's pretty quick travelling, but I did better than that yesterday. You know how far it is from Edinburgh to London? Well, I went into the station at Edinburgh and bought a third-class ticket, and, would you believe it, I came here to London in a second!"—Tit-Bits.

The Association of Railroad and Steamship Agents, of Boston, Mass., visited Quebec City recently. About 65 members of the association with ladies were present, and were taken in charge by J. S. Thom, President, Quebec Transportation Club. The party was taken to Montmorency Falls and St. Anne de Beaupre, and was entertained at luncheon at the Chateau Frontenac. Part of the programme arranged had to be abandoned on account of rain.

Railway Companies' Liability as Common Carriers.

The Supreme Court of Canada gave judgment recently on the New York Central Rd. Co.'s appeal against the Quebec Court of Appeal's decision confirming the Quebec Superior Court judgment giving \$2,600 damages, with interest and costs, to Scotland Woollen Mills Co., Montreal, for goods lost in transit. The Scotland Woollen Mills Co., in Dec., 1917, bought from a firm in New York a lot of woollen goods valued at \$2,832.29, which were shipped in four cases from New York via the New York Central Rd. The railway accepted delivery Dec. 20, and issued a bill of lading. On examination in Montreal on arrival, the goods were found to be badly damaged, and three of the cases had apparently been opened and considerable of the goods removed. While in the customs premises several pieces of goods were removed by unknown persons from the fourth case. The railway company was sued for \$3,809.94, representing the cost of the goods short, and duty paid. The company pleaded that it delivered in Montreal the same goods in quantity and condition as were received in New York. The Superior Court found for the plaintiff, fixing the railway's liability at \$2,666.40, the value of the goods actually short. The Court of Appeal confirmed the judgment. Justices Martin and Rivard dissented from this finding, considering that the damage should be fixed at \$1,800, instead of the larger amount. The Supreme Court, by a majority, affirmed the judgment, holding that the burden of proof was on the railway company, and that as it had no exculpatory evidence, it must be held liable. Sir Louis Davis dissented as to the amount of damages only. The judgment of the Superior Court therefore stands.

The Quebec Court of Appeal gave judgment recently on the Grand Trunk Ry. Co.'s appeal against the Superior Court's judgment giving Mrs. Rose Greenwood \$100 compensation for damage to baggage. She was a passenger by the G.T.R. from Montreal to St. Armand, and thence by stage to Phillipsburg. During transit her trunk was burst open and some of its contents stolen. She sued to recover \$327.50, but the Superior Court ruled that the company's liability was limited to \$100 by the conditions of the contract; that the damage and loss occurred on the railway line, and gave judgment for \$100. In the Court of Appeal, Justice Tellier, who delivered judgment, pointed out that in the light of the established jurisprudence on the point at issue, there was not a big principle of law at stake in the case. The whole question resolved itself into one of proof. Was the woman's trunk interfered with while in the company's possession? The Court was of opinion, from the facts disclosed, that it was; therefore the company was liable. The judgment of the Superior Court was confirmed with costs in both courts.

The American Locomotive Co. has delivered to the Union Pacific Rd. a mountain type locomotive which is stated to be the lightest in proportion to maximum horsepower capacity of any locomotive of this type yet built. The total weight is 345,000 lb., of which 230,000 are on drivers.

H. G. Foreman, Treasurer, not assistant Treasurer

Fire Prevention Regulations for Railway Companies.

The Board of Railway Commissioners passed general order 362, April 19, as follows:—Re general order 107, July 4, 1913, prescribing regulations to be adopted by railway companies for the prevention of fires. Upon reading the submissions filed by the Railway Association of Canada, on behalf of the railway companies interested; and upon the report and recommendation of the Board's Chief Operating Officer and Chief Fire Inspector, the Board orders as follows:—

1. That orders 3245, July 4, 1907; 3465, Aug. 14, 1907; 8903, Dec. 15, 1909; 15995, Feb. 16, 1912; 16570, May 22, 1912; and general order 107, July 4, 1913, are hereby rescinded.

2. Unless exempted by special order of the Board, every railway company subject to the legislative authority of the Parliament of Canada, the railway of which is under construction, or being operated by steam, shall cause all locomotives and other portable boilers, other than those using oil as fuel, used on the railway, to be fitted and kept fitted in good order with practical and efficient devices for arresting the escape of sparks or live coals, as hereinafter set forth:

(a) Every locomotive boiler equipped with an extension smokebox shall have installed therein, so as to extend completely over the aperture through which the smoke ascends, a double-crimped wire netting, the mesh of which shall not be larger than $2\frac{1}{2} \times 2\frac{1}{2}$ per inch of no. 10 Birmingham wire gauge; the openings of said mesh not to exceed a quarter of an inch and one 64th (that is seventeen 64ths) of an inch square when new. The condemning limit of the said netting shall be nineteen 64ths of an inch. Experimental or improved devices which are not in full accord with this clause shall be tried only on receipt of permission from the Board's Chief Operating Officer.

(b) Every locomotive equipped with a diamond stack shall be fitted with a cast iron deflecting cone and double-crimped wire netting, with a mesh not more than 3×3 per inch of no. 10 Birmingham wire gauge, placed in the flare of the diamond of the stack, so as to cover the same completely; the openings of the said mesh not to exceed three-sixteenths and one 64th (that is, thirteen 64ths) of an inch square when new. The condemning limit of the said netting shall be fifteen 64ths of an inch.

(c) All steam shovels, ditching machines, and pile drivers, having exhaust in stack and burning coal, shall be equipped with a wire netting in the front end, in accordance with the standard prescribed in sub-section (a), or with a bonnet screen or double-crimped wire netting mesh device on the top of the smoke stack, as may be most practicable. All openings between the bonnet netting and stack must be fitted so as to leave no opening larger than the mesh of the netting. The condemning limit of the said netting shall be the same as sub-section (a).

3. Manhole, and door openings of superheater type next to the tube sheet, shall be securely closed and held in place by cotters or keys, so constructed that they cannot fall out. All dead plates and nettings shall be securely fastened to the smokebox shell by angle irons of sufficient width to hold the same in position. In no case must there be an opening in the dead plates where fitted around steam pipes or superheater doors, or any joints, in excess of $\frac{1}{8}$ of an inch in width. Cement or asbestos must not be used to fill openings in the fitting of fire-protective appliances.

4 (a). The openings of ashpan of locomotives with narrow fireboxes shall be covered with metal dampers. (b). Ashpan slides and doors of locomotives, when closed, shall be secured in that position by a heavy spring or by any other positive method. (c). Locomotive ashpan draft ports or openings shall be protected by solid deflecting plates, netting, or perforated plates, so placed as to protect the opening. Where netting is used, it shall be protected by deflecting plates.

(d). On locomotives where rods pass through the ashpan, the opening for operation shall be no larger than is actually necessary, and shall be protected wherever practicable by deflecting aprons or hoods, so placed as to prevent the escape of ashes and fire. Damper rods from the cab shall be disconnected between April 1 and Nov. 1 each year, or during the additional period, if any, as provided in sub-section (f). (e). Overflow pipes from injectors, or a separate pipe from boiler, or water pipes from injector delivery pipe, shall be fitted into the ashpan with the necessary valve and other fixtures to supply water to all hoppers of the ashpan at the same time. (f). Sufficient water to dampen ashes and extinguish fire falling from the grates must be supplied from April 1 to Nov. 1 each year, or during such additional period as may be required in any particular territory by the Board's Chief Operating Officer.

5. That every railway company provide adequate inspection at terminal or divisional points where its locomotive engines, steam shovels, ditching machines, and pile drivers are housed and repaired, and at other points where necessary, and cause (a) An examination to be made, at least once a week, of—1. The netting. 2. Dead plates. 3. Ashpans. 4. Dampers. 5. Slides and doors. 6. Any other fire-protective appliances; (b) And a record to be kept of every inspection in a book to be furnished by the railway company for the purpose, showing: 1. The numbers of engines, steam shovels, ditching machines, and pile drivers inspected; 2. The date and hour of day of such inspection; 3. The condition of the said fire-protective appliances and arrangements; and 4. A record of repairs made in any of the above-mentioned fire-protective appliances. The said book to be open for inspection by any authorized officer of the Board. (c) In case any of the said fire-protective appliances are found to be defective, the said equipment shall be removed from service, and shall not (during the said prescribed period) be returned to service unless and until such defects are remedied. (d) Every railway company shall make an independent examination of the fire-protective appliances on all locomotives, steam shovels, ditching machines and pile drivers of such company, at least once each month, and the conditions of such fire-protective appliances shall be reported direct to the chief mechanical officer of the railway company, or other chief officer held responsible for the condition of the company's motive power.

6. That no employee of any such railway company—(a) do, or in any way cause, damage to the netting or other fire-protective appliances on any locomotive or other boiler in service. (b) Open the back dampers of any locomotive while running ahead, or the front dampers while running tender first, except when there is snow on the ground and it is necessary to take such action in order to have the engine steam properly.

7. That no such railway company permit fire, live coals or ashes to be deposited on its tracks or right of way, unless they are extinguished immediately thereafter, except in pits provided for the purpose.

8. That, unless otherwise ordered, no such railway company, between April 1

and Nov. 1, burn as fuel on its locomotives, steam shovels, ditching machines, and pile drivers, any coal not possessing good coking properties, the use of which with standard front-end fire-protective appliances prescribed by clause 2, results in the emission of sparks from the stack to an extent deemed by the board to be dangerous to the public interest, unless such equipment is provided with special fire-protective appliances approved by the board. Whether any particular coal possesses good coking properties shall be determined by certificate from the Mines Branch, Department of Mines, Ottawa.

9. That railway companies take all reasonable precautions to eliminate the danger of fires being set along railway lines by passengers and employees throwing burning smoking materials from trains. The measures to be taken shall include the posting of warning notices in cars or compartments of cars in which smoking is permitted, and the issuance at suitable intervals during the fire season of verbal warnings to passengers in such cars or compartments, including observation platforms and open observation cars. The territory within which they shall be effective shall be determined by the Chief Fire Inspector.

10. That every such railway company establish and maintain fireguards along the route of its railway as the Chief Fire Inspector may prescribe. The nature, extent, establishment and maintenance of such fireguards shall be determined as follows: (a) The Chief Fire Inspector shall each year prepare and submit to every such railway company a statement of the measures necessary for establishing and maintaining the routes of such railways in a condition safe from fire, so far as may be practicable. (b) Said measures may provide for the cutting and disposal by fire or otherwise of all or any growth of an inflammable character, and the burning or other disposal of debris and litter, on a strip of sufficient width on one or both sides of the track; the ploughing or digging of land in strips of sufficient width on one or both sides of the track; and such other work as may, under the existing local conditions and at reasonable expense, tend to reduce to a minimum the occurrence and spread of fire. (c) Said statements of the Chief Fire Inspector shall be so arranged as to deal with and prescribe measures for each separate portion of such railway upon and adjacent to which the fire risk calls for specific treatment. The intention shall be to adjust the protective measures to the local conditions, and to make the expense proportionate to the fire risk and possible damage. (d) Said statements of the Chief Fire Inspector shall prescribe dates on or within which the foregoing protective measures shall be commenced and completed, and the fireguards maintained in a clean and safe condition. (e) No such railway company shall permit its employees, agents, or contractors to enter upon land under cultivation to construct or maintain fireguards, without the consent of the owner or occupant of such land. (f) Wherever the owner or occupant of such land objects to the construction or maintenance of fireguards, on the ground that the said construction or maintenance would involve unreasonable loss or damage to property, the company shall at once

refer the matter to the board, giving full particulars thereof, and shall in the meantime refrain from proceeding with the work. (g) No such railway company shall permit its agents, employees, or contractors to leave gates open or to cut or leave fences down whereby stock or crops may be injured, or to do any other unnecessary damage to property in the construction or maintenance of fire-guards.

11. That in carrying out the provisions of the Railway Act, 1919, sec. 280, which enacts that "the company shall at all times maintain and keep its right of way free from dead or dry grass, weeds, and other unnecessary combustible matter," no such railway company, or its agents, or contractors, between April 1 and Nov. 1, burn or cause to be burned any ties, cuttings, debris, or litter upon or near its right of way, except under such supervision as will prevent such fires from spreading beyond the strip being cleared. The Chief Fire Inspector or other authorized officer of the board may require that no such burning be done along specified portions of the line of any such railway, except with the written permission or under the direction of the Chief Fire Inspector or other authorized officer of the board.

12. That the railway company provide and maintain a force of fire rangers fit and sufficient for efficient patrol and fire-fighting duty during the period from April 1 to Nov. 1 of each year; and the methods of such force shall be subject to the supervision and direction of the Chief Fire Inspector or other authorized officer of the board.

13. That the Chief Fire Inspector each year prepare and submit to each and every railway company a statement of the measures such railway companies shall take for the establishment and maintenance of said specially organized force. Said statements, among other matters, may provide for: (a) The number of men to be employed on the said force, their location and general duties, and the methods and frequency of the patrol; (b) The acquisition and location of necessary equipment for transporting the said force from place to place, and the acquisition and distributing of suitable fire-fighting tools; and (c) Any other measures which are considered by him to be essential for the immediate control of fire and may be adopted at reasonable expense.

14. That every such railway company instruct and require its sectionmen and other employees, agents, and contractors to take measures to report and extinguish fires on or near the right of way as follows: (a) Conductors, engineers, or trainmen who discover or receive notice of the existence and location of a fire burning upon or near the right of way, or of a fire which threatens land adjacent to the right of way, shall report the same by wire to the superintendent, and shall also report it to the agent or persons in charge at the next point at which there shall be communication by telegraph or telephone, and to the first section employee passed. Notice of such fire shall also be given immediately by a system of warning whistles, or by such other method as may be approved by the board. (b) It shall be the duty of the superintendent, or agent, or person so informed to notify immediately the nearest forest officer and the nearest section employee of the railway, of the existence and location of such fire. (c) When fire is discovered, presumably

started by the railway, such sectionmen or other employees of the railway as are available shall, either independently or at the request of any authorized forest officer, proceed to the fire immediately and take action to extinguish it: Provided such sectionmen or other employees are not at the time engaged in labors immediately necessary to the safety of trains. (d) In case the sectionmen or other employees available are not a sufficient force to extinguish the fire promptly, the railway company shall, either independently or at the request of any authorized forest officer, employ such other laborers as may be necessary to extinguish the fire; and as soon as a sufficient number of men, other than the sectionmen and regular employees, is obtained, the sectionmen and other regular employees shall be allowed to resume their regular duties. (e) The provisions of this section shall apply to all fires occurring within 300 ft. of the railway track, unless proof shall be furnished that such fires were not caused by the railway.

15. That every such railway company give particular instructions to its employees in relation to the foregoing regulations and cause such instructions to be posted at all stations, terminals, and section houses along its lines of railway. In case said instructions are not also carried in employees' time tables during said prescribed period, or in operating and maintenance of way rule books, they shall, previous to April 1 of each year, be reissued to all employees concerned, in the form of special instructions. The Chief Operating Officer or the Chief Fire Inspector, as the case may be, may waive the above requirements in whole or in part, as to lines or portions of lines where, in his judgment, the fire danger is not material.

16. That every such railway company allowing or permitting the violation of, or in any respect contravening or failing to obey any of the foregoing regulations, be subject, in addition to any other liability which the said company may have incurred, to a penalty of \$100 for every such offence.

17. That if any employee or other person included in the said regulations, fails or neglects to obey the same, or any of them, he shall, in addition to any other liability which he may have incurred, be subject to a penalty of \$25 for every such offence.

18. That the board may, upon the application of any railway company or other party interested, vary or rescind any order or direction of the Chief Fire Inspector, made pursuant to the provisions of this order.

H. A. Stimpson, Superintendent, Traffic Department, United Grain Growers, Ltd., Winnipeg, Man., writes: "I consider Canadian Railway and Marine World an excellent issue on Canadian railway matters."

They Must Have Been Hot.—Murphy, the foreman of the railway repair gang, went to the office to report a slight accident to one of his force. He got a blank and proceeded to make out his report. He was getting along all right until he came to the space headed "Remarks." After staring at it a while he beckoned to the clerk, who asked: "What's the matter, Pat?" "Well, sor," said Murphy, "ye see it was Bill's big toe he hit wid th' hammer, and it wudn't luk well for me t' write down th' raymarks Bill made."—Outlook.

Changes in Locomotive Booster Design.

Tests of locomotives equipped with boosters, on the Timiskaming & Northern Ontario Ry. in 1921, were described fully in Canadian Railway and Marine World for June, 1921, pg. 315, and July, 1921, pg. 356, and it was stated that in future applications of the booster, exhaust steam from the booster engine would exhaust through the locomotive nozzle and stack, instead of being carried back over the tender or being exhausted into the tank. We were subsequently informed by the Franklin Railway Supply Co. of Canada that no decision in this connection had been arrived at, and that the method of exhaust would be governed by existing conditions and customers' preferences, and this information was published in our August, 1921, issue, pg. 428.

We are now informed that, in future, standard booster applications will have exhaust steam from the booster engine exhausted through the locomotive stack, a specially designed exhaust nozzle to be used. We are also informed that the latest type C-1 booster embodies several changes in design, among these being higher gear ratio and better torque curve; better arrangement of idler; stronger construction for axle crown and caps; improved system of lubrication; larger bearing areas. In addition, the new design of control and outside throttle is of much simpler construction and involves fewer parts. The admission of steam to booster, and operation of idler gear, are so co-related as to preclude the possibility of damaging boosters by faulty handling, while the outside throttle is cheaper to apply and maintain. It is claimed that this latest type represents a large improvement over previous designs.

Humber River Development Project in Newfoundland.

The project for the development of the water power on the Humber River, Nfld., together with the pulp and other resources of the land drained by the river, which was under consideration in 1921, has been revived. As originally outlined, the Reid Newfoundland Co. was to put into the company its lands and power concessions; the Armstrong-Whitworth interests of England were to provide for building the development plants, and it was anticipated that the Newfoundland Government would guarantee a bond issue. This the Government refused to do, and the project fell through. According to recent reports the Armstrong-Whitworth interests will buy out the Reid Newfoundland Co's interests in the area, and the proposed \$20,000,000 bond issue will be guaranteed by the British and Newfoundland Governments. The report states that the British authorities are favorable to the proposition, and that Sir Richard Squiers, Premier of Newfoundland, is in England, to confer with them upon the matter.

Coming or Going.—Passenger—Please, guard, will you help me to get out of the train? Guard—Certainly, ma'am. Passenger—You see it's this way. Being rather stout, I have to get out backwards and the porters always think I am getting in so they push me back into the carriage and say, "Urry up, ma'am!" I've passed four stations that way already.—London Opinion.

Orders by the Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this. Important traffic orders made by the Board are given in full on another page of this issue.

General order 365. June 21.—Ordering railway companies to file statements of passes issued, and prescribing method to be adopted for the filing of all future statements of free transportation issued.

General order 366. June 30.—Ordering all railway companies forthwith to file tariffs giving effect to rate prescribed and authorized by judgment of the Board, June 30, 1922, such rates to become effective Aug. 1, 1922. Freight tolls, 1922.

General order 367. June 29.—Ordering that all international express commodity tariffs now in effect be amended to include a rule to the effect that rates named therein, unless specifically indicated as being competitive, will apply to or from intermediate points in Canada not enumerated in said tariffs; and that a similar rule be published in international commodity tariffs as issued.

General order 368. June 29. Rescinding general order 280, Dec. 23, 1919, and amending general order 248, Aug. 19, 1918, re flagging rules for impassable track. This order is given fully on another page.

32,463. June 2.—Authorizing Kettle Valley Ry. to rebuild bridge 18, Nicola Branch, B.C.

32,464. June 2.—Authorizing New Westminster Southern Ry. to cross the Base Road, one mile north of Cloverdale, B.C.

32,465. June 2.—Authorizing Kettle Valley Ry. to rebuild bridge 14.5 on its Nicola Branch, B.C.

32,466. June 2.—Authorizing G.T.R. to build spur for Grimsby Fruit Growers, Ltd., and Growers Cold Storage & Ice Co., at Grimsby, Ont.

32,467. June 2.—Authorizing G.T.R. to build spur for National Coöperage Co., Hastings, Ont.

32,468, 32,469. June 5, 2.—Approving Bell Telephone Co. agreements with Stroud Telephone Co., Simcoe County, Ont., and St. Sebastian d'Iberville Telephone Co., Iberville and Missisquoi Counties, Que.

32,470. June 1.—Extending to July 1, 1923, the time within which the C.P.R. may build freight shed at Kingston, Ont., as directed by order 28,542, July 14, 1919.

32,471. June 2.—Approving agreement between Bell Telephone Co. and Leeds & Grenville Independent Telephone Co., Leeds & Grenville Counties, Ont.

32,472. June 5.—Approving revision of location of Grand Trunk Pacific Ry. temporary line, Ansell to Bickerdike, through Sec. 2, 3, 4 and 5, Tp. 53, Range 18, West 5th Meridian, mile 60.71 to 64.46, Brule Subdivision, and authorizing crossing of highways.

32,473. June 6.—Authorizing C.P.R. to build spur for J. K. McLaughlan, Toronto.

32,474. June 2.—Relieving Canadian National Rys. from maintaining fences, gates and cattle guards, between miles 40 and 53; 56 and 82; and 82.5 and 142.5, Kashabowie Subdivision, Rainy River Division, Ont.

32,475. June 2.—Relieving Canadian National Rys. from erecting fences, gates and cattle guards from miles 143 to 181; 194 to 210; 211 to 222; 222 to 223.4; 223.4 to 226; 231 to 232 (yards); 285 to 266.7, Fort Frances Subdivision, Rainy River District, Ont.

32,476. June 6.—Authorizing Hydro Electric Power Commission of Ontario to operate Guelph Radial Ry., one-man cars over G.T.R. on Woolwich St., Guelph, Ont.

32,477. June 5.—Disallowing Algoma Central & Hudson Bay Ry. tariff, C.R.C. 585, showing increases to 2c per 100 lb. in switching rates on coal from New Ontario Coal Co.'s dock to C.P.R. at Sault Ste. Marie, Ont.

32,478. June 6.—Amending order 31,255, July 12, authorizing diversion and crossing of highway by C.P.R., by showing location as n.e. ¼ Sec. 16, instead of n. w. ¼ Sec. 15.

32,479. June 6.—Authorizing G.T.R. to build spur for Ontario Public Highways Department, on Lot 17, Con. 4, Raleigh Tp., Ont.

32,480. June 6.—Declaring that C.P.R. crossing of Marion St., St. Boniface, Man., is protected to Board's satisfaction for the present.

32,481. June 7.—Authorizing Canadian Northern Ry. to build spur for Parrish & Heimbecker, at South Harbour, Port Arthur, Ont.

32,482. June 7.—Relieving G.T.R. from erecting fences, gates and cattle guards from miles 267 to 277.64; 280.3 to 330 (north side); 279.5 to 330; 370 to 372; 384 to 384.25 (south side), District 32, Ottawa Division, Ont.

32,483. June 9.—Authorizing Quebec Central Ry. to connect with Canadian National Rys. in Lot 234, 2nd Range, Tanitua, St. Jean Chrysostome Parish, Que.

32,484. June 9.—Amending order 32,459, June 1, relieving G.T.R. and C.P.R. from maintaining signalmen at crossing at Vankleek diamond.

32,485. June 9.—Declaring that G.T.R. crossing of St. James St., St. Johns, Que., is protected to Board's satisfaction, between 6.30 a.m. and 10.30 p.m.; slow order for remainder of 24 hours

to remain in effect.

32,486. June 9.—Ordering Sherbrooke Ry. & Power Co. to connect switch on Depot St., Sherbrooke, Que., with interlocking plant, and arrange the locking so as to protect crossing of G.T.R. on King St.

32,487. June 13.—Approving agreement between Bell Telephone Co. and St. Marys, Medina & Kirkton Telephone Co., Huron, Perth, Middlesex and Oxford Counties, Ont.

32,488. June 13.—Authorizing Pere Marquette Rd. to build spur for the S. Hadley Lumber Co., Chatham, Ont.

32,489. June 13.—Approving Canadian National Rys. plan showing minimum clearance at proposed locomotive house at Mount Yard, Ont.

32,490. June 13.—Authorizing Alberta Public Works Department to make highway crossing over C.P.R. in Sec. 28, Tp. 9, Range 17, West 4th Meridian.

32,491. June 13.—Authorizing C.P.R. to build spur for Mona Petroleum Products, Ltd., Trenton, Ont.

32,492. June 6.—Relieving Canadian National Rys. from fencing right of way between miles 330.5 and 340.5, Sprague Subdivision, Rainy River Division, Ont.

32,493. June 9.—Authorizing G.T.R. to use overhead bridge carrying Brook St., Whitby, Ont., over its tracks.

32,494. June 9.—Authorizing Canadian Northern Ry. to build spur for Millar Lumber Co., North Battleford, Sask.

32,495. June 7.—Authorizing G.T.R. to build spur for Brennan Paving Co., North Dumfries Tp., Ont.

32,496. June 9.—Authorizing C.P.R. to build spur for W. Makichuk, Winnipeg, Man.

32,497. June 9.—Relieving Canadian National Rys. from erecting fences, gates and cattle guards between miles 34.7 and 56.1, North Lake Subdivision, Rainy River Division, Ont.

32,498. June 9.—Relieving G.T.R. from erecting fences, gates and cattle guards between miles 248 and 262.25, District 31, Ottawa Division, Ont.

32,499. June 13.—Ordering G.T.R. to provide waterway opening at de l'Île ditch, milepost 10.98, St. Michel Archange Parish, Que.

32,500. June 7.—Ordering Canadian National Rys. to build 4th class station at Tilney, Sask.

32,501. June 14.—Authorizing G.T.R. to rebuild bridge carrying public highway over its tracks at mile 60.50, 2½ miles north of Craigvale, Ont.

32,502. June 9.—Approving location of Canadian National Rys. standard third class station building at Bellis, Alta.

32,503. June 9.—Authorizing Hydro Electric Power Commission of Ontario to operate Guelph Radial Ry. one-man cars across C.P.R. on York Road, Guelph, Ont.

32,504. June 7.—Declaring that G.T.R. crossing near Eganville, Ont., is protected to Board's satisfaction.

32,505. June 16.—Extending to June 4, 1923, time within which C.P.R. may build spurs for North Aluminum Co., Toronto.

32,506. June 15.—Extending to June 18, 1924, the time within which the Hydro Electric Power Commission of Ontario may maintain high tension transmission line across Great North Western Telegraph Co.'s wires and Canadian National Rys. at easterly limits of Port Arthur, Ont.

32,507, 32,508. June 16.—Extending to Aug. 31, the time within which Canadian National Rys. may install bells and wigwag signals at intersections of Smith St. and Eighth Ave., and Smith and Dewdney Sts., Regina, Sask.

32,509. June 15.—Approving revised general location of Interprovincial & James Bay Ry. from mile 53 to 69, to Lac des Quinze, Timiskaming County, Que.

32,510. June 16.—Extending to Sept. 30, the time within which Canadian National Rys. may install protection, directed by order 32,133, Feb. 22, at crossing of C.N.R. by Winnipeg Electric Ry., on Pembina Highway, Winnipeg.

32,511. June 19.—Rescinding order 32,448, May 31, suspending American Railway Express Co.'s tariff covering advanced rates on fruits and vegetables, provided that the company publish and file a local rate on fruit and vegetables from Fenwick to Hamilton, Ont., of 40c per 100 lb., in lieu of rate of 50c per 100 lb., now published in its tariff C.R.C. 1,344.

32,512. June 15.—Declaring that for the present the London & Port Stanley crossing, 11.6 miles from London, Ont., is protected to Board's satisfaction.

32,513. June 16.—Declaring that for the present Governor's Road crossing of C.P.R. at Jellicoe, Ont., is protected to Board's satisfaction.

32,514. June 15.—Relieving City of St. Thomas, Ont., from maintaining watchmen between 6 p.m. and 12 p.m. midnight, at crossing of London & Port Stanley Ry. by St. Thomas Municipal Ry. on Wellington Street.

32,515. June 16.—Extending to July 31, the time within which Grand Trunk Pacific Ry. may build ditch in Sec. 6, Tp. 13, Range 19, West 3rd Meridian, Sask., as required by order 31,924, Dec. 16, 1921.

32,516. June 19.—Extending to Aug. 31, the time within which C.P.R. may remove earth from top of hill southeast of crossing of Raglan Road, mile 61, Peterborough Subdivision, Ont.

32,517. June 14.—Ordering that when trains are approaching crossing of C.P.R. at Moore St., Carleton Place, Ont., the gateman first close gate on south side of track, then cross to north side and act as flagman.

32,518 to 32,520. June 19.—Declaring that for the present the C.P.R. crossings at Lacadie station, Que.; 17th St., Owen Sound, Ont.; and 4½ miles south of Innisfail, Alta.

32,521. June 19.—Authorizing G.T.R. to build spur for British American Oil Co., Vespra Tp., Ont.

32,522. June 20.—Approving revision of C.P.R. location between miles 100.74 and 101.93, west of Cataragui River, Kingston, Ont., and authorizing crossing of certain highways.

32,523. June 19.—Authorizing G.T.R. to operate trains over siding to be built by Toronto Harbor Commission to serve new freight shed at foot of York St., Toronto.

32,524. June 19.—Approving location of Canadian Northern Ry. proposed 3rd class station at Ranfurly, Alta.

32,525. June 20.—Extending to July 1st the time within which Canadian National Rys. may complete cattle guards and protection fences on Brazeau Subdivision, as required by order 31,941, Dec. 21, 1921.

32,526. June 19.—Authorizing G.T.R. to use bridge carrying public highway between Lot 19, Con. 8, and Lot 19, Con. 9, Esquimaux Tp., Ont., across its tracks, near Georgetown, Ont.

32,527. June 19.—Ordering Vancouver, Victoria & Eastern Ry. & Navigation Co. to make changes in signals at crossing of Powell St., Vancouver, B.C., as directed by order 31,988, Jan. 7, by July 31.

32,528. June 20.—Extending to Aug. 31, the time within which G.T.R. shall complete station at St. Polycarpe Jct., Que., and prescribing penalty of \$25 a day for every day after Aug. 31, that it remains uncompleted.

32,529. June 21.—Amending order 32,414, May 18, approving plan showing alterations to full interlocker at crossing of Canadian Northern Ry. and Grand Trunk Pacific Ry., at Dana, Sask., by ordering that a report as to success or otherwise of alterations be made to the Board within 90 days after alterations become effective, instead of within 90 days from date of order 32,414.

32,530. June 19.—Ordering Vancouver, Victoria & Eastern Ry. & Navigation Co. to complete interlocker at crossing of British Columbia Electric Ry., Georgia St., Vancouver, by July 31.

32,531. June 24.—Rescinding order 29,612, May 6, 1920, authorizing G.T.R. to build spur for Crane, Ltd., Toronto.

32,532. June 24.—Authorizing City of Hamilton, Ont., to build a sewer under Toronto, Hamilton & Buffalo Ry., on King St. West.

32,533, 32,534. June 24.—Authorizing C.P.R. to rebuild bridge 53.2, Thompson Subdivision, B.C.

32,535. June 26.—Authorizing City of Victoria, B.C., to carry Johnston St. across Esquimalt & Nanaimo Ry., by a subway.

32,536. June 24.—Ordering City of Montreal to begin repair of Ontario St. subway, under C.P.R., by July 15, and to complete it by Dec. 15, with a penalty of \$10 a day for every day after Dec. 15 that it remains uncompleted.

32,537. June 24.—Ordering Canadian National Rys. to erect 3rd class station at Vilna, Alta., and appoint station agent, by July 10, 1922.

32,538. June 24.—Extending to Aug. 31, the time within which Canadian National Rys. may install bell and wigwag signal at crossing of main road at Shawinigan Falls, Que.

32,539. June 24.—Approving clearances at extension of runway on C.P.R. for 30-ton travelling crane for Union Foundry & Machine Works, on Union St., West St. John, N.B.

32,540. June 26.—Authorizing C.P.R. to rebuild bridge 8.1 over Quaker Brook, Tobique Subdivision, N.B.

32,541. June 24.—Authorizing Dominion Atlantic Ry. to build spur across Wharf Road for Imperial Oil, Ltd., Wolfville, N.S.

32,542. June 27.—Declaring that for the present, Canadian National Rys. crossing of Florence St., Embro, Ont., is protected to Board's satisfaction.

32,543. June 24.—Extending to July 31, time within which G.T.R. may build overhead bridge at mile 11.68, Hamilton Division, St. Paul St., St. Catharines, Ont.

32,544. June 26.—Authorizing Saanich Municipality, B.C., to build highway over Canadian Northern Pacific Ry., on Sayward Road, mile 6.4, Patricia Bay Branch, Vancouver Island, B.C.

32,545. June 27.—Authorizing C.P.R. to rebuild bridge 5.5 over Long Lake, Kipawa Subdivision, Algoma District, Ont.

32,546. June 26.—Approving location and details of G.T.R. station at Cardinal, Ont.

32,547. June 26.—Suspending Bell Telephone Co.'s tariff C.R.C. 5,383, effective July 1, showing increased telephone rates in Windsor, Ont.

32,548. June 28.—Declaring that for the present, Michigan Central Rd. crossing 2 miles west of Brookfield, Ont., is protected to Board's satisfaction.

Railway Wages and Working Conditions in Canada and the United States.

In all the disputes taking place recently between Canadian railways and various groups of their employes, no serious trouble has resulted and in most cases the Industrial Disputes Investigation Act has been given an opportunity to function. In other cases either temporary or permanent agreement has been reached by direct negotiation. Following is a review of the developments to date in the several disputes arising chiefly out of the railways' proposals to reduce wages.

Maintenance of Way Employes.—Canadian Railway and Marine World for August gave details of the reductions in maintenance employes' pay as proposed by the railways. On July 20, the negotiations between railway representatives and A. McAndrew, General Chairman of the United Brotherhood of Maintenance of Way Employes and Railroad Shop Laborers, Canadian Central Committee, and W. Aspinall, Secretary, were broken off, the employes declaring their intention to apply for a conciliation board. However, toward the end of July, negotiations were again undertaken, and an agreement was reached by which the employes agreed to accept the reduced rates pending further consideration when conditions so develop on U.S. railways as to enable a definite agreement to be concluded, and to withdraw their application for a conciliation board. It was agreed that the rates of pay finally agreed upon be as from July 16, the railways to make any adjustment necessary, and it was recognized that the interim agreement would protect the employes' interests until such time as a definite agreement can be entered into.

Railway Shopmen.—The wage reductions proposed to be applied by Canadian railways to shopmen were given fully in Canadian Railway and Marine World for August, and as stated therein, the shopmen applied for a conciliation board under the Industrial Disputes Investigation Act. While the Railway Association of Canada took the stand that it could not appoint a representative on such a board, the railways individually expressed willingness to get together and appoint a representative, and finally appointed Isaac Pitblado, K.C., Winnipeg. The men appointed Jas. Simpson, Toronto, to represent them. Messrs. Pitblado and Simpson being unable to agree on a chairman, the Labor Department appointed Alex. Smith, K.C., Ottawa. A strike vote had been taken among the shopmen in the latter part of July, and on July 26, R. J. Tallon, President, American Federation of Labor's Railway Employes' Department, Division 4, telegraphed the Minister of Labor, that about 97% of the men had voted in favor of a strike, and asking him if the railways still intended to enforce the wage cut before the conciliation board had acted. The Deputy Minister replied on the following day, stating that the railways' intention in the matter was not clear. On Aug. 1, Mr. Tallon telegraphed Prime Minister King, and on Aug. 3 the latter telegraphed that the Department of Justice had given an opinion that the railways could not legally reduce the employes' wages pending action by the board of conciliation, and that they had been so notified. W. H. Curle, K.C., General Solicitor, C.P.R., and W. C. Chisholm, K.C., General Solicitor, G.T.R., went to Ottawa, Aug. 8, in connection with the matter.

The opinion given by W. Stuart Edwards, acting Deputy Minister of Justice,

was as follows: "Upon the hasty consideration which I have been able to give the matter, it would seem that the question depends almost altogether upon the provisions of the Industrial Disputes Investigation Act, sec. 57, which reads as follows: '(57). Employers and employes shall give at least 30 days notice of an intended change affecting conditions of employment with respect to wages or hours; and, in the event of such intended change resulting in a dispute, until the dispute has been finally dealt with by a board, and a copy of its report has been delivered through the registrar to both the parties affected, neither of these parties shall alter the conditions of employment with respect to wages or hours, or an account of the dispute do, or be concerned in doing, directly or indirectly, anything in the nature of a lockout or strike, or a suspension or discontinuance of employment or work, but the relation of the employer and employes shall continue uninterrupted by the dispute or anything arising out of the dispute; but if, in the opinion of the board, either party uses this or any other provision of this act for the purpose of unjustly maintaining a given condition of affairs through delay, and the board so reports to the Minister, such party shall be guilty of an offence and liable to the same penalties as are imposed for violation of the next preceding section.' Upon consideration of these provisions, I find it difficult to escape the conclusion that the intention of Parliament in enacting this legislation was to prevent the doing of that which the railways are proposing to do; that is to say, that the making of a reduction in the actual amount of money paid out to employes on pay day is making an alteration in the conditions of employment with respect to wages within the meaning of the statute, notwithstanding the fact that the intention of the railways is to account to the employes for the difference, if, and when, a report in favor of the employes has been made by the board. I do not overlook the fact that in case the railways continue payments at the old rate and the board reports in favor of a reduction, they may not succeed in recovering back all the overpayments so made, but I do not think this circumstance can be looked at as affecting the interpretation of the plain words of the statute." On Aug. 8 the Minister of Railways, wrote Presidents Hanna of the Canadian National Rys. and Kelley of the G.T.R., enclosing copies of the foregoing opinion, and stating that, on behalf of the Government, he had to express the view that the railways should act in exact accordance with the law applicable.

The conciliation board began its sessions in Montreal on Aug. 10, the railways being represented by Geo. Hodge, Assistant General Manager, Eastern Lines, C.P.R., A. J. Hills, Assistant to President Canadian National Rys., and C. F. Needham, Assistant to General Superintendent, Motive Power and Car Department, G.T.R., and the shopmen by R. J. Tallon, President Division 4, Frank McKenna, Vice-President Division 4, and C. Dickie, Secretary, Jas. Bruce, Toronto, representing plumbers and steam fitters.

Mr. Tallon claimed that the railways had paid off men at the reduced rates of pay, and on Aug. 11 he brought before the board former employes of the three large roads, who testified that they had been paid off, on leaving the service a few days before, at reduced rates, and

that they had signed receipts for payment in full for services rendered. This started an argument as to the railways' right to enforce the reduced rates before a decision had been rendered by the board and the meeting was adjourned till Aug. 15.

On Aug. 10 Presidents Hanna of the Canadian National Rys., Beatty of the C.P.R., and Kelley of the G.T.R. replied to the communication sent them by the Minister of Railways saying that their own counsel had advised them that the Department of Justice's opinion was open to question, and pointing out that in a dispute between the Dominion Coal Co. and its employes, an exactly opposite opinion had been given by the court. It was explained that the railways' proposals effectively protected the employes in case the wage cuts were not upheld, and pointed out that U. S. employes had expressed a willingness to end their strike and return to work at the reduced wages. The presidents stated that the railways could not adopt a course of action which they believed to be not in accordance with the law, and not required by the merits of the case.

On Aug. 10, the acting Deputy Minister of Justice advised the Minister of Railways that the railways' legal representatives had taken the matter up with him, and called his attention to the Dominion Coal Co. case, and on giving the matter further consideration, he was of opinion that that case was of a different character to the dispute between the railways and their employes, and he was still of the opinion that the railways proposed action would be illegal.

On Aug. 12 Prime Minister King wrote Presidents Hanna, Beatty and Kelley asking them to restore the rates of pay in effect before July 16, pending the board's decision. He said that if the parties to industrial disputes are permitted to place their own interpretations on the act, there could be no guarantee of industrial peace, and that a contrary course on the part of either the railways or their employes would precipitate a most undesirable industrial situation. He added that he had been waited upon by a deputation of employes, and he had assured them that the Government would exert its full influence to see that the provisions of the law governing industrial disputes were lived up to.

On Aug. 15, after a brief session, the board adjourned until the railways replied to the Prime Minister's letter. On the same day the railway presidents telegraphed him that they were as anxious as he that there should be no industrial trouble in the country, and that although they were still convinced of the legality of the railways' proposed course, they would undertake, pending an anticipated early report of the board, to restore the former wages, provided the railways' case before the board should not be prejudiced, and provided the railways should not be precluded from taking the position in negotiating future agreements that the new scale should be retroactive to July 16 last.

On Aug. 16 the board resumed its sittings, and a detailed statement by the railways in support of their action in reducing the shopmen's wages before the board had made its award was presented. Evidence was also presented by both sides. On Aug. 17 the board's session was cancelled to give the railways' and the employes' representatives an opportunity to confer among themselves, but

the conference which took place did not result in an agreement. On Aug. 18 the board held a short session, at which no further evidence was taken, and which was concluded by the chairman announcing that the board would go into executive session and come to a decision. At the time of writing, (Aug. 25) no decision had been announced.

There is much difference of opinion as to the Dominion authorities' right to interfere in a question of wages as between employer and employee. Some months ago, in connection with arbitration proceedings between the Dominion Coal Co. and its employees, a judge stated that he considered clause 57 of the Industrial Disputes Investigation Act ultra vires of the Dominion authorities, and resting with provincial authority only. It is considered by many prominent legal men that the situation as between the railways and their shopmen is identical, and while the railway managements agreed to restore the former rates of pay, they still maintain their original view as to the legality of their action in withholding a part of their employees' wages pending arbitration.

Canadian National Rys. Clerks, etc. The decreased schedule of wages proposed by the C.N.R. management for its clerks, freight handlers, etc., the majority of whom are members of the Canadian Brotherhood of Railway Employees, was fully given in our August issue. At the end of July negotiations between the management and the employees had been broken off, and the management had declared its intention of placing the reduced rates in effect as from July 22. The Canadian Brotherhood of Railway Employees applied for a board and on July 31, this being granted, G. D. Kelley, Ottawa was appointed to represent the C.N.R., and H. S. Ross, K.C., Montreal, to represent the employees. Messrs. Kelley and Ross being unable to agree on a chairman, the Minister of Labor on Aug. 8 appointed F. T. Costello, barrister, of Alexandria, Ont. The board met on Aug. 16 in Ottawa, and proceedings were initiated by A. R. Mosher, President, C.B.R.E. stating that his side must decline to proceed until the railways' position in regard to restoring the previous wage level was made clear. No announcement as to this being forthcoming, the board adjourned. On Aug. 17 the board reconvened, there being present for the C.N.R., A. E. Crilly, Assistant to General Manager, Eastern Lines; G. E. Smart, Mechanical Assistant, Car Department, to the Vice-President, Maintenance and Operation; L. C. Thompson, General Storekeeper, Eastern Lines; A. C. Egan, General Auditor, and W. N. Rippey, Superintendent of Transportation, Maritime District. The C.B.R.E. was represented by A. R. Mosher, President, and M. M. MacLean, Ottawa, C. E. Cole, Moncton, H. Dykes, Winnipeg, and C. H. Minchin, Calgary, all C.B.R.E. officers. Proceedings were opened by an announcement by A. E. Crilly that the C.N.R. had agreed to suspend the wage cut pending the board's decision, that new payrolls covering back time from July 22 would be made out, and that this action would not prejudice the railways' contention that the reduction should be dated back to July 22. Mr. Mosher claimed that, as the railways had proposed the cut, its representatives should justify it by argument. Mr. Crilly pointed out that it was the employees who applied for the board and not the C.N.R., and it was decided that the employees should present their case first. Mr. Mosher argued that the C.B.R.E. members are the lowest paid among the railway employees, and that a

reduction in their wages would render a decent standard of living impossible. On Aug. 23, when the board again met, Mr. Crilly argued that while the employees had received large increases in pay since 1917, there had been nothing like the decline which should accompany the drop in the cost of living. He said the increases had averaged \$51.50 monthly, and the decrease since the peak was reached averaged only \$18.36 monthly. An Ottawa press despatch of Aug. 22 stated that Mr. Mosher, in presenting evidence before the board, said that the greatest danger to the Government railways is not political interference, but the influence of owners of privately owned roads. He is reported to have said "The chief influence which is working to force down wages on the Government railways is, in our opinion, the C.P.R.'s influence" and to have added that "private owners are seeking to have the Government lines run according to policies which would least interfere with the profits of their privately owned property."

Following the submission of the C.N.R.'s evidence on Aug. 23, Chairman Costello enquired as to whether there would not be some chance of the two parties being able to arrive at a settlement, if the board adjourned and gave them a chance to do so. Both Messrs. Crilly and Mosher expressed themselves as willing to try to effect a settlement, and the board adjourned till Aug. 24, when, if no settlement had been arrived at, debate on the evidence presented was to proceed.

C. P. R. Clerks, etc. A dispute having arisen between the C.P.R. and its clerical employees, the majority of whom are members of the International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees, on account of the railway proposing a wage reduction approximating that ordered for clerical employees on U.S. railways by the U.S. Railroad Labor Board, the Minister of Labor on Aug. 21 appointed a conciliation board. The C.P.R.'s representative is J. T. Arundel, formerly General Superintendent, Ontario District, C.P.R., and the employees' representative is J. G. O'Donoghue, Toronto. The chairman is Daniel Urquhart, Toronto. The board's first meeting was held at the C.P.R. general offices, Montreal, on Aug. 23.

C.P.R. Telegraphers. As stated in our August number, the dispute between the C.P.R. and its telegraphers regarding working conditions resulted in a conciliation board being formed, on which the railway is represented by U. E. Gillen, Toronto, the employees by David Campbell, Winnipeg, D'Arcy Scott of Ottawa, being appointed chairman by the Minister of Labor. The board held a few sessions in Montreal, but on Aug. 20 it was announced that negotiations had been resumed directly between the railway and its employees, and that a settlement had been arrived at independently of the board.

New York Central Rd. Canadian Employees. The Minister of Labor appointed a conciliation board to decide the dispute between the N.Y.C.R. and its employees on Canadian lines, the railway being represented by M. Goodrich, Ottawa, the men by J. Y. Foster, Montreal, and Senator Robertson being chairman. The employees concerned are shopmen, employed in Ottawa, and number only about 20. The board held a session on Aug. 14; but no advice has been received as to whether subsequent sittings have been held, or as to what has been accomplished.

G.T.R. Clerks, Freight Handlers, etc. The schedule of decreases proposed by

the G.T.R. for its clerks, freight handlers, etc., the majority of whom are members of the Canadian Brotherhood of Railway Employees, was given in full in Canadian Railway and Marine World for August, also the developments up to the point where negotiations between the railway and its employees were broken off. The C.B.R.E. officials then asked the Minister of Labor to grant a board under the Industrial Disputes Investigation Act to hear the dispute. The request was complied with and a board formed, of which E. McG. Quirk, Montreal, was appointed chairman, and on which the G.T.R. is represented by U. E. Gillen, Toronto, and the employees by H. S. Ross, K.C., Montreal. The board commenced its sessions at Ottawa, on Aug. 17, and continued on Aug. 18, when it adjourned till Aug. 22. On Aug. 18 A. R. Mosher, President, C.B.R.E., presented evidence to show that if the reductions proposed by the railway are permitted to take effect, 90% of the clerks in schedule positions, shown to be the highest paid members of the organization, will scarcely earn enough to permit a man and his wife to bring up one child and maintain a standard of living approximating that of minimum health and decency. At the time of writing, (Aug. 24) the board's sessions had not been concluded, and we are advised that no decision has been reached as to restoring the original rates of pay pending a decision in the dispute.

G.T.R. United States Lines. The shopmen's strike in the U.S. continues to affect the G.T.R. Western Lines. On Aug. 15 the company was granted a temporary injunction in the U.S. Circuit court at Detroit, restraining strikers from acts of violence against the company's property. The question of a permanent injunction was to be argued Aug. 25. The temporary injunction was granted on application by H. E. Whittenberger, General Manager, who declared that he had appealed to both the Governor of Michigan and the state police for protection and had not received a reply from either. A lot of trouble has been experienced by the railway at its Port Huron, Mich., shops, where operations are being carried on with new employees.

Michigan Central Rd. Shopmen. The conciliation board, composed of J. M. McEvoy, K.C., London, chairman, H. T. Malcolmson, Superintendent, T.H.&B Ry., Hamilton, for the M.C.R., and W. D. Robbins, Toronto, for the men, appointed to hear the dispute between the M.C.R. and its shopmen, was to have begun its sessions at St. Thomas on July 24, but did not start till July 31, when evidence was submitted on behalf of the railway by J. W. Fry, Chief of the M.C.R. Wage Bureau; E. R. Webb, Master Mechanic, St. Thomas, Ont., and W. H. Flynn, Superintendent of Motive Power, Detroit, and on the shopmen's behalf by J. Size, M.C.R. Shop Craftsmen's General Chairman; L. Belouin, Montreal, Canadian Vice-President, International Brotherhood of Railway Carmen, E. Inglis, London, Canadian Vice-President, International Brotherhood of Electrical Workers and others. Sessions were held on Aug. 1, 2 and 3, when the shopmen's representatives presented evidence to show the proposed wage cut to be unwarranted and the new rules proposed by the company to be unfair. Mr. Size stated that the average railway mechanic required at least \$1958.24 yearly to provide for himself and family, and that earnings below that meant that he could not provide all the necessities of life. On Aug. 4 the presentation of the railway's evidence was begun, and in reply to Mr.

Size's statement as to minimum earnings, Mr. Fry stated that if each wage earner averaged the yearly estimate mentioned by Mr. Size, the total national income would have to be over \$600,000,000 greater than at present. Mr. Fry characterized Mr. Size's "minimum budget" as an economic impossibility. Generally speaking, the railway argument was to the effect that its Canadian employees are a component part of the entire shop crafts federation, and cannot be treated as a separate body when wage reductions or working conditions are at issue. The board adjourned on Aug. 4 owing to Mr. Robbins' illness, and did not resume till Aug. 14, when and on Aug. 15 the railway representatives completed the presentation of their testimony. The decreases ordered were not applied pending the hearing of the dispute by the board. A decision is expected in the near future.

Pere Marquette Ry. Clerical Employees. Following a reduction in the rates of pay for clerks, etc., employed on the P.M.R., Canadian Division, to bring their wages into line with those ordered effective July 1, by the U.S. Rd. Labor Board, the clerks applied for a conciliation board which was granted. The majority of the clerical employees concerned are members of the International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees. They named as their representative, Chas. B. McClurg, barrister, of St. Thomas, Ont., on Aug. 6, and shortly after the P.M.R. named Alex. Leslie, Kingsville, Ont., as its representative. These two being unable to agree on a chairman, the Labor Department appointed W. T. R. Preston, of Port Hope. Sitings were begun in Windsor, Ont., on Aug. 21, when it was announced by F. Alfred, President, P.M.R. that the original wages would be restored till the hearing was completed.

Pere Marquette Ry. shopmen employed in Canada applied to the Labor Department for a conciliation board, which was granted, the P.M.R. being represented by Alex. Leslie, Kingsville, Ont., the shopmen by W. D. Robbins Toronto, W. T. R. Preston, Port Hope, being chairman. The board met in Windsor on July 26, when it was decided to adjourn till Aug. 14, as Mr. Robbins was occupied on the Michigan Central Rd. shopmen's board. The P.M.'s shopmen's board met in St. Thomas on Aug. 14, and on the two following days, the hearing of evidence being completed on Aug. 16th. The P.M.R. was represented by D. A. Klumph, of Detroit, Mich., Supervisor of Wages and Working Schedules, and C. Montgomery, Master Mechanic, St. Thomas. The employees were represented by H. Dukes, President of P.M.R. shopmen's organization, and other shop crafts officers. No decision by the board has been made public up to Aug. 25.

Repairing U.S. equipment in Canada. On Aug 10 Wabash Ry. shop employees at St. Thomas protested to the Labor Department at Ottawa, through J. A. Killingsworth, a Department representative, against the alleged bringing of locomotives from U.S. lines for repair in Canadian shops, on account of the strike in the U.S. Canadian railways report that they are not repairing any U.S. equipment in their shops.

Inverness Railway & Coal Co. A conciliation board appointed to investigate a dispute between the Inverness Ry. and Coal Co. and certain of its employees, reported on Aug. 9 recommending that the rate of pay for section foremen should

be \$3.70 a day, and in which rates of pay for employees not engaged directly in railway work were also specified.

The United States Situation. At the time of writing, Aug. 25, the shopmen's strike in the U.S. seems as far from settlement as ever, despite the best efforts of President Harding and the leaders of the train service brotherhoods to bring the railway executives and the shopmen's leaders to an agreement. The President's initial effort to effect a settlement was made on July 31, when he suggested that the railway executives and the shopmen agree on the following terms: 1. Railway managers and workmen to agree to recognize the validity of all decisions by the U.S. Railroad Labor Board, and to faithfully carry out such decisions as contemplated by the law. 2. The carriers to withdraw all the lawsuits growing out of the strikes, and Railroad Labor Board decisions which have been involved in the strike to be taken, in the exercise of recognized rights by either party, to the Board for rehearing. 3. All employees now on strike to be returned to work with seniority and other rights unimpaired. Representatives of carriers and of employees to agree that there will be no discrimination by either party against employees who did or did not strike. The shopmen showed a willingness to accept these terms, but the railway executives refused to accept the third condition, and advised the President as follows, "It is submitted that the striking former employees cannot be given preference to employees at present in the service, without doing violence to every principle of right and justice involved in this matter, and without the grossest breach of faith on the part of the railways to the men at present in their service. The railways cannot consider any settlement of the present strike which does not provide protection, in their present employment, both to the loyal employees who remained in the service, and to the new employees entering it." The executives, however, agreed to respect all the Labor Board's rulings.

On Aug. 7 President Harding made another proposal, to both the executives and the shopmen, in part as follows: "Mindful of the pledge of both the executives and the striking workmen to recognize the validity of all Labor Board decisions, I am now calling on the striking workmen to return to work, and calling upon the carriers to assign them to work, and upon both to take the question of seniority to the Labor Board for hearing and decision." This proposition was considered by officials of the shopmen's organization, and those of the Brotherhood of Stationary Firemen and Oilers, also on strike, on Aug. 10, and by a meeting of all railway labor organization chiefs on Aug. 11. The plan was unacceptable to the labor leaders, who desired the Labor Board to assume jurisdiction over the seniority question, and give them a favorable decision, before calling off the strike.

The proposition was considered by the railway executives on Aug. 11 and the following resolution was adopted by roads whose mileage totalled 151,824. 1. That all former employees who have not been guilty of proved violence shall be assigned to their former positions where vacancies exist. 2. Where their former positions have been filled, other employment of the same class will be found for them if they have committed no violence. 3. If, after these men have been assigned, questions of seniority arise with them which cannot be settled locally they will be referred to the Labor Board

for hearing. 4. No intimidation will be practised or permitted against any employees who remained in service, or new employees, or against those returning. The following resolution was adopted by roads whose mileage totalled 57,222. 1. All former employees who have not been guilty of violence shall be assigned to their former positions where vacancies exist. 2. If after being assigned, questions of seniority arise, which cannot be settled locally, they shall be referred to the Labor Board. 3. In agreeing to submit questions of seniority, as above it is understood that neither the railways nor their employees shall be deprived of the right of review by the courts of such decisions, if they affect agreements in existence between any railway and its employees. The net result of the President's second proposal, therefore, was that nothing was accomplished.

On Aug. 18 the railway executives had a long conference with the train service brotherhood leaders, the latter stating that they were anxious to act as mediators in the dispute and to end it if possible. The proposals made by the train service brotherhood leaders at the conference were not made public, but it is said that they desired the railway executives to take back their striking shopmen with no mention made of seniority, the inference being that they expected the returning shopmen to get back their seniority in the natural course of events. A meeting of executives was held in New York on Aug. 23 to consider the train service brotherhood's leaders' proposals, which were rejected by a vote of 254 to 4, the executives re-affirming their stand on the seniority issue. The four votes were cast by S. D. Warfield, President, Seaboard Air Line. When the executives' decision was announced, the train service brotherhood leaders asked to be allowed to appear before the main meeting of the executives, and upon permission being given, L. E. Sheppard, President of the Brotherhood of Railway Conductors, submitted a new proposition, as follows: 1. That all men be reinstated in the same class as they held on June 30, at present rates of pay. Only strikers proved guilty of disorder and violence to be disregarded. 2. All cases of dispute to be referred to the U.S. Labor Board. 3. No intimidation or oppression to be practised against any employees who have remained or have taken service since the strike began, or those returning. 4. All lawsuits growing out of the strike to be cancelled by both parties." This proposal was also rejected by the executives.

A New York press dispatch of Aug. 24 stated that representatives of 20 railways, having about 30% of the class 1 road mileage, were in consultation with the train service brotherhood's leaders to see if a satisfactory settlement could be arrived at, but this report lacks confirmation at the time of writing. (Aug. 25.)

Not to be Deprived.—The train robber was holding up a Pullman car. "Out with your dough. I'll kill all men without money and kiss all women." An elderly man said: "You shall not touch these ladies!" An old maid in an upper berth shouted: "You leave him alone, he's robbing this train."—Mug Wump.

Was it an Asbestos One?—A young man was walking up and down the aisle of a smoker, swearing, when a preacher approached him and said: "Young man, don't you know that you are going straight to hell?" "I don't give a dern. I've got a round trip ticket," replied the traveller.—Mug Wump.

Self Propelled Cars on Steam Railways.

Canadian National Rys. self-propelled cars have been re-numbered, as stated in Canadian Railway and Marine World for August, and in addition to the list there given, further cars were added during August. The equipment now includes no. 15,800, a gasoline-electric car, operating between Transcona and Winnipeg, Man.; 15,801, the storage battery car operating between Bathurst and Campbellton, N.B.; 15,803, a battery car secured in August from the Cambria & Indiana Rd.; 15,805, a steam car equipped with oil burning boiler, secured from the Unit Car Co., Boston; 15,810, a gasoline car operating between Souris and Elmira, Prince Edward Island; 15,811, a gasoline car operating between Cross Creek and Stanley, N.B.; 15,812 and 15,813, two gasoline cars, delivered recently by Ledoux, Jennings, Ltd., Montreal; 15,814, a gasoline car similar to that operating on the Greater Winnipeg Water District Ry.

Car 15,803, a storage battery car secured from the Cambria & Indiana Rd., is somewhat smaller than the storage battery car operating between Bathurst and Campbellton, having accommodation for 32 passengers. It has a small baggage compartment. This car was overhauled at the Niagara, St. Catharines & Toronto Ry. shops, at St. Catharines, Ont., on delivery from the U.S., some alteration in the battery arrangement being made. It will be tested in service in the near future. Another battery car, to be numbered 15,804, will, in all probability, be secured from the Cambria & Indiana Rd.

The steam car, 15,805, is equipped with a Stanley steam car engine, specially developed for it. Crude oil is used for fuel, and the car is equipped with a flash boiler using superheated steam at 750 lb. pressure. The car is 51 ft. long and has seating accommodation for 42 passengers. The boiler is at the front end and the drive is through the leading truck axles.

The gasoline car, 15,812, built by Ledoux, Jennings, Ltd., and operating between Picton, Trenton, Trenton Jct. and Napanee, Ont., was described fully in Canadian Railway and Marine World for July and August. Car 15,813, delivered recently by the same builders, differs from 15,812, in that the leading truck is identical with the trailing truck, with the exception of the side rods, and also that it has a small baggage compartment at the front, equipped with folding seats. Car 15,812 had but a one-compartment interior, and a small leading truck.

The storage battery car 15,801, operating between Bathurst and Campbellton, is now hauling a trailer, this being necessitated by increasing traffic. The trailer is a 50-ft. passenger car. The battery car experiences no difficulty in making the same schedule time with the trailer, but, as is to be expected, current consumption is materially increased. It was intended to replace this car between Bathurst and Campbellton with car 15,814, the service gasoline car, but the intention now is to leave the battery car where it is. In this connection, we are advised that the management will shortly make a complete redistribution of all the self-propelled cars now owned.

The Canadian National Rys. have at the Canadian National Exhibition, Toronto, an interesting display of self-propelled cars, consisting of nos. 15,803, small battery car; 15,805, steam car; 15,813, gasoline car, and 15,814, gasoline car. These cars are attracting a great deal of attention at the exhibition, and

there is no doubt that the exhibit will have a large influence in emphasizing the possibilities of self-propelled cars for economical transportation, in their proper field. The assignment of cars to permanent runs, as referred to above, will be undertaken as soon as they are removed from the exhibition.

Canadian Pacific Ry.—The Board of Railway Commissioners passed order 32,755, Aug. 12, authorizing the C.P.R. to operate a passenger car, propelled by gasoline, on its Lasalle Loop Subdivision, the Board reserving the right to order any changes in any such car which may seem necessary for public safety, and convenience of the public or the company's employees. The C.P.R. is operating a gasoline car on its Lasalle Loop Subdivision, from Highlands to Cote St. Paul, Montreal Terminal Division, Quebec District, 5.85 miles, but we are officially advised that the C.P.R. has not bought or ordered any of this class of equipment, and that the car being operated is the Quebec Central Ry's property, and is being used by the C.P.R. temporarily. Details of the Lasalle Loop Subdivision, on which the car is being operated, are given elsewhere in this issue under the head of C.P.R. Construction, Betterments, etc.

The Grand Trunk Ry. has ordered a motor rail passenger car from National Steel Car Co., Hamilton, Ont. It is to be of the most modern type, and to be built in accordance with specifications furnished by the G.T.R.

A Kitchener, Ont., press report of Aug. 4, stated that the Kitchener, Galt, Waterloo, and Doon Boards of Trade had decided to ask the Minister of Railways that a gasoline car be run on the G.T.R. between Kitchener and Galt. The G.T.R. took off one of the Kitchener-Galt trains recently, owing to the coal strike, and the loss of the train is said to be severely felt, especially by Doon residents who work in Galt and were dependent upon the train.

Greater Winnipeg Water District Ry.—Details of the gasoline motor car operated by this railway, between St. Boniface and Waugh, on Shoal Lake, Man., 91.9 miles, were given in preceding numbers. We are officially advised that the car was put into regular service on July 6, and is operating eastbound Thursday and Saturday, returning Friday and Monday. Two men are used. Up to date of our advice, July 23, it had been found necessary to operate a steam train eastbound every Tuesday and Wednesday. We are advised that the steam train will only be operated when carload and way-freight traffic warrant it, and when the steam train is run the gasoline car does not run. If conditions warrant it, the mixed train will be run once every week regularly on stated days.

The Quebec Central Ry. management, after considering the operation of gasoline railway motor cars for branch line service, ordered two from Ledoux, Jennings, Ltd., Montreal, the specifications being similar to those built by the latter company for the Canadian National Rys., with the exception of the inclusion of a small baggage compartment. It was the Q.C.R.'s original intention to order cars with trailers, the combined cars to accommodate about 65 passengers, with baggage compartment, but later it was thought advisable, on account of engine power limitation, to drop the idea of a trailer, and try the single unit, seating 30 passengers, until such time as a more powerful engine is devised, capable of

hauling a trailer. One car has been completed and delivered. It is the railway's intention to operate these cars between Levis and Scotts Jct., performing two round trips daily, making connections there with main line passenger trains to and from Quebec via the Quebec bridge route. The operation of these gasoline cars will effect a considerable improvement in the service to the public and enable the railway to meet the bus competition which has been established along the government highway paralleling the railway in that section. If these motor cars prove successful, as is anticipated, the company extend the service between Valley Jct. and St. George, on the Chaudiere Division, and between Tring Jct. and Megantic, on the Megantic Division. The car that has been delivered is being tested and has proved very satisfactory. When the second car is received, the regular service will be established. Following are the chief dimensions:—

Wheel base	18 ft.
Length	30 ft. 3½ in.
Width	7 ft. 1 in.
Length, baggage compartment.....	11 ft. 9½ in.
Width, baggage compartment.....	7 ft. 1 in.
Total weight	10 tons
Seating capacity	30
Engine	50 h.p. Rec 6-cyl.

The Q.C.R. cars differ from Canadian National Rys' car 15,812 in having a baggage compartment, and from Canadian National Rys. car 15,813 in having the same type leading truck as Canadian National Rys. car 15,812, as illustrated in Canadian Railway and Marine World for August, pg. 418, while, as stated above, in Canadian National Rys. car 15,813, the leading truck is the same as the trailing truck, with the exception of the side-rods. One of the cars ordered has been loaned to the C.P.R., and is being used temporarily on its Lasalle loop line, as stated in an earlier portion of this article.

Kingston Locomotive Works.—A Kingston, Ont., press dispatch says that the Canadian Locomotive Co. is not to be sold to the Baldwin Locomotive Co. or any other company, but will remain under its present control and management, and that a letter to this effect had been forwarded to all shareholders who had given options on their stock in the expectation that a sale of the control be effected. This letter states on behalf of F. G. Wallace, President of the company, in whose name the option had been obtained, that it has been found impossible to put the sale through. When the works will open up, again is problematical, but it is believed that there is reasonable hope that they will be opened this year, although on this point local officials have nothing to say.

Whitney Logging Railway For Sale.—We are advised that the Dennis Canadian Co. is offering for sale the rails and equipment of its logging railway, and the light rails and equipment of the tracks round its mill at Whitney, Ont. The rails consist of about 1,000 tons of 52 and 56-lb. relaying rails, approximately 100 tons of 16-lb. relaying rails, and 20 tons of 20-lb. relaying rails, and the equipment comprises: One 50-ton Lima geared standard gauge locomotive; 24 Russell log cars, 4 flat cars, 1 log loader and a large number of narrow gauge piling cars. The company's operations at Whitney are about completed and the mill will be dismantled and disposed of this year. The rails, etc., are being offered for sale by J. J. Gartshore, Toronto.

Changes in Grand Trunk Railway Officials.

The Dominion Government passed the following order in council, Aug. 14: "The committee of the Privy Council have had before them a report, dated Aug. 11, 1922, from the Minister of Railways and Canals, submitting a letter of resignation from Howard G. Kelley, director and President of the Grand Trunk Ry. Co. of Canada, reading as follows:—

"Montreal, July 14, 1922. Hon. W. C. Kennedy, M.P., Minister of Railways and Canals, Ottawa.—Dear Mr. Minister: I am placing before you, herewith, my resignation as President and member of the board of directors of the G.T.R. Co. of Canada and also of the various subsidiary corporations comprising the G. T.R. System, to be placed in effect at your convenience. In doing so I wish to express my appreciation of the uniform courtesy which you have extended to me. I am, sincerely yours, Howard G. Kelley."

"The Minister recommends that Mr.

General Manager, and shall exercise the authority and perform the duties hitherto exercised and performed by the President."

Sir Joseph Flavelle, Chairman of the

board of directors, at a meeting held today, appointed W. D. ROBB, ranking Vice President of the company, with the title of Vice President and General Manager. MR. ROBB will exercise the authority and perform the duties hitherto exercised and performed by the President."

Howard G. Kelley, who has resigned as a director of the G.T.R. Co. of Canada, and consequently also as President, was born at Philadelphia, Pa., Jan. 12, 1853, and entered railway service in 1881, since when he has been, to 1884, assistant engineer on location, construction and bridge construction, Western & Pacific Divisions, Northern Pacific Ry.; 1884 to 1887, engaged in mining; 1887 to Jan., 1890, Resident Engineer and Superintendent of Bridges and Buildings, St. Louis Southwestern Ry. System, including St. Louis Southwestern Ry. of Texas; Jan., 1890, to Mar., 1898, Chief Engineer, same



Frank Scott,
who has resigned as Vice President and Treasurer,
Grand Trunk Railway.



H. G. Kelley,
who has resigned as President, Grand Trunk
Railway.



Jas. A. Yates,
Treasurer, Grand Trunk Railway.



W. D. Robb,
Vice President and General Manager, Grand
Trunk Railway.

Kelley's resignation be accepted. The Minister further recommends that Graham A. Bell" (Deputy Minister of Railways and Canals) "be appointed a director of the G.T.R. Co. of Canada. The committee concur in the foregoing recommendations and submit the same for approval."

Following a meeting of G.T.R. directors in Montreal, Aug. 17, the following official statement was issued: "The Chairman, Sir Joseph Flavelle, laid before the meeting a copy of an order in council approved on Aug. 14, accepting the resignation of Mr. Howard G. Kelley as a director of the company, and appointing Graham A. Bell, Deputy Minister of Railways, in his place. Inasmuch as Mr. Kelley's resignation from the board of directors has, under the Railway Act, the effect of rendering vacant the position of President of the company, it was thereupon resolved that W. D. Robb shall be the ranking Vice President of the company, with the title of Vice President and

board, issued the following circular, Aug. 17: "The Government having accepted the resignation of HOWARD G. KELLEY as director, which, under the Railway Act, renders vacant the position of Presi-

road; Mar., 1898, to July, 1907, Chief Engineer, Minneapolis & St. Louis Rd.; July, 1900, to July, 1907, also Chief Engineer, Iowa Central Ry.; Mar., 1898, to Mar., 1899, also Consulting Engineer, St. Louis Southwestern Ry.; July, 1907, to Oct. 2, 1911, Chief Engineer, G.T.R., Montreal; Oct. 2, 1911, to Sept. 1, 1917, Vice President in charge of construction, transportation and maintenance, G.T.R., Montreal, and from Sept. 1, 1917, President, G.T.R. He was also President, G.T. Pacific Ry. Co., and a director and Chairman of the Board, Central Vermont Ry., as well as President of a number of subsidiary companies, a list of which was given in Canadian Railway and Marine World for May, page 239. In May, 1920, he was appointed chairman of the committee of management for the co-ordination of the G.T.R. with the Canadian National Rys. He is a C.E. of the Pennsylvania Polytechnic College, a member of the Institution of Civil Engineers of Great Britain, of the Engineering Institute of

Canada and of the American Society of Civil Engineers, and was President of the American Railway Engineering and Maintenance of Way Association for two terms. In connection with Mr. Kelley's resignation it is stated that his contract with the G.T.R. expired Aug. 31. He advises Canadian Railway and Marine World that he intends to take a holiday for a few months.

W. D. Robb, who has been appointed ranking Vice President and General Manager, G.T.R., was born at Longueuil, Que., Sept. 21, 1857, his father having come to Canada from Scotland, some time before, to engage in the early construction work on the G.T.R. He was educated at Sherbrooke Academy and St. Francis College, Richmond, Que., and entered G.T.R. service in 1871, since when he has been, to July, 1882, machinist apprentice, Montreal; July, 1882, to Jan. 1883, charge hand, Montreal; Jan. to Aug. 1883, Night Locomotive Foreman, Montreal; Aug. 1883 to Jan. 1897, Locomotive Foreman, Belleville, Ont.; Jan. 1897 to July 1901, Master Mechanic, Middle Division, London, Ont.; July 1901 to Sept. 1, 1917, Superintendent of Motive Power, Montreal; Sept. 1, 1917 to Oct., 1918, Vice President in charge of Motive Power Equipment and Machinery, Montreal; Oct. 1911 to Aug. 17, 1922, Vice President, Transportation, Construction and Maintenance, Montreal. Mr. Robb is the first person born in Canada to be appointed to a chief executive office on the G.T.R., except Sir Joseph Flavelle, whose occupancy of the chairmanship of the board of directors is only a temporary from which he is anxious to be relieved. One, and is the first one who has risen, with unbroken service, from an apprenticeship in the company's service.

Frank Scott, Vice President (Financial) and Treasurer, G.T.R., has also resigned, after 44 years service with the company, during which he rose from a junior clerkship. His resignation was accepted by the directors on Aug. 25, when they expressed their appreciation of his services. He has been placed on the superannuation list. He entered G.T.R. service in 1879, in the Audit Department, and passed through all the stages in that department from junior clerk. He was appointed Treasurer in 1901 and in 1906 was also appointed Treasurer, Grand Trunk Pacific Ry., which latter position he relinquished on the appointment of a receiver. In 1914 he was appointed Vice President and Treasurer, G.T.R., and a number of its subsidiary companies.

James A. Yates who has been appointed Treasurer, G.T.R., Montreal, was born there, Nov. 30, 1876, and entered G.T.R. service in Feb. 1891, since when he has been, to Dec. 1906, clerk, Treasurer's office, Montreal; Jan. 1907 to Dec. 1911, chief clerk, Treasurer's office, Grand Trunk Pacific Ry., Montreal; Jan. 1912 to July 31, 1914, chief clerk, Treasurer's office, G.T.R., and G.T.P.R.; July 31, 1914 to Aug. 31, 1922, Assistant Treasurer, G.T.R., and Secretary, Montreal and Southern Counties Ry.

Jamaica Government Railways.—Lewis Thomas, Director of Railways, Kingston, Jamaica, W.I., received tenders to Aug. 21, for building 10 miles of standard gauge railway to be known as the Chapelton-Frankland branch. The work to be done covers approximately 400,000 cubic yards of excavation; the construction of a tunnel 180 ft. long; the erection of bridges, 7 with spans varying from 50 ft., deck span to 145 ft., a pin concreted truss, and viaduct 410 ft. long.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Abitibi Transportation & Navigation Co., Ltd.—Canadian Railway and Marine World for August stated that it was reported that the Abitibi Power & Paper Co. wanted to build a railway from Iroquois Falls via Hughes, to ultimately reach James Bay, or navigable waters flowing into it, and to do business thereon as common carriers. We have learned since that the company's original application to the Ontario Government was for the right to build a railway from Iroquois Falls to a point on the French River, running into James Bay, but, as stated in our last issue, it has only been authorized to build a logging railway on its limits from Iroquois Falls to Hughes, and that it has not been given a common carrier's rights.

We are advised that 85-lb. rails are to be laid on the main line, but the location and length of connecting spur lines have not been determined, but they will be of a temporary character, and that the rails will be taken up and used elsewhere on the company's limits as soon as each spur line has served its purpose. (Aug., pg. 409.)

Burrard Inlet Tunnel and Bridge Co.—Some information regarding this company's plans for the erection of a railway bridge across the Second Narrows of Burrard Inlet, Vancouver, was laid before representatives of the municipalities which hold the company's stock, recently. It was stated that of the \$115,000 which had been subscribed by the municipalities, \$113,500 had been expended in legal and organization expenses, securing engineering reports, preparation of plans, test borings for foundations, etc., prior to the war. The company's chief assets consist of the franchise and the plans. A Pittsburg, Pa., company is said to have made an offer to build a bridge and to accept the company's bonds and a provincial guarantee in payment. This the company is said to be prepared to accept, subject to the approval of the plans by the government and other authorities, and the passing of the necessary bylaws by the municipalities interested.

A press report states that the concern proposing to build the bridge is the McClintock, Marshall Construction Co., and that the plans submitted provide for a low level, single leaf heel trunnion railway and highway bridge, of sufficient strength to carry 10-ton trucks on each of its roadways, and a train travelling at 20 miles an hour. The estimated cost of the structure is mentioned at \$1,241,000. The contracting interests of Vancouver and district waited upon the Mayor of Vancouver, a few days after the meeting referred to above, to protest against the giving of a contract to a United States company, without Canadian concerns being given an opportunity to complete. The Mayor is reported to have stated that it was understood that most of the fabrication of the structure would be done in Vancouver, in order to save cost of freight, and that it was expected that fully 50% of the construction cost of the structure would be for the benefit of local interests and labor.

Hon. D. D. Mackenzie, Dominion Solicitor General, is reported, in speaking at North Vancouver, July 22, to have said that it is the Dominion Government's intention to build, or to assist in building, this bridge, that its construction would not only benefit the local com-

munity, but the whole of Canada. Personally, he did not think the municipalities should contribute anything towards its construction, for when a public work is to become the Government's property, it should be paid for by Government.

The municipalities interested in the company are: Vancouver city, \$200,000 subscribed, \$30,000 paid up; North Vancouver city, \$150,000 subscribed, \$22,500 paid up; North Vancouver District, \$337,500 subscribed, \$50,625 paid up; West Vancouver, \$62,500 subscribed, \$9,575 paid up. There are five individual stockholders with \$2,000 each subscribed and \$500 each paid up. (Aug., pg. 409.)

Cowichan Bay Ry.—Application is reported to have been made to the British Columbia Government, for the provision of terminals at Cowichan Bay, Vancouver Island, for a short line of railway to run from Cowichan Lake, through Duncan. It is stated that at present the Esquimalt & Nanaimo Ry. is handling about 500,000 ft. of lumber a day from the Cowichan Lake timber area, and the new line is planned to secure a share of the traffic. The new line would be operated in connection with the Canadian National Rys. (Aug., pg. 405.)

Esquimalt & Nanaimo Ry.—Grant Hall, Vice President, C.P.R., made a trip over the line recently, and looked over the terminals at Victoria. It is reported that it is proposed to lay out some additional facilities and to erect a new station buildings as soon as the new Johnson St. bridge is completed. (Aug., pg. 407.)

Kettle Valley Ry.—We are officially advised that the reconstruction of bridges on the Nicola Branch, authorized by the Board of Railway Commissioners, consists of the following:—

Bridge 14.5, a Howe truss span on concrete abutments, 164 ft., between ballast walls, is to be replaced with 2 half-deck plate girder spans, 78 ft. 1 in., center to center, on the existing abutments, and a new center pier. The pier has been built by Armstrong, Morrison & Co., Vancouver.

Bridge 18, a Howe truss span, on concrete abutments, 163 ft. 10 in., between ballast walls, built about 16 years ago, is being replaced by a 106¾ ft. pony truss span, and a half deck plate girder span, 53 ft. 10 in. over all, to be erected on the existing abutments, and a new pier. The new pier has been completed by Armstrong, Morrison & Co.

The contract for the erection of the new spans had not been let when we were given the above information. (Aug., pg. 409.)

Lacombe & Northwestern Ry.—We are officially advised that a contract has been let to W. A. Dutton, Winnipeg, for clearing, grading and fencing, on a 12-mile extension of this line. The extension starts in the n.e. ¼ of Sec. 8, Tp. 43, Range 2, West 5th Meridian, and runs northwesterly to Sec. 4, Tp. 45, Range 3, West 5th Meridian. The work is expected to be completed during September. The bridging, tracklaying, and ballasting will be done by the railway's own forces. Track will be laid with 60-lb. rails, which are on hand. This railway is owned by the Alberta Government, and provision was made at the last session of the Legislature for the present construction. (Aug., pg. 410.)

Mainly About Railway People Throughout Canada.

R. B. Angus, the only surviving original director of the C.P.R. Co., is again reported to be seriously ill.

M. J. Aquin, contractor, who died at Dorval, Que., recently, was, for about 30 years, superintending construction on the G.T.R., and later built a portion of the Great Northern Ry. of Canada, now part of the Canadian National Rys., between Montford Jct. and Huberdeau, Que.

Sir George McLaren Brown, European General Manager, C.P.R., London, Eng., and Lady Brown, reported as expected to arrive in Canada shortly for a visit.

W. G. Brownlee, formerly General Transportation Manager, G.T.R., Montreal, from which position he resigned in Aug., 1912, died at his home at St. Petersburg, Fla., July 21. He was born at Lawrenceville, Ill., Sept. 9, 1858, and entered railway service in 1877, since when he was, to 1879, operator, Ohio Mississippi Ry.; 1879 to 1881, operator and dispatcher, Union Pacific Ry.; 1881 to 1884, dispatcher and Trainmaster, Denver & Rio Grande Rd.; 1884 to 1887, dispatcher, Union Pacific Rd., Laramie, Wyo.; 1887 to 1889, dispatcher, same road, St. Louis, Mo.; 1892 to Feb., 1900, Division Superintendent, same road, St. Louis, Mo.; Feb., 1900, to May, 1901, Assistant Superintendent, Eastern Division, G.T.R., Belleville, Ont.; May, 1901, to March, 1902, Superintendent, Eastern Division, same road, Montreal; March, 1902, to Dec., 1904, Superintendent, Western Division, same road, Detroit, Mich.; Jan., 1905, to April, 1907, Superintendent, Middle Division, same road, Toronto; April, 1907, to Aug. 16, 1912, General Transportation Manager, same road, Montreal. On his resignation, the position was abolished, and he spent a few months travelling in Europe, after which he lived at his summer home at Peaks Island, Casco Bay, near Portland, Me., for about two years, and later removed to St. Petersburg, Fla. He was buried at Lebanon, Ill., Aug. 1, the service being attended by a number of old associates and railway representatives.

Georgé L. Bryson, whose appointment as Travelling Passenger Agent, Canadian National-Grand Trunk Rys., at Cincinnati, Ohio, was announced in our last issue, was born at Chicago, Ill., Sept. 30, 1888, and entered railway service May 7, 1912, since when he has been, to Jan. 20, 1913, ticket stock clerk, G.T.R., Chicago, Ill.; Jan. 20, 1913, to Feb. 16, 1914, assistant ticket agent, G.T.R., Chicago, Ill.; Feb. 16, 1914, to May 1, 1916, chief clerk to City Passenger and Ticket Agent, G.T.R., Detroit, Mich.; May 1, 1916, to May 1, 1918, Travelling Passenger Agent, G.T.R., Kansas City, Mo.; May 1 to July 1, 1918, Travelling Passenger Agent, G.T.R., Chicago, Ill.; July 1, 1918, to Feb. 20, 1919, in U.S. Naval service; Feb. 20 to Aug. 1, 1919, Passenger Agent, Canadian lines, G.T.R., Chicago, Ill.; Aug. 1, 1919, to June 1, 1922, Travelling Passenger Agent, Canadian National-Grand Trunk Rys., Chicago, Ill.

H. J. Cambie, formerly Special Assistant Engineer, C.P.R., and Chief Engineer, Esquimalt & Nanaimo Ry., Vancouver, B.C., was presented by the Vancouver Pioneers Association, Aug. 14, with a gold medal, donated to the Association by the Hudson's Bay Co., for the member of the Association considered most worthy. Mr. Cambie, who was connected with early railway construction in the province, was 85 in Oct., 1921.

Allan Cameron, who has been appointed Oriental Manager, Canadian Pacific

Steamship Lines, Hong Kong, China, was born near Owen Sound, Ont., March 14, 1864, and entered railway service in 1879, since when he has been, to July 31, 1882, messenger and clerk, Great Western Ry. of Canada, Toronto; Aug. 7, 1882, to May 1, 1883, baggage master, Northern Ry. of Canada, Orillia, Ont.; June 1, 1883, to June 1, 1887, clerk, local freight office, C.P.R., Vancouver, B.C.; June 1, 1887, to Feb., 1890, clerk, General Freight and Passenger Department, C.P.R., Vancouver, B.C.; Feb. 1890, to July 1, 1893, Freight and Passenger Agent, C.P.R., Victoria, B.C.; July 1, 1893, to Sept. 30, 1896, Freight and Passenger Agent, C.P.R., Portland, Ore.; Oct. 1, 1896, to July 1, 1899, District Freight Agent, C.P.R., Vancouver, B.C.; July 1, 1899, to Dec., 1900, Assistant General Freight Agent,



Allan Cameron,
Oriental Manager, Canadian Pacific Steamships,
Hong Kong, China.

C.P.R., Vancouver, B.C.; Jan., 1901, to Aug., 1905, in charge of Asiatic business, Oregon Rd. & Navigation Co's steamships, as General Agent, Hong Kong, China; Aug., 1905, to Dec., 1908, General Traffic Agent, Great Britain and Europe, C.P.R., London, Eng.; Dec., 1908, to Mar., 1912, General Traffic Agent, C.P.R. New York; March, 1912, to Sept. 30, 1922, Superintendent, Land Branch, Natural Resources Department, C.P.R., Calgary, Alta.

William Chard, Claims Agent, Reid Newfoundland Co., St. John's, Nfld., died suddenly on the s.s. Kyle, while bound from Port aux Basques for Canada on a holiday trip, July 31. He had previously been in apparent good health, death being due to heart failure. The body was taken back to St. John's, where the funeral took place.

F. W. Churchill, town ticket agent, C.P.R., Collingwood, Ont., died in the General and Marine Hospital there, Aug. 21, aged 69, after several weeks illness. He was born in London, Eng., his father being a shipowner, in whose office he started to work, then making a sailing ship trip to South American ports. He came to Canada in 1874, and was for some time secretary to his relative, F.

W. Cumberland, then Managing Director, Northern Ry. of Canada, at Toronto. Subsequently he entered the Bank of Commerce service, afterwards returning to England for a short time and then coming back to Canada in 1888 and shortly afterwards going to Collingwood, where he entered into insurance business, which he continued until his last illness. He had also been town ticket agent, C.P.R., for over 25 years. He was a past President, Canadian Ticket Agents Association, was at one time deputy reeve of Collingwood, and of late years had been chairman of the public library's finance committee, and was for several years treasurer of Manito Masonic Lodge. The funeral at Collingwood was attended by W. Fulton, Assistant District Passenger Agent, C.P.R.; W. Dockerill, Travelling Passenger Agent, C.P.R., and J. Brignall, Travelling Passenger Agent, Robt. Reford Co., Toronto.

D. C. Coleman, Vice President, Western Lines, C.P.R., entertained at dinner at the Royal Alexander Hotel, Winnipeg, on Aug. 18, in honor of Hon. J. H. King, Dominion Minister of Public Works, and Mrs. King.

William Craig Chisholm, K.C., who has been appointed head of the Legal Department, G.T.R., Montreal, owing to the death of W. H. Biggar, K.C., Vice President and General Counsel, was born at Port Hope, Ont., Aug. 20, 1864, and educated at Port Hope high school, and Toronto University, graduating with the degree of B.A., in 1885. He was admitted to the Ontario bar in 1888, and appointed a K.C. in 1908. He was appointed Assistant City Solicitor for Toronto in 1891, and City Solicitor in June, 1905, and on resigning to go into private practice, Oct. 11, 1909, was presented with a cabinet of silver. He was appointed General Solicitor, G.T.R., in July, 1913.

C. B. Foster who has been appointed Passenger Traffic Manager, C.P.R., Montreal, was born at Kingston, N.B., Sept. 30, 1871, and entered C.P.R. service in Apr. 1891, since when he has been to Oct., 1892, stenographer in Passenger Department, St. John, N.B.; Sept. 1893, to Sept. 1893, senior clerk, Passenger Department, St. John, N.B.; Sept. 1893, to July 1899, Travelling Passenger Agent, St. John, N.B.; July 1899 to Feb. 8, 1902, chief clerk, Passenger Department, St. John, N.B.; Feb. 8, 1902, to Nov. 22, 1904, District Passenger Agent, St. John, N.B.; Nov. 22, 1904, to Sept. 8, 1908, District Passenger Agent, Toronto; Sept. 8, 1908, to Oct. 31, 1910, Assistant General Passenger Agent, Vancouver, B.C.; Oct. 31, 1910, to June 17, 1913, General Passenger Agent, Western Lines, Revelstoke, B.C., and east, Winnipeg. June 17, 1913 to Aug. 31, 1922, Assistant Passenger Traffic Manager, Eastern Lines, C.P.R., Montreal.

William Cross, who died at Winnipeg, Aug. 16, was born at Birkenhead, Cheshire, Eng., in 1842, and entered Canadian railway service in 1863. He was, to 1882, journeyman and foreman in G.T.R. erecting shops, Montreal; from 1882 to 1887, Master Mechanic, Eastern Division, C.P.R., Montreal; 1887 to April, 1900, Master Mechanic, Western Division, C.P.R., Winnipeg; April, 1900, to 1901, Consulting Mechanical Engineer, Western Division, C.P.R., Winnipeg; 1901 to 1904, Engineer of Tests, C.P.R., Montreal; 1904 to Dec. 31, 1907, when he was superannuated, Assistant to Second Vice President (Sir William Whyte), C.P.R., Winnipeg.

Hon. G. P. Graham, Minister of Militia and Defence, and formerly Minister of Railways in the Laurier Government, had to leave Ottawa, about the middle of August, for his home in Brockville, Ont., owing to illness.

D. B. Hanna, President, Canadian National Rys., has been elected President of the Scottish College Men's Club, organized in Toronto recently.

Mrs. James Hardwell, widow of the late Chief Traffic Officer, Board of Railway Commissioners, left Ottawa, early in August, to spend a few months in Europe.

Mrs. Hinton, wife of W. P. Hinton, formerly Vice President and General Manager, Grand Trunk Pacific Ry., Winnipeg, died there, Aug. 10, after a long illness. She was a sister of A. J. Parr, General Freight and Passenger Agent, Timiskaming & Northern Ontario Ry., North Bay, Ont.

H. B. Jackson, Manager, Hotel Vancouver, C.P.R., Vancouver, B.C., and formerly of the Empress Hotel, Victoria, who had been missing for two weeks, was found drowned in False Creek, Vancouver, towards the end of July. The funeral at Vancouver was attended by a number of the company's hotel officials.

D. Johnston, Travelling Passenger Agent, Canadian National Rys., Los Angeles, Cal., was a visitor during August, in Moncton, N.B., where he was formerly in the Intercolonial Ry. service.

Hon. W. C. Kennedy, Minister of Railways and Canals, was operated on at the Royal Victoria Hospital, Montreal, Aug. 25, for gall stones.

John Leslie, Comptroller, C.P.R., and Mrs. Leslie, returned to Montreal early in August, after a two months visit to Europe.

Mrs. A. D. MacTier, wife of A. D. MacTier, Vice President, Eastern Lines, C.P.R., Montreal, is visiting Great Britain, having gone over on the C.P.R. s.s. Empress of Scotland, which arrived at Southampton, Aug. 1.

Halmer J. Main, whose appointment as Superintendent, Trenton Division, Ontario District, C.P.R., Toronto, was announced in our last issue, was born at Kemptville, Ont., Aug. 16, 1885, and entered C.P.R. service, Aug. 1, 1902, since when he has been, to Sept. 1, 1911, operator and agent at various points, Chalk River Subdivision; Sept. 1, 1911, to Aug. 14, 1913, dispatcher, Ottawa and Smiths Falls, Ont.; Aug. 15, 1913, to Aug. 12, 1917, Chief Dispatcher, Smiths Falls, Ont.; Aug. 12, 1917, to Sept. 19, 1918, Assistant Superintendent, Smiths Falls, Ont.; Sept. 20, 1918, to May 31, 1920, Assistant Superintendent, Farnham, Que.; June 1 to Aug. 13, 1920, relieving Superintendent, at various points, Eastern Lines; Sept. 1, 1920, to May 31, 1921, Car Service Agent, Quebec District, Montreal; June 1 to Oct. 1, 1921, relieving Superintendent, Quebec District; Oct. 1, 1921, to July 4, 1922, Car Service Agent, Quebec District, Montreal.

H. S. Meacham, Import Freight Agent, Canadian National Rys., Montreal, was incorrectly referred to in Canadian Railway and Marine World for August, under Birthdays of Transportation Men in August, as "ex-Import Freight Agent, Canadian National Rys., Montreal, now of Calgary, Alta."

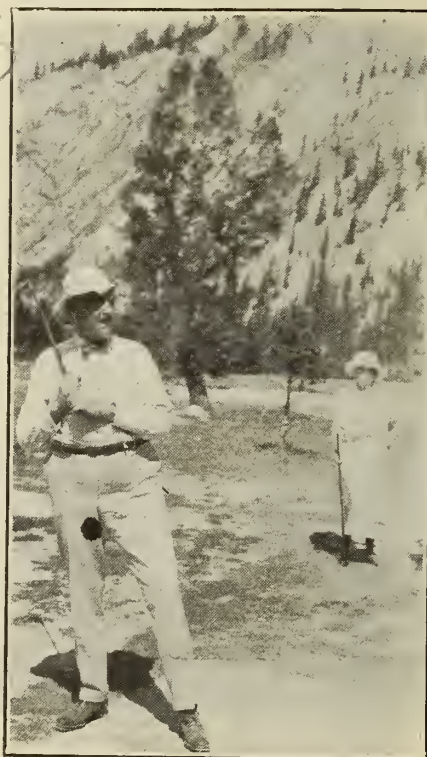
Lord Northcliffe, who died in England, Aug. 14, was the promoter, and probably principal owner, of the Anglo-Newfoundland Development Co., which has pulp and paper mills at Grand Falls, and a railway to Botwood, Nfld.

Glen E. Plumb, counsel for 16 of the larger United States railway companies,

and author of the Plumb plan of railway operation and ownership, died at Washington, D.C., Aug. 2.

C. Price Green, Commissioner, Industrial & Resources Department, Canadian National Rys., Toronto, is President of the Mimico, Ont., Horticultural Society.

R. A. Reid, a G.T.R. brakeman, has been congratulated by the company's officials, and reported to the Royal Canadian Humane Association, for saving the life of a little girl who had strayed on the track near Arnprior, Ont., recently. He was riding on the locomotive, and noticing that, in approaching the child, the train could not be stopped in time, he climbed on to the pilot, and, as owing to his position, he could not lift her, he pushed her under the pilot and away from the wheels. On the train being brought to a standstill, she was found quite uninjured.



Grant Hall,
Vice President, Canadian Pacific Railway,
playing golf at Banff, Alta.

Herbert J. Russell, Superintendent, Eastern Division, Reid Newfoundland Co., St. John's, Nfld., who has also been appointed Assistant to the General Manager (R. C. Morgan) as announced in our last issue, was born at Musgrave Harbor, Nfld., Dec. 24, 1891, and entered Reid Newfoundland Co's service, Sept. 12, 1906, since when he has been, to June 25, 1907, stenographer and clerk, Newfoundland Express Co.; June 25, 1907, to Jan. 17, 1913, chief clerk to Superintendent, secretary to General Superintendent, and acting Chief Dispatcher, Reid Newfoundland Ry.; Jan. 17, 1913, to Nov. 27, 1917, Assistant to Superintendent; and from Nov. 27, 1917, Superintendent, Eastern Division, all at St. John's.

H. H. Schaefer, formerly Division Freight Agent, Canadian Government Railways, Moncton, N.B., died suddenly, from heart trouble, at Cap Brule, near Point du Chene, N.B., July 26. He was born at Cologne, Germany, Feb. 10, 1848, came to Canada with his parents in 1855, and settled in Nova Scotia, later moving to Prince Edward Island, where he entered the New York, Newfoundland &

London Telegraph Co's service, later the Anglo-American Telegraph Co., and in 1870 was appointed local manager at Sackville, N.B. He entered Intercolonial Ry. service in 1871, and was, to 1876, station agent, Sackville, N.B.; 1876 to 1878, station agent, Shediac, N.B.; 1878 to 1892, station agent, Point du Chene, N.B.; 1892 to 1897, Travelling Freight Agent; 1897 to 1898, in charge of weighing department; 1898 to June, 1905, chief clerk to General Freight Agent, St. John, N.B.; June, 1905, to Aug., 1913, Division Freight Agent, St. John, N.B.; June, 1905, until his superannuation in March, 1914, Division Freight Agent, Canadian Government Rys., Moncton, N.B. In 1895 he was secretary to the freight rate commission appointed to take evidence in regard to alleged excessive freight charges in the north-west. He was buried at Shediac, N.B.

D'Arcy Scott, formerly a member of the Board of Railway Commissioners, and his family, spent August at Blue Sea Lake, Ont.

Roy V. Somerville, Advertising Manager for Punch, London, Eng., for the past 12 years, died there, towards the end of July, aged 62. He was born in Dundas, Ont., and was for some time Advertising Manager, C.P.R.

Hon. J. A. Stewart, M.P. for Lanark, Ont., ex-Minister of Railways and Canals, is in the Royal Victoria Hospital, Montreal, suffering from pernicious anaemia.

Frank W. Thompson, whose appointment as acting Chairman, Canadian Freight Association, Western Lines, Winnipeg, was announced in our last issue, was born at Toronto, June 14, 1873, and entered railway service in Oct., 1886, since when he has been, to 1889, apprentice, Freight Department, G.T.R., Toronto; 1890 to 1893, freight clerk, G.T.R., Toronto; 1894 to 1897, rate clerk, Division Freight Office, G.T.R., Montreal; 1898 to 1902, chief clerk, General Freight Department, Canadian Government Rys., Montreal; 1902 to 1903, rate clerk, Canadian Northern Ry., Winnipeg; May, 1903, to April, 1904, Freight Inspector, Canadian Freight Association, Winnipeg; May, 1904, to Dec., 1905, Freight Inspector, C.F.A., Port Arthur, Ont.; Jan. 1906, to April, 1907, Freight and Car Service Inspector, C.F.A., Edmonton, Alta.; May, 1909, to Nov., 1910, Freight Inspector, C.F.A., Fort William, Ont.; Dec., 1910, to Sept., 1912, Travelling Freight Inspector, C.F.A., Regina, Sask.; Oct., 1912, to Dec., 1917, Chief Freight Inspector, C.F.A., Winnipeg; Jan., 1918, to July, 1922, Assistant Secretary, C.F.A., Winnipeg.

C. E. E. Ussher, who has been appointed General Passenger Traffic Manager, C.P.R., Montreal, was born at Niagara Falls, Ont., Dec. 29, 1857, and entered railway service in 1874, since when he has been, to May 1876, clerk in Auditor's office, Great Western Ry.; May 1876 to June, 1880, clerk in General Passenger Department same road; June, 1880, to Apr., 1883, chief ticket clerk, Wabash, St. Louis and Pacific Ry.; Apr. to Nov. 1883, rate clerk, Chicago and Atlantic Rd.; Nov., 1883, to Nov., 1886, in private business at Hamilton, Ont.; Nov., 1886, to May, 1889, chief ticket clerk, C.P.R.; May, 1889, to Jan. 1, 1898, Assistant General Passenger Agent, C.P.R., Montreal; Jan. 1, 1898, to Dec., 1906, General Passenger Agent, C.P.R., Eastern Lines, Montreal; Dec., 1906, to Sept. 30, 1910, Assistant Passenger Traffic Manager, C.P.R., Winnipeg; Sept. 30, 1910, to Aug. 31, 1922, Passenger Traffic Manager, C.P.R., Montreal.

Canadian Pacific Railway Construction, Betterments, Etc.

Chesley St. Bridge, St. John.—St. John, N.B., City Council was, a press report states, advised, Aug. 15, that the C.P.R. had applied to the Board of Railway Commissioners for authority to rebuild the bridge over Chesley St. The Public Works Commissioner was authorized to interview the company's officials with respect to the matter.

Tobique Subdivision Bridge.—We are advised that the reconstruction work authorized recently by the Board of Railway Commissioners on bridge 8.1, Tobique Subdivision, N.B., consists of the rebuilding in concrete of the present cedar crib abutments, which were built in 1908. The new work will be built to C.P.R. standard, with wing walls. The height of the abutments from bottom of footing to base of rail is 15 ft. The superstructure consists of a plate girder span, 35 ft. 10 in. long.

LaSalle Loop Railway.—The Board of Railway Commissioners passed an order, May 31, authorizing the C.P.R. to build a branch line from its main line, mile 42.82, Adirondack Subdivision, Quebec District, between the St. Lawrence bridge and the Lachine Canal, running southerly and easterly, about 4.5 miles. At the hearing of the application, prior to the issue of the order, it was shown that the LaSalle Town Council had granted the company 25 years exemption from taxation in respect of the line, upon condition that at least three passenger trains a day be operated by electricity or some other power than steam. The plan which was annexed to the application, showed that the line was to be in the nature of a loop line, centering on Highlands station, and would consist of a reconstructed freight line from Highlands station along the south bank of the Lachine Canal, to near Church Ave. bridge; and a new section having Highlands to the south of the line mentioned above, and following the main line to half way between the Lachine Canal and the Lachine bridge, where it would turn to the east, running parallel to, but rather more than half a mile from the St. Lawrence River, for about 1.3 miles, then turning northeast and running parallel to, by a quarter of a mile from the Montreal aqueduct for about a mile, then turning north, crossing the western part of Emard Ward and re-entering LaSalle, making a wide sweep towards the canal, joining the old freight line near the boundary line between LaSalle and Cote St. Paul.

Work on the construction of the line was reported to have been started July 4, and on July 31, the Board of Railway Commissioners authorized it to be opened for traffic. A service was put in operation Aug. 1, but the official opening took place Aug. 10. The line is at present operated by a gasoline motor car, built for the Quebec Central Ry., which is described on another page of this issue.

St. Agathe Subdivision Bridge.—The Board of Railway Commissioners has authorized the rebuilding of bridge 42.3, over the North River, St. Agathe Subdivision, Quebec District, on the line between Place Viger and Mont Laurier, Que.

Gordon Creek Bridge.—The Board of Railway Commissioners has authorized the rebuilding of bridge 37.1 over Gordon Creek, on the Timiskaming Subdivision, near Lumsdens Mills, Que.

Lake Timiskaming Spur Line.—A press report states that it is believed it is the

C.P.R.'s intention to build a spur line from the Kipawa-Quinze River Falls extension now under construction, to the Quebec shore of Lake Timiskaming, and a wharf from which a car ferry will be operated to the Ontario shore of the lake at Silver Center.

Dundas St. Bridge, Waterdown.—The Board of Railway Commissioners has authorized the Ontario Public Highways Department to rebuild the bridge carrying Dundas St. over the C.P.R. tracks at Waterdown, Ont.

Orangeville and Teeswater Subdivision Bridge.—A press report states that a contract has been let to the Goldie Construction Co., Toronto, for concrete substructures for bridges on the Orangeville and Teeswater Subdivisions, Bruce Division, Ontario District, to which reference was made in our last issue on page 407. The press report refers to work on three bridges, but our information gave details of only two.

Port Arthur Yards.—The land at Port Arthur, Ont., occupied formerly by Pigeon River Lumber Co., is being cleaned up by the C.P.R. with the object, a press report states, of building a yard there.

Fort William Freight Shed Burned.—A press report states that freight shed 3, on the Kaministiquia River, Fort William, Ont., together with a large quantity of freight, and about 30 box cars, were burned on Aug. 23, and that the loss was estimated at about \$100,000, largely covered by insurance.

Yorkton Freight Shed.—A press report states that a contract has been let to Dryborough & Co., Yorkton, Sask., for building a freight shed there, at an estimated cost of \$40,000.

Medicine Hat Locomotive House.—A press report states that the locomotive house to be erected at Medicine Hat, Alta., at an estimated cost of \$30,000, will be built by day labor, under the charge of the company's engineers.

Shuswap Subdivision Bridge.—The Board of Railway Commissioners has authorized the rebuilding of bridges over the Eagle River, mile 19, Shuswap Subdivision, British Columbia District.

New Westminster Station.—A press report states that Grant Hall, Vice President, during his recent western trip, is reported to have told a deputation from New Westminster City Council and Board of Trade, that the company will adhere to its promise, made some years ago, to establish a union station, joint trackage and wharf facilities with the Canadian National Rys.

David Thompson Memorial.—The memorial post at Lake Windermere, B.C., which the C.P.R. has erected in memory of David Thompson, the explorer of a great part of British Columbia, was announced to be opened Aug. 30. The arrangements for the ceremony were made by J. M. Gibbon, General Publicity Agent, C.P.R. The dedication ceremony to be performed by Lieut. Governor Brett of Alberta, in the presence of a large gathering of literary and other persons.

Rolling Stock Defined.—The Goblin, Toronto, gives the following definition: Hand-cars, snow-plows, go-carts, cabooses, cement-mixers and tea-waggon. In fact, anything is rolling stock when its wheels aren't square. The appearance of this stock is seldom changed by watering it, and its identity is easily recognized even in early childhood; therefore, it is seldom watered and safe to buy."

Last Minute Items, Too Late for Classification.

Capt. P. M. Frederick, who owned and operated the steamboat Nellie Cuthbert, on Quinte Bay, Ont., for many years, died at Belleville, Ont., Aug. 22, aged 79.

H.M.S. Raleigh. A Quebec press dispatch of Aug. 24 said that the salvage s.s. Lord Strathcona, which went to the aid of the Raleigh, aground in Belle Isle Strait, was on the way back to Quebec, and that it was considered the Raleigh would be a complete loss. A Halifax press dispatch of Aug. 26 said that H. M.S. Constance had arrived there from Belle Isle Strait, and was sailing again for Bermuda. She reported the cruisers Calcutta and Capetown as still standing by the Raleigh.

Cost of Legal Services in Railway Matters.—When the estimates were under consideration in the House of Commons, recently, an item of \$13,154.03 to provide for balance of legal expense in connection with the Canadian Northern Ry. Guarantee Bill of 1914, and the G.T.R. mortgage trust deed, and lease of National Transcontinental Ry. Eastern Division, came up. The Minister of Finance explained that these expenses were incurred under the late Government and were approved of by the Department of Justice. Sir Henry Drayton, former Finance Minister, stated it was a very old claim and had not been recognized by the late Government. The former Premier explained that the legal firms employed in the several matters sent in their bills, which were taxed by the Department of Justice, and the amounts taxed were paid. The legal firms claimed they were not bound to accept the Department's taxing, and asked for the payment of the balance, but were informed that the Government would abide by the finding of its taxing officer. The item was then withdrawn.

Railway Amalgamation in Great Britain.—The amalgamation of the various railway companies into four groups is reported to be proceeding apace. The Great Western Ry. has completed its second plan of absorption, and confirmatory meetings have been held; the Midland-London & Northwestern group is gradually being consolidated now that the big companies have got together; the southern group is straightening out the financial details for the amalgamation of the Southeastern-Chatham lines, the London, Brighton & South Coast Ry. and the London & Southwestern Ry., the biggest of the amalgamating lines. The first to fully complete its amalgamation is the Northeastern and eastern group, which comprises the Great Eastern, the Great Northern, the Great Central, the North British, and the Great North of Scotland Railways, with 26 subsidiary companies, having approximately 6,500 miles of main lines, and a total capital of £348,000,000.

Inter-Central Forwarding Co., Ltd., has been incorporated under the Dominion Companies Act, with authorized capital of \$40,000 and office at Toronto, to carry on business as custom house broker, shipping agent and traffic manager, and to act as broker and agent generally for the buying and selling of merchandise and commodities, and of chartering ships, stevedoring and warehousing. The incorporators are nominal, with the exception of A. H. Barry, Detroit, Mich., and H. Cohen, London, Ont., described as freight brokers.

Grain in Store at Elevators.

The Dominion Bureau of Statistics, Internal Trade Branch, reports that the grain in store at the various elevators for the week ended Aug. 11, decreased as follows: Wheat, 3,140,701 bush.; oats, 330,457; barley, 329,644; flax, 74,116, and rye, 59,645; a total net decrease of 3,934,563 bush.

In the western country elevators, the decreases were: Wheat, 485,257 bush.; oats, 139,736; barley, 89,340; and flax, 22,003. There was an increase in rye of 1,147 bush. The quantity in store in the three prairie provinces was as follows: Manitoba, 784,050 bush.; Saskatchewan, 2,578,401; Alberta, 3,178,396; a total of 6,590,845 bush. The receipts were 813,064 bush. and shipments, 1,550,670.

In the interior terminal elevators the decreases were: Wheat, 123,062 bush.; oats, 11,317; barley, 2,550; flax, 989, and rye, 4. No wheat was received at Vancouver, and shipments out of Vancouver were: By ship, 49,714 bush., and by rail, 18,496.

In Winnipeg private terminal elevators the decreases were: Wheat, 22,135 bush.; oats, 2,519, and barley, 4,513.

In the public and private terminal elevators at Fort William and Port Arthur the decreases were: Wheat, 1,145,029 bush.; oats, 19,878; barley, 168,507; flax, 36,212, and rye, 54,913. Receipts were: 1,850,829 bush., shipments by ship, 8,969,607, and by rail, 305,762.

In the eastern public elevators the decreases were: Wheat, 1,606,406 bush.; barley, 116,754, and flax, 14,912. The increases were: Oats, 36,071 bush., and rye, 7,560. Receipts were: 2,492,636 bush., by ship, and 148,341 by rail. The shipments were: 3,341,210 bush., by ship, and 946,301 by rail.

The quantity of U.S. grain in store at eastern public elevators was 7,340,319 bush., compared with 6,483,887 for the same period, 1921. The bulk of the former quantity was: Corn, 3,264,968 bush., and wheat, 2,824,067. U.S. lake ports showed increases: Wheat, 243,283 bush., and barley, 67,165. There was a decrease in oats of 36,673 bush. U.S. Atlantic seaboard ports decreased: Wheat, 2,095 bush.; oats, 156,405; barley, 15,145, and rye, 13,435.

C.P.R. Going Out of Elevator Business.—Grant Hall, Vice President, C.P.R., is reported to have said at New Westminster, B.C., on his recent trip of inspection, from which he returned to Montreal at the beginning of August, that the company is going out of the grain elevator business, about which it is not keen. The company still owns an elevator at Fort William, but will relinquish control of it in due time. A Moose Jaw press dispatch of Aug. 24, credits D. C. Coleman, Vice President, Western Lines, C.P.R., with stating that the company has given a long lease of Elevator D at Fort William, Ont., to the Consolidated Elevator Co's interests.

Railway Accidents Throughout Canada. The total number of railway accidents reported to the Board of Railway Commissioners during July was 215, resulting in 7 employes and 24 others being killed, and 62 passengers, 154 employes and 59 others being injured. Under "others," are included 12 persons killed and 40 injured, in 24 highway crossing accidents. In these accidents, the crossings were unprotected in 20 cases, in 2 cases they were protected by gates, and in 2, by bells. Automobiles were concerned in 20 of the accidents, wagons in 2, and pedestrians in 2.

The Bad Order Car Situation.

The Railway Association of Canada reports the total number of freight cars on Canadian lines for the 15 days ended Aug. 1 as 201,028. The allowance for bad order cars on the A.R.A. basis, which assumes a total of 7% of the cars in bad order, was 14,072, and the actual number in bad order was 19,655, an excess of 5,583 on the 7% basis. The figures 19,655 represent 9.8% of the cars in bad order. There were 30,603 surplus cars in good order, making the total not in use 50,258, or a total of 36,186 idle cars, on the basis of 7% of the cars being normally in bad order.

The American Railway Association's Car Service Division reports that the total number of freight cars on line on class 1 roads in the U.S. on July 15 was 2,258,267. Of these, 342,079 were in bad order, this figure representing 15.1%, compared with 14.3% on July 1. Out of 1,027,429 box cars, 159,814, or 15.6%, were in bad order; out of 57,731 refrigerator cars, there were 8,834, or 15.3%; out of 952,762 gondolas, there were 146,305, or 15.4%; out of 82,085 stock cars, there were 11,141, or 13.6%, and out of 96,579 flat cars, there were 12,821, or 13.2% in bad order.

United States Railways' Financial Results.

U.S. class 1 railways' earnings continue to improve. As stated in Canadian and Marine World for August, the net operating income for May was \$61,980,600, compared with \$50,271,865 in April, and in June the net operating income was \$76,594,000. This represented a return on the annual basis, of 4.78% on the roads' tentative valuations, and was approximately \$15,000,000 short of being enough to earn the 5¼% to which the Interstate Commerce Commission has decided the roads are entitled, in accordance with the Transportation Act. The net operating income for June, 1921, was at the annual rate of but 3.18%.

To date, 1922 has been uniformly more satisfactory to U.S. railways from the financial viewpoint than 1921, as is evidenced by comparing the results for the first six months of each year. For the first six months of 1922, the net operating income was \$349,092,945, representative of an annual return on the tentative valuation, of 4.43%. For the first six months of 1921, the net operating income was but \$145,485,019, representative of an annual return on valuation, of 1.85%. While gross operating revenues for the first six months of 1922 decreased 2.5% from those of the first six months of 1921, operating expenses were 12.1% less. The operating ratio for class 1 roads, as a whole, was 76.82 for June, 1922, compared with 82.51 for June, 1921, with 79.61 for the first six months of 1922 and with 88.31 for the first six months of 1921.

The improved financial results attending railway operation in the U.S. is reflected by the prices now commanded on the New York stock exchange by railway stocks and bonds, these being much higher than for some time past.

British Railway Shopmen's Wages.—A London cablegram says that it is proposed to reduce the war bonus by 16s. 6d. a week, and that about 120,000 men will be affected, two-thirds of them belonging to the National Union of Railwaymen, and most of the remainder to smaller unions.

Railway Earnings.

Canadian National Railways.

Following are total operating revenues, total operating expenses, and net operating revenues or deficits, for the Canadian Northern Ry. System, Grand Trunk Pacific Ry., and Canadian Government Rys., the last including the Intercolonial Ry., Prince Edward Island Ry. and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government:—

	Revenue	Expenses	Net 1922	Net 1921
Jan.	\$8,210,401	\$10,433,564	\$2,223,163	\$2,863,058
Feb.	7,650,743	10,026,572	2,375,829	2,986,998
March	9,418,100	10,397,547	979,447	2,532,959
April	7,804,222	9,153,738	1,349,516	2,636,639
May	9,678,965	9,726,020	47,055	2,554,540
June	8,235,603	10,199,592	1,963,989	2,595,257

\$50,998,034 \$59,937,033 \$8,938,999 \$16,169,451
Decr. \$6,371,807 \$13,602,259 \$7,230,452

Approximate gross earnings for July, \$8,860,956, and for 3 weeks ended Aug. 21, \$6,348,292, against \$9,330,929 and \$7,152,036 for same periods 1921.

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1922, compared with those for 1921. The discrepancies between these figures and those issued by the Dominion Bureau of Statistics are owing to the fact that the Bureau is, at its request, furnished with figures by the C.P.R., including the Esquimalt & Nanaimo Ry., and the Montreal & Atlantic Ry. earnings, as well as the C.P.R. ones. The figures supplied the Bureau are exclusive of certain income items which are included in figures supplied Canadian Railway and Marine World:—

	Gross	Expenses	Net	Decreases
Jan.	\$11,337,975	\$10,854,498	\$483,477	\$157,948
Feb.	11,303,693	10,649,205	654,488	158,904
March	13,847,627	11,427,120	2,420,507	30,402
April	12,331,371	10,782,598	1,548,773	1,097,359
May	13,664,246	11,319,732	2,344,514	949,038
June	13,810,448	11,448,134	2,362,313	742,445

\$76,295,359 \$66,481,288 \$9,814,071 \$3,136,095
Decr. \$7,760,313 \$4,624,218 \$3,136,095

Approximate gross earnings for July, \$13,940,000, and for 3 weeks ended Aug. 21, \$10,165,000, against \$15,263,000 and \$10,912,000 for same periods 1921.

Grand Trunk Railway.

Following are total operating revenues, total operating expenses and net operating revenues, or deficits for 1922:—

	Gross	Expenses	Net revenue 1922	Net revenue 1921
Jan.	\$5,354,317	\$4,984,953	\$369,364	*\$701,166
Feb.	5,667,487	4,700,985	966,502	31,374
March	6,118,314	5,153,028	965,286	577,680
April	4,901,367	4,596,666	304,701	382,272
May	5,800,329	5,189,756	610,572	324,185

\$27,841,814 \$24,625,388 \$3,216,425 \$614,706
Incr. \$7,760,313 \$4,624,218 \$3,136,095

Decr. \$1,812,748 \$4,414,468

*Deficit.
Approximate gross earnings for June, \$9,220,065; for July, \$9,820,641, against \$8,508,543 and \$8,472,261, for same periods 1921.

Canadian National Railways Train Exhibits. In addition to the 4 self propelled cars which the C.N.R. is exhibiting at the Canadian National Exhibition in Toronto, reference to which is made under "Self propelled cars on steam railways" on another page of this issue, the C.N.R. is showing a complete transcontinental steel train, consisting of Pacific type locomotive, 5304; baggage car, 8631; colonist car, 2810; first class passenger car, 5010; tourist sleeping car, 2241; dining car, 1248; first class sleeping car, Fort Chaudiere; compartment observation car, Fort William; and mountain observation car, 15100.

The Brotherhood of Locomotive Firemen and Enginemen's Canadian legislative board opened its seventh meeting in Ottawa on Aug. 21. W. L. Best, Canadian Legislative Representative, who presided, stated that the Brotherhood's membership is in excess of 100,000, and that it is in splendid shape financially, funds on hand being in excess of \$9,500,000. The meetings, which were continued throughout the week were attended by approximately 100 members, made up chiefly of Canadian general chairmen and other brotherhood officers.

Traffic Orders by Board of Railway Commissioners.

International Express Commodity Tariffs.

General order 367. June 29.—Re general order 177, Jan. 10, 1917, requiring publication of a rule to govern rates to intermediate points in Canada not named in international tariffs: Upon its appearing that a uniform practice in connection with both freight and express tariffs is desirable, the Board orders that all international express commodity tariffs now in effect be amended so as to include a rule to the effect that rates named therein, unless specifically indicated as being competitive, will apply to or from intermediate points in Canada not enumerated in the said tariffs; and that a similar rule be published in international commodity tariffs as issued.

Express Rates on Ontario Fruit and Vegetables.

32,448. May 31.—Re application of Niagara Peninsula Growers, Ltd., for suspension of American Railway Express Co.'s tariff 150-A, C.R.C. 1,333, and Express Traffic Association for Canada Tariff C.R.C. no. E.T. 732, as applicable to rates on fruit and vegetables moving from Ontario points. Upon reading the submissions filed on behalf of the applicants, the American Railway Express Co. and the Express Traffic Association for Canada, the Board orders that American Railway Express Co.'s tariffs C.R.C. 1,333, 1,341, and 1,344, also item 1 in Express Traffic Association tariff C.R.C. no. E.T. 732, be suspended, and the Board further orders that the rates as published in American Railway Express Co.'s tariff C.R.C. 1,193, be continued in effect until further order of the Board.

32,511. June 19.—Re application of Niagara Peninsula Growers, Ltd., for suspension of the American Railway Express Co.'s tariff covering advanced rates on fruits and vegetables, which tariffs were suspended by order 32,448, May 31. Upon its appearing that an agreement has now been reached between shippers and the American Railway Express Co. as to the rate on fruit from points in Ontario, the Board orders that order 32,448, be rescinded, provided the American Railway Express Co. publish and file a local rate on fruit and vegetables from Fenwick to Hamilton, Ont., of 40c per 100 lb. in lieu of the rate of 50c per 100 lb., now published in the company's tariff C.R.C. no. 1,344.

Coal Switching Rate at Sault Ste. Marie.

32,477. June 5.—Re application of Century Coal Company, Montreal, for an order suspending the Algoma Central & Hudson Bay Ry. tariff, C.R.C. 585, effective March 15, 1922, showing increases in switching rate on coal from the New Ontario Coal Co.'s dock to the C.P.R. at Sault Ste. Marie, to 2c per 100 lb., and order 32,196, March 8, 1922, suspending the said tariff: Upon hearing the matter at Ottawa, April 18, in the presence of counsel for the applicant company and the railway company, and what was alleged, the Board orders that the said tariff be disallowed.

Reduction in Freight Rates.

32,629. July 20.—Re general order 366, June 30, 1922, made in the matter of freight tolls, 1922: Standard mileage freight tariffs of the undermentioned railway companies having been filed on the basis prescribed by the Board's judgment of June 30, and general order 366, the Board orders that the following stan-

dard mileage freight tariffs be approved; the said tariffs, with a reference to this order, to be published in at least two consecutive weekly issues of The Canada Gazette: Canadian National Rys. C.R.C. no. W-252; Grand Trunk Pacific Ry. C.R.C. 526; Edmonton, Dunvegan & British Columbia Ry. C.R.C. 171; Central Canada Ry. C.R.C. 86.

32,635. July 24.—Re general order 366, June 30, 1922, made in the matter of freight tolls, 1922, dated June 30: Whereas standard mileage freight tariffs of the undermentioned railway company have been filed on the basis prescribed by the said general order and the Board's judgment of June 30, 1922, the Board orders that the following standard mileage freight tariffs be approved: Great Northern Ry., C.R.C. 1,797 and 1,798.

32,650. July 24.—Re revised standard freight mileage tariffs, filed in accordance with the Board's judgment in Freight Tolls—1922, dated June 30: Whereas revised standard freight mileage tariffs have been filed by the undermentioned railways, on the basis prescribed by the Board's judgment and its general order 366, June 30, the Board orders that the following standard freight tariffs of maximum mileage tolls be approved: Canadian Pacific Ry., C.R.C. nos. W-2,642 and C.R.C. nos. W-2,645; Esquimalt & Nanaimo Ry., C.R.C. 503; Kettle Valley Ry., C.R.C. 298; the order 32,613, dated July 15, 1922, made herein, be rescinded.

Calcium Limestone Freight Rates.

32,637. July 24.—Re complaint of Beachville White Lime Co., Beachville, Ont., relative to freight rates on high calcium limestone from Beachville to Niagara Falls, Ont., on the G.T.R., as compared with rates on the same commodity from Walkerton to Hamilton: Upon hearing the complaint at Hamilton, June 8, 1922, the complainants and the G.T.R. being represented at the hearing, and upon reading the further submissions filed, the Board orders that the G.T.R. publish and file tariffs showing a rate of 90c a ton on high calcium limestone from Beachville to Niagara Falls, Ont., the said rate to become effective within 10 days from the date of this order.

Empties Returned by Express.

32,652. July 21.—Re application of Express Traffic Association of Canada for approval of Supplement B to Express Classification 5, restricting empties which may be returned at one-half outgoing rate to the following:—Egg cases, cream cans, ice cream tubs, meat, bread and cake hampers (not baskets), and standard poultry coops. Upon hearing the application at Ottawa, June 20th, 1922, the Express Traffic Association of Canada, the Toronto and Montreal Boards of Trade, the Canadian Manufacturers' Association, the Compressed Gas Association and the Canadian Carbonate Co. being represented and what was alleged; and upon reading the further submission filed—The board orders that the application be refused.

Express Fish Shipments Delivery.

32,654. July 27.—Re application of W. R. Spooner, Montreal, for revision of Express Classification, to permit delivery of shipments of fish to several different persons, although billed to one consignee: Upon hearing the application at Ottawa, June 20, 1922, the applicant appearing in person and the Express Traffic Association of Canada being rep-

resented and what was alleged, the board orders that the application be refused.

New York Central Railroad Freight Tariffs.

32,713. Aug. 8.—Re application of the New York Central Rd., under sec. 330 of the Railway Act, 1919, for approval of its standard Mileage Freight Tariffs, C.R.C.-N.Y.C. 2643 and C.R.C.-N.Y.C. 2644, effective Sept. 6th, 1922, whereas it appears that the said tariffs have been filed in accordance with general order 350 of Nov. 24, 1921, and upon the Chief Traffic Officer's report and recommendation, the board orders that they be approved.

Greenock Wood Railway.—We are officially advised that the Greenock Wood Ry., owned by Cargills, Ltd., Cargill, Ont., is to be dismantled and the rails and equipment sold. It was built to haul logs from Greenock swamp to the company's mills at Cargill, about 7 miles, and is not connected with a steam railway. It was started in 1910, and was laid partially with wood rails, these being replaced subsequently with 30-lb. steel when the road was completed in 1911. It was operated by a gasoline marine engine geared to and mounted on a 6-wheel rig, and capable of hauling 6 loaded cars. The 18 cars, forming the rolling stock, are 4-wheeled ones, made by the company. The rails and equipment are being offered for sale through J. J. Gartshore, Toronto.

Montreal Board of Trade Trip.—In connection with the commemoration of the Montreal Board of Trade's 100 anniversary, a special trip has been arranged to leave Montreal, Sept. 1. In addition to about 100 members of the Board and their wives, the party will include representatives of the Imperial Parliament, the Associated Chambers of Commerce of Great Britain, and the Federation of British Industries, and will travel by special C.P.R. train from Montreal to Port McNicoll, Ont., thence by C.P.R. steamship to Fort William, Ont., and by C.P.R. train to Vancouver. The party will then go by steamship to Prince Rupert, B.C., and return to Montreal over the Canadian National Rys., reaching there Sept. 30.

C.P.R. Immigration Work.—C.P.R. authorities in London, Eng., inaugurated a novel plan recently for the promotion of emigration from England to Canada. Two Canadians, specially educated for the purpose, started on a walking tour through England to advertise Canada and to give information to applicants wherever they stop. The route to be followed was from London to Birmingham, Shrewsbury, Chester and Carlisle, returning to London by an eastern route.

Canadian National Railways Elevator or lease.—The C.N.R. invited tenders recently for the lease of the Government elevator at Transcona, Man., from Sept. 1922, to Aug. 31, 1923. The elevator has a capacity of 1,000,000 bush., and there is connected therewith 1.52 acres of land.

Equipment Painting Section, Mechanical Division, American Electric Railway Association's annual meeting, which was fixed to be held at Cleveland, Ohio, Sept. 5-7, has, owing to present unsettled conditions, been postponed until further notice.

C.P.R. Rail Accessories Order.—The Nova Scotia Steel & Coal Co., is competing the delivery of 3500 tons of angle bars, tie plates, bolts and spikes, which are being shipped by water from New Glasgow, N.S., to Fort William, Ont.

Railway Finance, Meetings, Etc.

Algoma Central & Hudson Bay Ry.—Gross earnings for May, \$151,085, against \$196,889 for May, 1921. Gross earnings for 11 months ended May 31, \$1,555,520, compared with \$2,526,560 for same period, 1920-21.

Algoma Eastern Ry.—A London, Eng., press report of Aug. 3, stated that in view of the company's failure to meet the instalment of interest on the 5% 1st mortgage, 50-year gold bonds, due Mar. 1, steps were being taken to form a committee to protect the bondholders' interests. A. Roger, J. C. Dalton, C. B. B. Smith-Brougham, and A. Williamson, who have been acting as a committee for the bondholders of the Algoma Central & Hudson Bay Ry. Co., and the Algoma Central Terminals, two allied companies, are reported to have been asked to act for the Algoma Eastern Ry. bondholders. The whole three companies are associated with the Lake Superior Corporation.

Canadian Pacific Ry.—At a directors meeting at Montreal, Aug. 14, dividends were declared as follows: On preference stock, 2% for half year ended June 30, and on common stock, 2½% for quarter ended June 30, being at the rate of 7% per annum, and in addition 3% per annum from special income account, all payable Sept. 30, to shareholders of record Sept. 1.

New York Central Rd.-Michigan Central Rd., etc.—There has been deposited with the Secretary of State at Ottawa, an agreement dated June 1, between M. S. Barger, H. G. Snelling and H. A. Stahl, vendors, the Guaranty Trust Co., New York, trustees, the New York Central Rd. Co., the Michigan Central Rd. Co., and other associated railways, and a lease dated July 10, the Guaranty Trust Co. to the N.Y.C. Co., the M.C. Rd. Co., and associated companies, both documents being deposited in accordance with the Canadian Statutes, 1907, chap. 38.

Minneapolis, St. Paul & Sault Ste. Marie Ry. Co.—A press report of Aug. 16, stated that Judge Booth had issued a restraining order directing that a dividend of 2%, declared by the company, cannot be paid until the U.S. Circuit Court passes on the legality of the issue. The Continental Insurance Co. and the Fidelity Fire Insurance Co. are appealing against a decision of the courts that the directors acted within their rights in declaring the dividend, hence the reason for the present restraining order.

Strange Theft from Railway Premises.

—A strange and rather audacious theft was reported from Windsor, Ont., Aug. 2. The thieves are said to have appropriated a locomotive, backed it to the Essex Terminal Ry. sheds in Windsor, coupled it up to a freight car containing about 1,000 cases of beer for export, and hauled it about six miles away, where it was broken open and 70 cases of beer taken out. The car was then hauled back, put in the freight shed, and the locomotive returned to the yard. Local railway employees are believed to be implicated, but so far no clue has been discovered as to the perpetrators.

British Columbia Ties for Indian Railways.—About two years ago a start was made in exporting ties from British Columbia to India, and over 300,000 ties have been sent across the Pacific for this purpose. The Indian Government returns shows the value of the ties imported into India from Canada in 1920-21 as \$1,000,000.

Locomotive Stokers for Canadian National Railways.

As stated in Canadian Railway and Marine World for August, the Canadian National Rys. ordered 25 locomotive stokers for installation on Santa Fe, Mikado and consolidation locomotives. Ten are being applied at the Moncton, N.B., shops to Santa Fe locomotives, and 15 at the Transcona, Man., shops, 10 to mikado locomotives and 5 heavy consolidations. We were advised, Aug. 21, that installations had been completed on two Santa Fe's at Moncton, and that the locomotives have been returned to service. Although nothing in the nature of a complete test to determine the economy secured by the stoker's use and the degree of increase in boiler efficiency, has been undertaken as yet, we are informed that the stokers operate smoothly and efficiently and that their performance is entirely satisfactory. At the time of writing (Aug. 21) no report had been received of an equipped locomotive being turned out of the Transcona shops, but installation of the stokers is proceeding on several. The stokers were made by the Canadian Westinghouse Co., Hamilton, Ont., under the supervision of H. C. Woodbridge, of the Locomotive Stoker Co., Pittsburg, Pa., and delivery is about completed.

Freight Car Location on Canadian Railways.

The Railway Association of Canada has issued a report on the location of freight cars on Aug. 1, based on returns from the following railways: Algoma Central & Hudson Bay; Canadian National, including Grand Trunk Pacific; Canadian Pacific; Central Vermont, in Canada; Dominion Atlantic; Edmonton, Dunvegan & British Columbia; Grand Trunk; Kettle Valley; Michigan Central, in Canada; Napierville Jct.; Pere Marquette, in Canada; Quebec Central; Quebec, Montreal & Southern; Timiskaming & Northern Ontario; Temiscouta; Toronto, Hamilton & Buffalo; Wabash, in Canada; as follows: Cars owned by reporting railways, 221,867; home cars on Canadian foreign lines, 15,832; home cars on U.S. lines, 37,159; home cars on home road, 168,876; Canadian owned foreign cars on home lines, 13,167; U.S. owned foreign cars on home lines, 18,985; total number of cars on line, 201,028; per cent. of cars on line to total owned, 90.6; deficiency on line from total owned, 20,839; bad order home cars on line, 19,214; bad order foreign cars on line, 441; total bad order cars on line, 19,655; per cent. in bad order to total owned, 9.8; privately owned U.S. cars on line, 1,889; privately owned Canadian cars on line, 1,264.

The number of immigrants who arrived in Canada during May is reported by the Dominion Government to have been 11,199, of whom 8,333 came by ocean ports, and 2,866 from the United States.

C.P.R. Angus Shops Assessment.—Montreal City Council is reported to have fixed the assessment value of the C.P.R. Angus shops for the next five years at \$1,000,000. The original valuation was \$400,000, and the period during which this had to run having expired, the company suggested \$750,000 as a new basis; the city executive suggested \$1,000,000, and some aldermen suggested \$2,000,000. The new valuation was agreed to by 21 to 9.

The Fuel Situation and the Railways.

Hon. W. C. Kennedy, Minister of Railways and Canals, C. A. Magrath, of Ottawa, and F. McCourt, Vice President, Century Coal Co., Montreal, have been appointed by the Dominion Government as a central advisory committee on the fuel question. F. L. Wanklyn, General Executive Assistant, C.P.R., Montreal, has been appointed as one of the Province of Quebec's representatives.

The coal situation as affecting Canadian railways was discussed at a conference between members of the central advisory committee and representatives of the transportation companies at Ottawa, Aug. 15. Plans for distributing the necessary supplies of coal were arranged. The railways being interprovincial in their scope, are dealing directly with the Dominion body, while the provinces are expected to look after their own wants through the appointment of fuel administrators where necessary, and draw upon the Dominion committee as an advisory body, which will assist them in securing fuel wherever possible. So far as can be learned, none of the Canadian railways are facing actual fuel shortages. All of them, have contracts for the delivery of coal for their use, and all maintain, as far as possible, an emergency supply of fuel to tide them over whatever difficulties of delivery may arise.

Grand Trunk Railway Shareholders' Appeal Dismissed.

The Imperial Privy Council's Judicial Committee which as stated in Canadian Railway and Marine World for August, heard the Grand Trunk Ry. shareholders' appeal against the majority decision of the arbitrators that the company's preference and common stocks, had now no value, in connection with the taking over of the company's lines by the Dominion Government of Canada, gave its decision July 27, the announcement being made by Lord Cave as follows:—"Their lordships consider it convenient that they should announce their decision at once, and give their reasons later. Having considered the arguments for and against the appeal, they have come to the conclusion that the appeal fails, and should be dismissed, and they will advise His Majesty accordingly. There is no question as to costs." The reasons for this finding had not been made public up to the time of writing, Aug. 25.

C.P.R. Damages Suit.—About two years ago Dr. W. Chambers, eye, ear and throat specialist, Calgary, Alta., was killed in a railway accident on the C.P.R., leaving a widow and a young son. The widow sued for damages in the Alberta courts, and the C.P.R. offered to settle for \$40,000. The case, however, went to trial, and the jury assessed the damages at \$65,000 for the widow and \$15,000 for the son. The company appealed and the Alberta Court of Appeal reduced the award to the widow to \$25,000. An appeal by consent was taken direct to the Imperial Privy Council, which, after hearing arguments, recently gave judgment fixing the amount of damages to be paid to the widow at \$42,500, and confirming the original award of \$15,000 for the son, which had never been contested. Costs were divided, two-thirds to be paid by the company.

Board of Railway Commissioners Autumn Circuit.

The Board of Railway Commissioners will hold sittings as follows:—Quebec, Que., Sept. 6; Saskatoon, Sask., Sept. 9; Edmonton, Alta., Sept. 11; Jasper, Alta., Sept. 12; Lucerne, B.C., Sept. 12; New Hazelton, B.C., Sept. 13; Victoria, B.C., Sept. 18; Vancouver, B.C., Sept. 19; Kamloops, B.C., Sept. 22; Nelson, B.C., Sept. 25; Lethbridge, Alta., Sept. 27; Calgary, Alta., Sept. 28; Regina, Sask., Sept. 30; Winnipeg, Man., Oct. 2; Fort William, Ont., Oct. 4.

The members who will go on circuit are expected to be Chief Commissioner Carvell and Messrs. Rutherford and Lawrence.

Increased Equipment Orders in the United States.

This year, up to date, has seen a large improvement in the U.S. railway supply industry, orders for cars and locomotives particularly having been given in large volume. To the end of July, 835 locomotives had been ordered, the largest number being contracted for in July, the figure for that month being 353, compared with but 5 in January, 8 in February, 76 in March, 272 in April, 99 in May, and 22 in June. Freight car orders for the first seven months totalled 103,847, and 1,352 passenger cars were ordered during the same period. One of the most notable orders for locomotives was that placed in July by the New York Central Lines for 150 mikado locomotives of the type tested recently on the Michigan Central Rd., no. 8000.

In view of the unsettled labor conditions prevailing in the U.S., these large equipment orders are significant, as indicative of the belief held by railway executives and financiers that industrial prosperity is returning and can be only delayed temporarily by existing industrial troubles. It is a well known fact that in good business times the U.S. railways have always been caught with equipment shortages, and it is evident that the U.S. railway executives are making such provision as they are financially able to do to meet the heavy traffic conditions of the future. Owing to the fact that economic conditions in Canada follow closely the changes taking place in U.S. conditions, it may be hoped that conditions in the railway supply industry in this country will soon show the same degree of improvement as in the U.S.

In this connection, however, it is to be noted that in recent months the U.S. railways have experienced great improvement in their operating position, and in the financial results secured, and it is evident that this condition is one to inspire hopefulness in railway executives and encourage them in the belief that industrial prosperity will return eventually. If railway operating results in Canada were showing the same improvement as in the U.S. there would be more expectation of a revival in the railway supply industry, and in all industry, than there is at present. But notwithstanding the handicap placed on industry, and the railway supply industry in particular, by the narrow margin between railway income and expense at present, signs that conditions are on the up-grade are not wanting. It is inconceivable that growth and development in the industry of this young and wealthy country should be forever restricted to the rate of the past few years, and the present economic tone is more favorable than for some

time past. It will be well, though, if those in authority come to a realization of the fact that permanent prosperity in the transportation industry, and in industries that depend on transportation, and, in fact, in more or less degree in all industry, will be impossible till the railways are placed on a basis where they will be allowed earnings commensurate with the value of the service rendered.

Fire Prevention Regulations Suspended for Canadian National Railways.

Fire prevention regulations for railways prescribed by the Board of Railway Commissioners are given in full on pgs. 450 and 451 of this issue. The Board has also passed the following orders:—

32,657. July 24.—Re general order 362, April 19, 1922, and the application of the Canadian National Rys. for temporary suspension of clause 8 of the order (due to the applicants' inability, owing to the miners' strike in the Northern Alberta coal mines, to secure delivery of coal having good coking properties, in quantities sufficient to enable the applicants to maintain the necessary train services on portions of their Western Lines: Upon the report and recommendation of its Chief Operating Officer and its Chief Fire Inspector, the Board orders that, effective until Aug. 15, 1922, the provisions of the said clause 8 be suspended in so far as they apply to portions of the applicants' Western Lines operating through non-forested territory; provided that such suspension shall not be construed as permitting the use of lignite coal as fuel on locomotives, steam shovels, ditching machines, and pile drivers.

32,759. Aug. 16.—Ré general order 362, April 19, 1922, and order 32,657, July 24, 1922, suspending until Aug. 15, 1922, the provisions of clause 8 of general order 362, as set forth in the order; and the application of the Canadian National Rys. for a further extension of the provisions of clause 8: Upon reading what is alleged in support of the application and the report and recommendation of its Chief Operating Officer and its Chief Fire Inspector, the railway company undertaking to limit the use of sub-bituminous coal to such territories as have the least hazardous conditions, and to replace it by the use of bituminous coal as rapidly as the latter can be secured, the Board orders that, effective until Sept. 1, 1922, the provisions of clause 8 of general order 362 be suspended, in so far as they apply to portions of the applicants' Western Lines operating through non-forested territory; provided that such suspension shall not be construed as permitting the use of lignite coal as fuel on locomotives, steam shovels, ditching machines and pile drivers.

United Lines, Limited has been incorporated under the Ontario Companies Act, with authorized capital of \$600,000, to carry on business as general carrier, forwarding agent, storage and warehouseman, transfer and express agent, and any other similar business, and to operate motor trucks, motor buses or other vehicles, steam and other vessels, storehouses, warehouses, elevators, yards and buildings. The provisional nominal directors are: G. N. Shaver, et al, Toronto.

S. Lewis, of Toronto, was fined \$25 and costs or 30 days in jail, at Ottawa, recently, for travelling on the G.T.R. without paying a fare.

Railway Rolling Stock Orders and Deliveries.

Abitibi Transportation & Navigation Co., has received 12 flat cars at Iroquois Falls, Ont., for the logging railway which it is building from there to Hughes.

The private wooden car Eatonia, formerly owned by Sir John Eaton, who died recently, and which, as stated in our last issue, has been bought by the C.P.R., is to be used as a spare business car.

The G.T.R. has given National Steel Car Corporation, Hamilton, Ont., an order to rebuild 100 freight refrigerator cars with steel underframes. This is in addition to a previous order for rebuilding 250. It has also ordered from the same builders a railway motor passenger car to be built in accordance with G.T.R. specifications.

The G.T.R. has placed an order for the repair of 500 fifty ton steel hopper cars with the Eastern Car Co. These repairs will be heavy, including the installation of all new center sills, friction draft gear and type D couplers. It is expected that the work will be commenced during September and completed by the end of the year.

The C.P.R. has ordered 15 steel baggage and express cars from National Steel Car Corporation, Hamilton, Ont. They will be practically duplicates of those already in service. Following are the principal dimensions,—

Length over end frame	79 ft. 1 in.
Length over all	82 ft. 4½ in.
Truck centers	57 ft. 6 in.
Width at eaves	10 ft. 1 in.
Height over ventilators	14 ft. 11 15-16 in.
Height at eaves	11 ft. 1½ in.
Height rail to side sheets	3 ft. 7½ in.

The C.P.R. has ordered 250 steel underframe freight refrigerator cars, from National Steel Car Corporation, Hamilton, Ont. They will be the regular C.P.R. standard cars, with brine tank system of refrigeration, and arch bar type trucks, outside metal roofs and Cardwell friction draft gear. Following are the principal dimensions,—

Length over end frame	41 ft.
Length over all	44 ft. 8 in.
Truck centers	31 ft. 2 in.
Width at eaves	9 ft. 10½ in.
Height over brake mast	14 ft. 0½ in.
Height at eaves	12 ft. 8¾ in.
Height rail to bottom of side sills	3 ft. 3¼ in.

The Abitibi Power and Paper Co. has ordered a mogul (2-6-0) locomotive, type S142, from the Montreal Locomotive Works. Following are the chief particulars:—

Weight on drivers	124,500 lb.
Weight on truck	18,00 lb.
Total weight	142,500 lb.
Wheel base, driving	12 ft. 10 in.
Wheel base, total engine	21 ft. 2½ in.
Wheel base, total engine and tender ..	49 ft. 10 in.
Cylinders, diar. and stroke	19 x 26 in.
Driving wheels, diar.	50 in.
Boiler, type	Extended wagon type
Boiler pressure	180 lb.
Boiler, diar. inside first ring	60 3-4 in.
Firebox, length and width	94½ x 42½ in.
Tubes, no. and diar.	145—2 in.
Flues, no. and diar.	24—5½ in.
Heating surface, tubes	785 sq. ft.
Heating surface, flues	349 sq. ft.
Heating surface, firebox	138 sq. ft.
Heating surface, arch tubes	17 sq. ft.
Heating surface, total	1,289 sq. ft.
Grate area	28 sq. ft.
Tractive power	28,700 lb.
Factor of adhesion	4.3
Tank, type	Sloping back
Tank capacity, water	4,500 U.S. gall.
Capacity, fuel	9 tons
Cab, type	Vestibule

F. X. Belanger, Traffic Manager, Fraser Companies, Ltd., Edmundston, N.B., writes: "I enclose cheque in payment of my subscription to Canadian Railway and Marine World, which, I must say, is always a welcome visitor."

Canadian National Railways Construction, Betterments, Etc.

Prince Edward Island.—Considerable tie renewals, ballasting, bank widening, strengthening of bridges, etc., is being done on the Island Division, particularly on the portion of the Charlottetown Subdivision between Summerside and Tignish, 68.33 miles.

Desbiens, Que., Station.—The Board of Railway Commissioners has approved of location of and detail plans for a standard type B station at Desbiens, mile 18 from Quebec and Lake St. John Ry.

Ties for Central Division.—Tenders will be received to Sept. 15, for 1,500,000 ties to be cut between Oct. 1922, and May 1923, and delivered between Dec. 1, 1922, and Sept. 30, 1923, on C.N.R. lines in Ontario and Quebec, north of the St. Lawrence River and east of Armstrong and Port Arthur, in accordance with specifications 3856, dated March 18, 1919. While no tenders for less than 5000 ties will be considered, arrangements will be made for buying ties in small quantities cut by actual settlers on their own lands. The ties are delivered as follows:—350,000 on National Transcontinental Ry. between Armstrong, Ont. and Hervey Jct., Que.; 200,000 on Canadian Northern Ry. lines between Hawkesbury, Ont., Quebec City and St. Felicien, Que.; and 850,000 on the Canadian Northern Ry. between Ruel and Port Arthur, Ont.

Maynooth Subdivision Bridges.—We are officially advised that a number of bridges on the old Central Ontario Ry., located within the Maynooth Subdivision, Ontario District, C.N.R., are to be rebuilt. Following are details of the old and new structures.

Lonk Lake Creek, mile 4.3.—The existing structure consists of two I beam spans each 18 ft. overall on 2 masonry abutments and one masonry pier built in 1882. This will be replaced by 2 reinforced concrete slab spans, each 18 ft. over all resting on the existing substructure, which will be left unchanged. The grade will be raised about a foot.

Cold Creek, mile 7.7.—The existing structure consists of 2 through plate girder spans, each 55 ft. 7 in. overall, and originally resting on 2 masonry abutments and one masonry pier, and was built in 1882. The spans are on a skew of 66 degrees, 15 min. Some years ago an additional concrete pier was built under the center of each span. This will be repaired with four I beam spans 24 ft. deep, the ends of which will be built normal to the track and skewed on the piers. These I beam spans measured along the center line, will be respectively 27½ ft., 28½ ft., 28¾ ft. and 29½ ft. Some small additions to the existing masonry piers and abutments will be necessary to accommodate them.

Moir River, mile 36.6.—The existing structure consists of 2 through plate girder spans, each 45 ft. over all, resting on 2 masonry abutments and on a masonry pier built in 1883. This will be replaced with 4 reinforced concrete slab spans, each 22 ft. 7½ in. over all, 2 new concrete piers will be added to the existing substructure to carry them, and new copings will be built on the abutments. The foundations are all of solid rock. The grade is to be raised 3 ft.

Moir River, mile 46.3.—The present structure is a through plate girder span, 45½ ft. over all, resting on masonry abutments, built in 1884. The new work to be done is the building of a skew pier; half-way between the abutments, the addition of copings to abutments, and the

installation of 2 spans of reinforced concrete slabs each 22 ft. 10¼ in. long on the center line. Each span will consist of 2 slabs. The pier will rest on solid rock. The grade will be raised 2½ ft.

Beaver Creek, mile 60.3.—The existing structure is a through plate girder span, 75 ft. over all resting on masonry abutments built in 1884. The new work will consist of the addition of concrete wings to the existing abutments and the replacing of the superstructure with a half through plate girder 74½ ft. overall. The grade will be raised 3 ft. to give room for a more modern design of deck.

All these bridges are now too light for the locomotives which it is desired to operate over the subdivision, and are being reconstructed to Cooper's loading class E. 40, with 4000 lb. uniform load.

Cherry St. Yards, Toronto.—A contract has been let to Lumsden Concrete and Paving Co., Toronto, for paving and drainage work at the Cherry St. yards, Toronto.

Mount Yard, Fort William.—A press report states that at the end of July about 150 men were at work on this new yard. Another report says that R. G. Duncan, formerly President Fort William Board of Trade, on a recent visit to Winnipeg, stated that 250 acres of land had been acquired for the yard, and that when the work is completed there will be three district yards—a westbound departure yard with 14 tracks; an eastbound arrival yard with 8 tracks, and a classification yard with 20 tracks; That the yards will be so laid out that the capacity of each can be doubled when required; That the yards would be built on an incline so as to do away with an artificial hump; That the buildings connected with the yards would consist of a 24-stall locomotive house, machine shop, storehouses, scales, van sidings, tanks, coaling station, yard offices, power house, and permanent bunk houses, together with the necessary water and sewer systems, and that the whole work will be done by the company's own forces.

Elevator B Dock, Port Arthur.—Tenders were invited to Aug. 18 for removing the old dock, situated out shore from Elevator B, Port Arthur, Ont. The dock is of timber deck constructed on piles and it is estimated that there are 1700 piles and approximately 200,000 ft. b.m. of timber walling and deck to be salvaged.

Graham-Kashabowie Subdivisions Connection.—Tenders were invited to Aug. 16 for the construction of a connection, approximately 4 miles long, between the Graham and Kashabowie Subdivisions, near Rowan, Ont. Rowan is on the Canadian Northern Ry. line, mile 36.3 west of Port Arthur. (Aug., pg. 406.)

Fort Frances Subdivision Bridges.—The Board of Railway Commissioners has authorized the rebuilding of the following bridges, on the Fort Frances Subdivision, Ont.: Over Boucher's Creek, Emo, Ont., and over Everett's Creek, mile 252 from Port Arthur, and over Pine River, near Pinewood, mile 273 from Port Arthur.

Ties for Western Lines.—Tenders will be received to Sept. 16, for the supply of 4,500,000 ties to be manufactured between October, 1922, and May, 1923, and delivered between Dec. 1, 1922, and September 30, 1923, on the C.N.R. west of Armstrong and Port Arthur, Ont. as follows: 1,000,000 between Armstrong and Winnipeg; 500,000 between Port Arthur

and Winnipeg, excluding the lines in Minnesota; 100,000 in Minnesota; 200,000 in Manitoba west of Winnipeg, and in Saskatchewan; 300,000 in Alberta; 500,000 between Red Pass Jct. and Port Mann, B.C.; 100,000 between Red Pass Jct. and Endako, B.C.; and 500,000 between Endako and Terrace, B.C. No tenders for less than 5,000 ties will be accepted, but arrangements will be made through the District Tie Agent at Winnipeg, to buy ties in small lots from settlers who cut them from their own lands.

Western Lines Betterments.—Tenders were received recently for the erection of 28 miles of fencing on Thunderhill Subdivision, between Lintlaw and Kelvington, Sask., for grading an earthen dam and spillway for water supply at Radville, Sask., for construction of a 5 x 5 ft. reinforced concrete culvert at mile 43.5, Lovell Subdivision, Alta., and a 5 x 7 ft. reinforced concrete culvert at mile 1576, Bulkley Subdivision, B.C.

Western Lines Water Supply.—A press report states that contracts have been let as follows:—To W.A. Dutton, Winnipeg, for building drains at Pope, Man.; Raymore, Maryfield and Conquest, Sask., and Mecheche, Alta. To Northern Construction Co., Winnipeg, for building a dam at Wiseton, Sask. To C. G. Anderson, Norwood, Man., for building a dam at Rama, Sask. To Greene and Elsasser, Winnipeg, for building pipe lines at Wiseton, Rama, Raymore and Maryfield, Sask. To G. M. Irwin, Stonewall, Man., for building pipe line at Pope, Man. To Jamieson Construction Co., Edmonton, Alta., for building a pipe line at Mecheche, Alta. To Riley and Reid, Patience, Alta., for building a pipe line at Tilvey, Sask. To Simpson and Stullington, Winnipeg, for building 10,000 ft. pipe line at Lloydminster, Sask.

Oakland Subdivision Fencing.—A press report states that a contract has been let to the Ideal Fence and Spring Co. of Canada, Winnipeg, for the erection of approximately 50 miles of fencing on the Oakland Subdivision, Man.

Regina Track Connection.—We are officially advised that a contract has been let to Roasa and Wickstrand, Saskatoon, Sask., for grading and culvert construction on a connection 3.28 miles long, between the Canadian Northern Ry. north line, and the Grand Trunk Pacific Ry. tracks at the west end of the latter's terminals at Regina, Sask. The work is expected to be completed by Dec. 31.

Minard-Lampman connection.—We are officially advised that a contract has been let to Gibbs Brothers, Lumsden, Sask., for grading and culvert construction on a connection, 1.74 miles long, between Minard, on the Grand Trunk Pacific Ry. Boundary Subdivision, and Lampman, on the Canadian Northern Ry. Radville Subdivision. The work is expected to be completed by Dec. 31.

Kindersley Pipe Line.—A press report states that a contract has been let to C. U. McManus, Moose Jaw, Sask., for building a pipe line, approximately 16,200 ft. long, at Kindersley, Sask.

Edmonton Car Shops.—A press report states that construction has been started on car shops at the Calder yards on the outskirts of Edmonton, Alta., and that about 40 piles a day were being driven for the foundation, and that about 600 of them have to be driven. The building will, it is said, be 600 x 175 ft. and will be of brick and steel.

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The Diesel Electric Drive for Self-Propelled Cars.

Judging from the attention being given the matter in Canada, the United States and other countries, the self propelled car is rapidly establishing a field for itself in railway operation. An article on other pages of this issue deals fully with developments in self propelled car service on the Canadian National Rys. the Greater Winnipeg Water District Ry., the Quebec Central Ry., the Quebec, Montreal and Southern Ry., and on a Government railway in Australia, and in previous issues cars used on other lines have been described. While Canadian Railway and Marine World has not yet received complete records of operating and maintenance costs, it is evident that both the gasoline driven and the storage battery cars are reliable and economical. There is no doubt that the providing of steam train passenger service on the majority of branch railway lines is a losing proposition, and the introduction into branch line operation of any type of self propelled car which is reliable and much more economical than a steam train is certainly of value to the railways and the public.

There is one type of drive applicable to self propelled cars for railway service, which as far as we know, has not been tried in Canada, but from the results of operation elsewhere, it would seem that great advantages might be derived from its use. We refer to the Diesel electric motor cars used on certain Swedish railways, the first of these cars having been in service for over six years. Four different types of motor cars equipped with the Diesel-electric drive are in use, two having 75 h.p. engines and two having 120 h.p. engines, and a number of cars to be equipped with 160 and 250 h.p. engines are being built. The latter will be somewhat in the nature of locomotives, and will haul a limited number of trailers. The cars at present in use in Sweden are all operating on privately owned railways.

It is well known that the Diesel engine is superior to all other prime movers in efficiency as a heat engine. Whereas the ordinary internal combustion engine transforms from 20 to 22% of the thermal value of the fuel consumed into useful work, the Diesel engine will get from 30 to 35% out of it. In the operation of a Diesel engine, combustion is complete, and analysis of the exhaust gases shows them to consist of carbon dioxide, water vapor, and the nitrogen contained in the air of compression, so that the waste is negligible. High compression and complete combustion effect an economy not obtained by any other prime mover, and as ignition is caused solely by high air pressure, no special ignition devices, liable to get out of order, are required. With a large supply of cheap crude oil available for fuel, the economy in operating engines of this nature in self propelled cars is evident.

In the Swedish railway cars, the engines are started electrically, and the power created at the engine is transmitted electrically to the driving axles, through generator and motors. The engine and generator are mounted on a common frame, the generator being shunt-wound, and, in addition, provided with a separate series winding, the latter being connected to the circuit only

when the generator is used as a motor driven from a storage battery included in the equipment. The two motors are standard series-wound railway motors, with commutating poles. Power is transmitted to the two inside axles by spur gearing.

We are informed by a Canadian railway officer, that two 50 ft. passenger cars could be equipped with a Diesel-electric outfit, to operate as a self propelled 2-car unit, for \$25,000, this providing for the acquisition and installation of Diesel engine and all necessary electrical equipment in one car, and for equipping both cars with ball bearing trucks. The same officer informs us that maintenance costs have been demonstrated as exceedingly low, the electrical equipment particularly requiring but infrequent attention. Experience has shown that the cars require overhauling about every 50,000 miles.

Reasonable first cost, low maintenance cost and low operating cost, together with simplicity in operation and reliability, indicate that cars of this type in suitable rail service would be a paying proposition. Actual experience with them in Sweden has demonstrated this. A trial of one of them on a Canadian railway might possibly lead the way to further progress in the task of decreasing railway operating expenses.

Sir Alfred Smithers, M.P., who, until May, 1921, was Chairman of the G.T.R. board of directors, is stated, in a press dispatch, to have voted in the British House of Commons recently against the motion to remove the embargo preventing Canadian live cattle from being admitted to Great Britain, the reason given for his action being that, among his other activities, he is a cattle breeder. If that was his reason, it will only tend to increase the contempt in which he has been held in Canada since the evidence before the arbitrators, on the value of G.T.R. shares taken over by the Dominion Government, showed his participation in the manipulation of the company's accounts for the apparent purpose of deceiving both the Government and the company's shareholders.

The Labor Congress, at its meeting in Montreal recently, passed resolutions urging that an adequate number of employees be engaged on railway maintenance of way work. There is not the slightest evidence that an inadequate number of employees are engaged in railway maintenance of way work on any of the principal Canadian railways, the management of which can safely be trusted to see that the tracks are maintained properly.

Railway Tramps Nuisance.—Calgary, Alta., Board of Public Welfare, in a report to the City Commissioners, recently stated that about 25 men were arriving in the city daily by the "box car Pullman," and becoming either public charges or nuisances. It was suggested that action be taken along with other cities, to ask the Board of Railway Commissioners to take some action in regard to the matter.

Railway Lands Patented.—Letters patent were issued during June, for Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Canadian Northern Ry.....	12.68
Canadian Pacific Ry.....	13.20
Nicola, Kamloops & Similkameen Ry.....	26.98
Total.....	52.86

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian National Rys.—O. N. BAIRD, Air Brake Inspector, Island Division, Maritime District, Charlottetown, P.E.I., is about to be superannuated.

E. H. BROCK, heretofore section foreman, has been appointed Assistant Roadmaster, Titchfield, Sask.

H. W. FLEMING, heretofore Assistant Engineer, Construction Department, Toronto, has been appointed Assistant Engineer, Ottawa Division. Office, Ottawa, Ont.

A. J. HOULE, General Shop Foreman, Island Division, Maritime District, Charlottetown, P.E.I., is about to be superannuated.

R. KNOX, heretofore acting Superintendent Engineer, has been appointed Superintendent Engineer, Coastal Steamship Services, Canadian National Rys. and Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C.

W. H. LEACH, heretofore section foreman, Biggar, Sask., has been appointed acting Roadmaster, Calgary, Alta., vice F. C. Mackay transferred.

RONALD MACDONALD, heretofore clerk in Division Storekeeper's office, Island Division, Maritime District, Charlottetown, P.E.I., is acting as Division Storekeeper, vice S. F. Hodgson, retired under the Provident Fund.

R. W. SAUNDERS, heretofore chief clerk, General Agent's office, Chicago, Ill., has been appointed Travelling Passenger Agent, Canadian National-Grand Trunk Rys., there, vice G. L. Bryson, whose appointment as Travelling Passenger Agent Canadian National-Grand Trunk Rys., Cincinnati, Ohio, was announced in our last issue.

F. SCOTT, heretofore section foreman, has been appointed Assistant Roadmaster, Fort Rouge, Man.

S. J. STINSON, heretofore signal maintainer, Saskatoon, Sask., has been appointed acting Signal Supervisor, Saskatchewan District, vice R. G. Gardner transferred. Office, Saskatoon, Sask.

Canadian Pacific Ry.—F. BENNETT, heretofore Assistant Locomotive Foreman, Farnham, Que., has been appointed Assistant Locomotive Foreman, London, Ont., vice W. J. McDiarmid transferred to Farnham.

J. L. BROMLEY, heretofore dispatcher has been appointed Night Chief Dispatcher, Sudbury, Ont., vice G. S. Depew, appointed Chief Dispatcher.

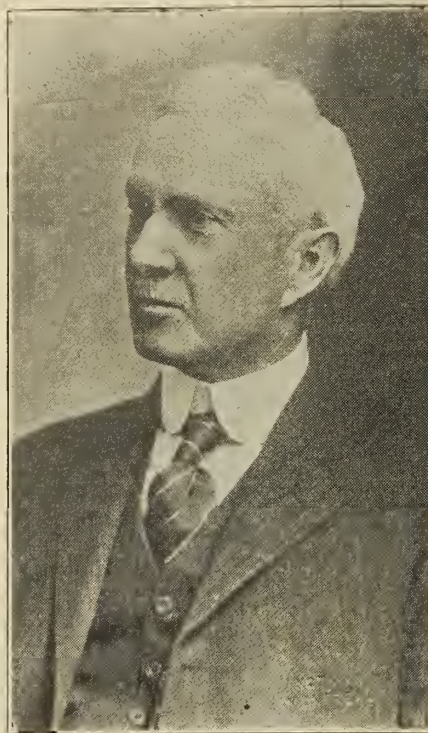
ALLAN CAMERON, heretofore Superintendent, Land Branch, Natural Resources Department, Calgary, Alta., has been appointed Oriental Manager, Canadian Pacific Steamship Lines, Hong Kong, China, as indicated in our last issue. We were advised recently that no appointment of a successor to him had been made.

C. B. FOSTER, heretofore Assistant Passenger Traffic Manager, Eastern Lines, has been appointed Passenger Traffic Manager, Rail Lines. Office, Montreal.

A. CARTLAND, heretofore car man, has been appointed Assistant Car Foreman, Glen Yard, Montreal, vice J. Mitchell, who has been given a position as car man.

F. DAVIS, heretofore Chief Dispatcher Sudbury Division, Algoma District, Sudbury, Ont., has been appointed Chief Dis-

patcher, Laurentian Division, Quebec District, Montreal, vice C. O. McHugh, appointed Transportation Assistant, Quebec District, Montreal.



C. E. E. Ussher,
General Passenger Traffic Manager, Canadian
Pacific Railway.



C. B. Foster,
Passenger Traffic Manager, Canadian Pacific
Railway.

G. S. DEPEW, heretofore Night Chief Dispatcher, Sudbury, Ont., has been appointed Chief Dispatcher, there, vice F. Davis, transferred to Montreal.

M. DIXON, heretofore fitter, West Toronto, has been appointed Assistant For-

man, Schreiber, Ont.

J. H. HOLLEY, formerly in city ticket office, Grand Trunk Pacific Ry., Winnipeg has been appointed Travelling Passenger Agent, Ocean Traffic, C.P.R., Winnipeg, vice R. W. Greene, whose appointment as Assistant General Agent, Ocean Traffic, C.P.R., Calgary, Alta., was announced in our last issue.

D. McCORKILL has been appointed Night Foreman, Schreiber, Ont.

W. J. McDIARMID, heretofore Assistant Locomotive Foreman, London, Ont., has been appointed Assistant Locomotive Foreman, Farnham, Que., vice F. Bennett, transferred to London.

C. O. McHUGH, heretofore Chief Dispatcher, Laurentian Division, Quebec District, Montreal, has been appointed Transportation Assistant, Quebec District, vice H. J. Main, Car Service Agent, whose appointment as Superintendent, Trenton Division, Ontario District, Toronto, was announced in our July issue. Office, Montreal.

W. J. McKAY, heretofore Night Locomotive Foreman, Chapeau, Ont., has been appointed Assistant Locomotive Foreman there, vice C. Norris, who is out of the service.

M. MILLER, heretofore fitter, has been appointed Night Foreman, Glen Yard, Montreal, vice T. Burnside superannuated.

P. PINCOMBE, heretofore Assistant Locomotive Foreman, Schreiber, Ont., has been appointed Locomotive Foreman, Webbwood, Ont., vice W. H. Gougeon, who has been given a position as hostler there.

A. L. RAWLINSON has been appointed Antwerp Passenger Agent, Antwerp, Belgium. Office, 25 Quai Jordaens.

W. STEWART has been appointed Glasgow Passenger Agent, Glasgow, Scotland. Office, 25 Bothwell St.

C. TAYLOR, heretofore car man, has been appointed Assistant Car Foreman, Glen Yard, Montreal, vice P. Clarke, who has been given a position as car man.

C. E. E. USSHER, heretofore Passenger Traffic Manager, has been appointed General Passenger Traffic Manager. Office, Montreal.

J. H. WEBB has been appointed Southampton Passenger Agent, Southampton, England. Office, 7, Canute Road.

Grand Trunk Railway. MAJOR GRAHAM A. BELL, C.M.G., Deputy Minister of Railways and Canals, has been appointed a director, vice H. G. Kelley, resigned.

W. C. CHISHOLM, K.C., General Solicitor, has been appointed head of the Legal Department, owing to the death of W. H. Biggar, K.C., Vice President and General Counsel. Office, Montreal.

W. D. ROBB, heretofore Vice President, Transportation, Construction and Maintenance, was, on Aug. 17 appointed ranking Vice President, with title of Vice President and General Manager, to "exercise the authority and perform the duties exercised and performed hitherto by the President," H. G. Kelley, whose resignation as a director was accepted by the Dominion Government on Aug. 14.

JAS. A. YATES, heretofore Assistant Treasurer, has been appointed Treasurer, vice Frank Scott, Vice President and Treasurer, resigned.

French railways are reported to have reduced freight rates on foodstuffs and other commodities by 10 to 25%, and also to have made reduction on commodities necessary for the metal industries.

Steam Railway Operating Revenues, Expenses and Other Statistics for May.

The following comparative table for May, 1922 and 1921, has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics, Transportation Branch. The figures in the column headed "All railways" include all steam railways with an annual operating revenue of \$500,000 and over. There is a slight increase in the number of roads included under this heading, so that the data for 1922 and 1921 is not directly comparable with previous reports.

As the Canadian Government, Canadian Northern and Grand Trunk Pacific Railways are under one management, and operated as one system, the monthly operating reports for 1922 contain a consolidated report for these railways, under the heading "Canadian National Rys.," which includes the old Canadian Government Rys., viz., Intercolonial, Prince Edward Island, National Trans-

continental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.; the lines operated as the Canadian Northern Ry. System, prior to its acquisition by the Dominion Government; and the Grand Trunk Pacific Ry.

The column headed "Canadian Pacific" includes also the Montreal and Atlantic and Esquimalt and Nanaimo Rys.

The column headed "Grand Trunk" includes all the G.T.R. Co. of Canada lines, including 36.16 miles in the U.S.A., viz.: Champlain & St. Lawrence Ry., 1.21 miles; United States & Canada Ry., 22.18 miles; Vermont & Provincial Line Ry., 9.77 miles, and Black Rock terminal. It does not include other lines in New England, or lines west of the Detroit and St. Clair rivers.

Items 1 to 6 in the table include rail

lines revenues only. Previous to this year they included water lines. Operating income items have been added. Freight and passenger train miles contain a proportion of mixed train miles, divided on the basis of freight and passenger car miles in mixed train service. In former years the total of mixed train miles were added to both freight and passenger train miles when computing averages. Total train miles include freight; passenger, with their proportions of mixed train miles; special train and non revenue train miles. The average freight revenue per freight train mile includes only rail line revenue. Average passenger train revenue per passenger train mile includes revenue from passenger, mail, express, excess baggage, parlor cars, etc., whereas previous reports gave an average per train mile of passenger receipts only. The number of employees is also a new feature of this year's reports.

	All railways.		Canadian National		Canadian Pacific		Grand Trunk	
	1922	1921	1922	1921	1922	1921	1922	1921
Operating revenues								
Freight	\$24,394,847	\$21,702,417	\$7,592,454	\$5,889,554	\$9,291,525	\$8,630,373	\$4,328,161	\$4,162,146
Passenger	5,909,584	7,029,896	1,260,403	1,529,728	2,802,094	3,398,208	1,004,168	1,173,131
Mail	627,024	630,989	180,834	182,410	297,709	312,108	102,000	89,990
Express	987,481	1,402,152	266,974	296,546	388,227	669,404	231,000	365,000
Other freight train	1,977	8,897	.....	2,470	1,377	4,929	.....	.....
Other passenger train	531,765	579,726	161,459	178,860	325,482	328,707	25,550	47,042
Water line	251,355	238,466	.....	.....	178,090	169,032	.....	.....
All other	1,098,215	1,210,114	216,833	254,403	648,881	674,726	109,450	138,053
Total railway operating revenues	33,802,251	32,802,760	9,678,965	8,333,974	13,933,389	14,187,493	5,800,329	5,975,363
Operating expenses								
Maintenance of way and structures	\$6,611,584	\$6,737,385	\$2,546,605	\$2,682,715	\$2,514,216	\$1,927,082	\$859,167	\$1,071,129
Maintenance of equipment	6,981,726	6,701,177	2,388,698	2,395,600	2,340,487	1,983,998	1,318,310	1,466,844
Traffic	1,025,055	963,138	207,013	213,907	609,438	500,593	133,800	171,076
Transportation	13,954,148	15,606,521	4,213,622	5,316,590	5,545,014	5,876,452	2,655,258	2,652,901
Miscellaneous operations	404,583	465,984	129,007	144,757	209,647	228,161	27,548	36,635
General	929,374	992,253	279,492	274,589	306,243	307,568	197,319	252,589
Transportation for investment	Cr. 40,397	Cr. 139,933	38,418	139,646	.....	.....	Cr. 1,647	.....
Total railway operating expenses	29,866,075	31,326,526	9,726,020	10,888,514	11,525,048	10,823,857	3,189,756	5,651,177
Operating income								
Net operating revenue	\$3,936,176	\$1,476,233	Dr. \$47,055	Dr. \$2,554,540	\$2,408,340	\$3,363,635	\$610,572	\$324,186
Railway tax accruals	573,272	491,996	142,179	91,595	243,588	227,803	110,850	106,669
Uncollectible revenues	2,202	1,145	6	2	.....	.....	2,056	1,052
Hire of equipment	Cr. 172,093	Cr. 199,063	Dr. 28,904	Cr. 170,156	Cr. 195,904	Cr. 177,101	Cr. 244,386	Cr. 106,557
Joint facilities rents	Dr. 93,495	Dr. 142,024	Dr. 1,038	Dr. 48,600	Dr. 4,760	Cr. 8,987	Cr. 49,467	Cr. 39,135
Operating income	3,439,265	1,040,129	Dr. 219,183	Dr. 2,524,581	2,355,895	3,321,921	791,519	362,156
Operating statistics								
Average miles of road operated	38,805.02	38,585.11	17,212.10	17,111.07	13,877.2	13,785.8	3,612	3,612
Tons carried (revenue freight)	7,191	6,700	1,603	1,194	2,186	1,909	1,707	1,658
Tons carried one mile (revenue freight)	1,954,698	1,603,459	665,941	470,682	743,884	622,685	339,859	289,724
Tons carried (all freight)	8,235	7,981	1,886	1,649	2,633	2,359	1,922	1,896
Tons carried one mile (all freight)	2,151,584	1,855,526	740,229	582,307	840,380	736,288	358,547	309,930
Revenue Passengers carried	3,366	3,570	860	897	1,186	1,268	857	918
Revenue Passengers carried one mile	198,773	224,036	46,057	53,603	92,980	106,413	36,436	37,933
*Freight train miles	4,197	3,806	1,445	1,341	1,464	1,330	803	717
*Passenger train miles	3,729	3,775	1,012	1,076	1,635	1,633	656	660
Total train miles (revenue and non-revenue)	8,177	7,782	2,607	2,552	3,184	3,009	1,459	1,380
Freight car miles—loaded	92,197	78,696	29,026	24,430	34,073	29,564	17,366	14,000
Freight car miles—empty	44,781	37,915	16,990	11,427	12,559	12,527	8,511	8,014
Passenger train car miles	25,239	25,748	7,092	7,443	11,396	11,697	3,794	3,805
Total amount of pay roll	\$18,613,435	\$19,429,174	\$6,479,294	\$6,895,830	\$7,021,084	\$6,952,555	\$3,544,685	\$3,729,150
Number of employees	153,336	150,131	55,264	55,176	59,199	55,313	27,392	27,322
Averages per mile of road operated								
Operating revenue	\$871.08	\$850.14	\$562.33	\$487.05	\$1,004.05	\$1,029.14	\$1,605.85	\$1,654.31
Operating expenses	\$769.64	\$811.88	\$565.07	\$636.34	\$830.50	\$785.15	\$1,436.81	\$1,564.56
Tons moved one mile (revenue)	50,373	41,556	38,690	27,508	53,605	45,169	94,092	80,212
Tons moved one mile (all freight)	55,446	48,089	43,006	34,031	60,558	53,409	99,266	85,806
Averages per freight train mile*								
Freight revenue	\$5.81	\$5.70	\$5.25	\$4.39	\$6.35	\$6.49	\$5.39	\$5.80
Tons of freight (revenue)	465.7	421.2	160.5	350.8	508.0	468.1	423.0	403.7
Tons of freight (all freight)	512.6	487.4	511.9	434.0	573.9	553.4	446.3	431.8
Loaded freight cars	22.0	20.7	20.1	18.2	23.3	22.2	21.6	19.5
Empty freight cars	10.7	10.0	11.7	8.5	8.6	9.4	10.6	11.2
Averages per passenger train mile*								
Passenger train revenue	\$2.16	\$2.55	\$1.85	\$2.03	\$2.33	\$2.88	\$2.08	\$2.54
Passengers carried	53.3	59.3	45.5	49.8	56.8	65.2	55.5	57.5
Passenger cars	6.8	6.8	7.0	6.9	7.0	7.2	5.8	5.8
Average operating expenses per train mile	\$3.65	\$4.03	\$3.73	\$4.27	\$3.62	\$3.60	\$3.56	\$4.09
Average length of haul (revenue freight) miles	271.8	239.3	415.3	394.0	240.1	326.1	199.0	174.7
Average passenger journey, miles	59.1	62.7	53.5	59.8	78.3	83.9	42.5	41.3
Average tons per loaded freight car	23.3	23.6	25.5	23.8	24.7	24.9	20.6	22.1
Average freight receipts per revenue ton mile	1.248c	1.353c	1.140c	1.251c	1.249c	1.386c	1.274c	1.437c
Average passenger receipts per passenger per mile	2.975c	3.138c	2.737c	2.854c	3.014c	3.193c	2.756c	3.098c
Ratio of pay roll to operating revenues	55.1%	59.2%	66.9%	82.7%	50.4%	49.0%	61.1%	62.4%
Ratio of pay roll to operating expenses	62.3%	62.0%	66.6%	63.3%	60.9%	64.2%	68.3%	66.0%
Ratio of operating expenses to revenues	88.36%	95.50%	100.49%	130.65%	82.72%	76.29%	89.47%	94.57%

*Contains a proportion of mixed train miles.

The Railways' Operating Results for May.

Canadian railways' operating revenues for May increased substantially over those for May, 1921, and also over those for April 1922, and were exceeded in 1922 to the end of May only by those of March when they were \$331,430 greater. For the railways as a whole, the freight revenues in May were \$2,692,430 greater than in May, 1921, and \$4,050,236 greater than in April 1922. As between May 1922 and May 1921, all roads had increases in freight revenue, and increases were made by all roads as between May and April. In passenger revenue, however, the roads as a whole decreased from May 1921, as did all the roads individually, while as between May and April, some increase was made by the roads as a whole, but this is due to the fact that the increase in passenger revenues enjoyed by the C.P.R. was sufficient to more than counterbalance the decreases suffered by the Canadian National Rys. and the G.T.R.

Railway operating expenses increased somewhat over those of April, but did not increase to nearly the same extent as did the operating revenues. As compared with May 1921, the operating expenses made a gratifying decrease. The major part of this decrease is accounted for by the remarkable showing made by the Canadian National Rys. The railways as a whole had a good decrease in transportation expenses as between May 1922 and May 1921.

On account of the May revenues having substantially increased over those of April, while expenses did not increase in anywhere the same proportion, the May operating ratio was much more favorable than that for April. Compared with May 1921 operating expenses decreased, while operating revenues did not increase as much as they did over those for April, while operating expenses decreased, instead of increased, with the result that the net effect, as expressed in improvement in operating ratio, was about the same as when compared with April. It is a remarkable coincidence that the operating ratio for April 1922 should be practically the same as in May 1921, viz: 95.51 for April 1922, and 95.50 for May 1921.

The financial results secured by the various roads are best expressed by the operating income accruing to them. Examination of this item shows the real measure of improvement which took place between May 1921 and May 1922, and it is evident that, for the roads as a whole, the improvement was great. However, the improvement was not secured by all the roads individually, but increase in the Grand Trunk's operating income, combined with the better result shown by the Canadian National Rys. to counterbalance the falling off suffered by the C.P.R. and to show a better result for the roads as a whole.

The Canadian National Rys. revenues increased \$1,344,990, or 16% over May 1921. The increase was entirely in freight receipts, passenger receipts being 18% less than for May 1921, with decreases in both passengers carried and passenger miles. With an increased ton mileage in all freight of 27%, freight train miles increased only 7.8%, indicating an increased train loading of 77.9 tons per train. While the average car loading showed an increase of 1.7 tons per car, the number of cars per train increased by 1.9 loads and 3.2 empties. Maintenance expenses decreased slightly, but transportation expenses decreased 20.8%, and the total pay roll decreased 6%, with

practically no change in employees, the G.T.R. had increased freight traffic of 17%, increasing the freight revenue 4%, but passenger traffic fell off 4% and passenger receipts 14%, the total decrease in revenues being 3%. Operating expenses decreased 8%, giving a net operating revenue of \$610,572 and an operating ratio of 89.47, compared with \$324,186 and 94.57 respectively for May 1921.

The C.P.R. revenues decreased \$254,103 or 1.8%, from May 1921, and operating expenses increased 6.5%, giving an operating ratio of 82.72, against 76.29 for May 1921. Freight revenues increased 7.7% with an increase in ton miles of 19.5%, but passenger revenues decreased 17.5%, on account of a decrease in passenger miles of 12.6%, and decreased rates. Maintenance expenses increased substantially over last year, but transportation expenses decreased 5.6% with an increase in total miles of 14%.

It does not require more than a superficial comparison of the figures for May 1922, with those for May 1921, to demonstrate that the railways have succeeded in reducing their costs in a very great degree, and it is further evident, without the necessity of detailed enquiry, that the benefits of these lowered costs have been passed on to the public in the form of lower transportation charges. An average charge for all roads of but 1.248c per revenue ton mile represents a large reduction from the figure for May, 1921, while the reduction of from 3.138c to 2.975c per revenue passenger mile represents a large decrease in the railways' gross passenger revenues.

In addition to showing the reduced costs which the railways have secured, and the manner in which the benefit of the reduced costs has been handed on to the public, the May report also outstandingly demonstrates the efficiency with which railway operation is being carried on. An examination as to the increase in the number of train miles operated, made coincident with an examination into the increase in the number of revenue tons carried, and the number of ton miles of freight transportation furnished, shows that train movement has been most efficient. The gratifying increase in the number of tons of freight per freight train mile speaks well for the increased efficiency in train loading, and the increase in the average number of loaded cars per freight train mile, accompanied by a very slight increase in the average number of empty freight cars per freight train mile, shows that every effort has been made to take advantage of the heavier power now operating and to govern the distribution of cars in accordance with the existing currents of traffic. The only let-up evident is in the average car loading, but as the matter of car loading is governed so largely by trade and commercial requirements and the character of traffic offering, the decrease noted cannot be fairly taken as any indication of a lessening in operating efficiency.

Another feature of the May report worthy of special attention is the vast improvement secured by the Canadian National Rys. compared with May 1921, the decrease in the operating ratio of from 130.65 in May 1921, to 100.49 in May 1922, being most gratifying. The result secured was due primarily to the large increase in freight tonnage handled which, despite the lowered average freight rate, increased the freight re-

venue by a large amount. This, in combination with the large decrease in transportation expense, brought the relationship between revenues and expenses to the favorable condition indicated by the large improvement in the operating ratio. A more convincing demonstration of the truth of the proposition that the National system's great need is increased traffic, and that only with increased traffic can it be placed in a permanently prosperous condition, would be difficult to discover.

It is customary in most matters to base forecasts for the future on the experiences of the past, and, basing our predictions concerning the future for the railway industry in Canada on the operating results for 1920 and 1921, we think that prospects are good for greater improvement in the railways' operating position in the latter part of this year than in the preceding two years, subject to a condition. That condition concerns the relationship between railway expenses, principally wages, and railway rates, and is discussed elsewhere in this issue. It must be evident to all concerned that if the public is to be given the benefit of proposed reduced costs in the railway business, before the railways have actually secured the benefit of the proposed reductions, the railways are bound to suffer financially. If, however, but small delay is experienced in giving the railways the benefit of the reduced costs, it is likely, on account of the fact that in 1920 and 1921 railway revenues continued to increase from early summer till they reached the peak in October, that the net revenues secured by the railways will be much better in the latter part of this year, when the May operating ratio was but 83.36, than in 1920, when the May operating ratio was 95.55, and than in 1921, when the May operating ratio was 95.50. The matter comes to this, if the railways get a square deal, they will benefit financially by their efficiency in operation, but if their revenues are unduly restricted and their expenses unduly increased by government action, their net results will be disappointing in spite of all the efficiency they can display in the operation of their properties.

Electrification of Netherlands East Indies Railways.—The Trade and Commerce Department's Trade Commissioner, P. W. Ward, has written from Singapore as follows: "After a close study of conditions, extending over several years, the Netherlands East India authorities have decided to electrify the whole railway system. Direct current at 1,500 volts is to be used, but later the Batavia-Sourabaya section may be raised to 3,000 volts on a single-phase, if circumstances warrant. Two power stations, giving about 40,000 h.p., are being erected; one 44 miles and the other 63 miles from Batavia, the northwest terminus of the line. It is estimated that of this 40,000 h.p., 30,000 will be required for the line, and that the remaining 10,000 will be available for light and power in other directions. It is expected that the first portion of the lines between Tandjong Priok, a growing port some miles to the east of Batavia, and Meester Cornelis, a junction some miles to the south of Batavia, will be in operation early next year."

Scotch Railways are reported to have agreed upon a general reduction in freight rates, conforming with the rates put in force recently on English lines.

Canadian Pacific and Canadian National Railways' June Earnings and Expenses. Johnson Street Bridge, Victoria, B.C.

The C.P.R.'s June gross earnings were \$13,810,448, a decrease of \$651,195 from June, 1921. Operating expenses were \$11,448,134, an increase of \$91,249 over June, 1921. Net earnings were \$2,362,313, a decrease of \$742,445 from June, 1921. It is evident that in June, as in preceding months, the C.P.R. results were much less favorable than they were in corresponding months last year. The cumulative effect of these less favorable monthly showings is evident on examining the operating figures for the first 6 months of this year, the gross earnings totalling \$76,295,359, a decrease of \$7,760,312 from the first 6 months of 1921. Operating expenses totalled \$66,481,287, a decrease of \$4,624,218. Operating expenses decreasing \$3,136,094 less than gross earnings, net earnings for the six months of course also decreased by that amount.

The Canadian National Rys. gross earnings for June were \$8,235,603, a decrease of \$51,367 from June, 1921. Operating expenses were \$10,199,592, a decrease of \$682,635 from June, 1921. The operating loss was \$1,963,989, a decrease of \$631,268 from June, 1921. While this represents a substantial improvement over June, 1921, the June, 1922, results were not nearly as good as those in May, when the operating loss was but \$47,055.

From the figures given above it is abundantly clear that up to the middle of the year but little progress has been made in restoring conditions in the Canadian railway industry to the point to which they should be restored, and C.P.R. results would indicate that conditions are becoming worse instead of better. We looked forward during 1921 to a time when, in the near future, an improvement in business conditions would combine with a desirable policy of rate regulation to bring about a proper relationship as between railway operating revenues and expenses. Because it is necessary for railways to continually make additions and improvements to provide the transportation service demanded by an increasing population, it is desirable in the public interest that the railways enjoy a reasonable degree of prosperity, and for that reason our hope and expectation of a restoration of better conditions in the railway business was a reasonable and proper one. As Canadian industrial prosperity generally goes hand in hand with industrial prosperity in the U.S., and because industrial prosperity in the U.S. had been seriously retarded by an almost complete absence of railway purchasing power due to insufficient net earnings, we had also looked forward to a restoration of railway prosperity in that country. In the U.S., hopes in that direction are being rapidly realized, and net railway operating income has shown a gratifying improvement during recent months, but, in Canada, conditions in the railway industry have not improved, and are, if anything, becoming worse. This constitutes a most undesirable state of affairs.

Nor does the immediate future hold out much promise of improvement in Canadian railway affairs. Details of the legislation affecting the Crownsnest agreement, and the Board of Railway Commissioners' action in ordering reductions in basic commodity rates, effective Aug. 1, have been given in pre-

vious issues, and it is evident that large reductions in railway operating revenue will inevitably result. At the time of writing (Aug. 16.) it is stated that the railways have finally yielded to representations made by the Dominion Government as to the desirability of withholding projected wage cuts until a board of arbitration has investigated and reported. In discussing the matter of railway rates and expenses in a previous issue, we took the stand, and it was a reasonable one, that rate reductions should not have been put in effect until reductions in expenses were an accomplished fact. However, the rate reductions are operative while the expenses remain at their previous high levels, and in this way an unfortunate situation has been brought about, unfortunate for the railways, and, if long continued, even more unfortunate for the public.

It is a recognized fact that a railway is a quasi-public undertaking, and for that reason it must be subject to governmental supervision and regulation. In the past, in Canada, regulation has been efficient, as far as it has gone, and generally fair to the railways and the public. In this case, however, the railways have been handed the "short end of the stick." On account of the Dominion Government's unwarranted action in interfering in the wage dispute between the railways and their shopmen, the situation is that, between government and regulative commission action as to the Crownsnest and other rates, and government action as to wages, the calculated relationship as between railway revenues and expenses has been seriously disturbed. We certainly do not desire to see the field of railway regulation extended so as to threaten to usurp any of the functions of railway management, but a situation like the one which has now arisen makes one wonder whether railway regulation, to be really efficient, will have to ultimately undertake to regulate all classes of railway expenditure, as well as railway revenues so as to preserve the proper relationship between them.

At all events, it should be recognized by all concerned in the matter that the latest developments will tend to make the net earnings of Canadian railways less favorable even than in the past. Recognition of this fact, coupled with recognition of the fact that unfavorable results in railway operation constitute a serious drag on present and future national prosperity, should move those in authority to take prompt and decisive action to better conditions in the railway industry, and thus contribute largely to an improvement in conditions in Canadian industry generally.

Railway Lands Patented.—Letters patent were issued during July, for Dominion Railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Canadian Northern Ry.....	159.07
Canadian Northern Western Ry.....	9.82
Canadian Pacific Ry., roadbed and station ground.....	34.94
Total.....	303.83

The Denver & Rio Grande Rd. will, it is said, lay 250 miles of new steel rails within the next 12 months.

The highway and railway bridge under construction across the harbor at Victoria, B.C., which has been referred to in previous issues of Canadian Railway and Marine World, is being erected by the city, aided by a contribution from the C.P.R., as the bridge will be used by its subsidiary, the Esquimalt & Nanaimo Ry., and by a contribution from the B.C. Government, which is interested in the development of land on one side of the harbor. The original estimated cost of the structure was \$720,000, towards which the C.P.R. contributed \$100,000 and the B.C. Government \$200,000. A bylaw providing for the carrying out of the work, and the confirmation of the agreement with the railway company and the Government, was passed in 1920, and another by-law has been passed recently, authorizing the raising of \$110,000 additional to complete the work. The main reason for this additional amount being required was that the original estimate was low, no detail plans having been prepared, and neither the form of the substructure, the number of spans, or the type of the bascule span were known.

For construction reasons the bridge is being built in two portions, owing to the proximity of an old swing bridge and the necessity of keeping both the railway traffic upon it and the harbor traffic under way. Commencing from the easterly side the combined bridge consists of one 110-plate girder span, one 54-ft. lower span, one 150 Strauss bascule span and one 73-plate girder span. In order to obtain an under crossing for the roadway under the railway on the westerly side, the grades are split at the rest pier and the roadway portion of the bridge drops on a 4% gradient from that point. The greater part of the substructure was built by day labor by the City Engineer's Department at a cost of \$206,086—a saving over the lowest contract schedule amount of \$33,680. The contract for the superstructure on the highway side was let to the Canadian Bridge Co. for \$239,400 and this portion of the work is nearing completion. The contract for the railway superstructure has also been let to the same company for \$197,400. The highway portion of the bridge provides an 8-ft. sidewalk, and a 30-ft. roadway, with double tracks for electric railway traffic, and the railway portion is 20 ft. wide, in order to give facility to the railway company for unloading passengers, the tracks being offset for this purpose.

A press report states that it is planned to remove the old Johnson St. bridge about the end of July, and to lay temporary tracks on the highway portion of the new bridge to enable it to be used by the railway pending the completion of the railway section of the new structure. The E. & N. Ry. is reported to be about to install a small bridge to carry the railway tracks after they leave the western end of the new bridge.

The Board of Railway Commissioners has authorized the Esquimalt and Nanaimo Ry. to build a temporary deviation of its main line at a point east of Johnson St. subway, Victoria. This will be done to enable the new Johnson St. bridge to be used for railway purposes, pending the removal of the present bridge and the completion of the railway section of the new bridge. A small bridge is to be installed by the E. and N. Ry. to carry the railway tracks after they leave the western end of the new bridge to a connection with the present tracks.

Railway Rates for Carriage of Mails.

For years, prior to 1921, the various Canadian railways contended that they were most inadequately paid by the Post Office Department for carrying mails, and made repeated efforts to obtain redress. Towards the end of the Laurier Government's term, it was decided to refer the matter to the Board of Railway Commissioners for determination, but when Mr. Pelletier became Postmaster General in the Borden Government, he repudiated the arrangements which had been made, and restored to the Postmaster General the power of affixing the rates, as he ineffectually tried to do with the rates to be paid electric railways for carrying postmen, and for the postage rates to be paid for the transmission of newspapers. However, in Feb. 1917, when Mr. Blondin was Postmaster General, it was decided to refer the matter to the Board of Railway Commissioners, to determine as to the accuracy or inaccuracy of the claims made by the railways, and, if it was found that the existing rates were inadequate, to determine, as the result of evidence to be submitted by both parties, viz., the P.O. Department and the different railways interested, what would be a fair rate of payment for the service. After many delays, a hearing was held in Ottawa in March 1919 and on July 5, 1919, Commissioner McLean made a report, which however, did not become public until June 1920, when Canadian Railway and Marine World, after having been unsuccessful in several directions, obtained a copy and published it. On Feb. 16, 1921 the Dominion Government passed an order in council providing for the rates recommended by Commissioner McLean to go into effect on March 1, 1921, for one year. Following is a comparison of the rates per mile in effect prior to that date, and of the new rates then established:—

	Old rate	new rate
Full length postal car, or storage car	16c	34.7c
Half car, 30 ft.	9c	19.52c
Baggage car, 15 ft.	4c	8.67c
Special trains	\$1.25	\$2.71

Another order in council was passed on Feb. 19, 1921, requesting the Board of Railway Commissioners to further consider the rates to be paid for the carriage of mails, and to make a report and recommendation thereon prior to Feb. 28, 1922, to which date the new rates were to apply, in order that the question of an extension of time might receive consideration.

Early in 1922, after Mr. Murphy had become Postmaster General in the King Government, an order in council was passed extending the new rates as given above for three months from Feb. 28, 1922, until May 31, 1922. On Feb. 13, 1922, the Postmaster General secured the passage on an order in council which stated that on further consideration it was not deemed advisable to refer the matter to the Board of Railway Commissioners, and the order in council of Feb. 19, 1921, was therefore cancelled and the matter was withdrawn from the Board.

Prior to the expiry of the order in council which extended to May 31, 1922, the rates which went into effect on March 1, 1921, R.A.C. Henry and V. I. Smart were appointed by the Minister of Railways and Canals and the Postmaster General, to recommend rates to be effective from June 1. Mr. Henry has been employed by the Railways and Canals Department since 1912 as inspecting engineer, assistant engineer and subsequently as engineer in charge for the

G.T.R. arbitration. He is now engaged on special transportation problems. V. I. Smart, consulting engineer, Montreal, has been in the Railways and Canals Department employ since May 1920, first as operating engineer in connection with the G.T.R. arbitration, and latterly in studying special transportation problems with Mr. Henry. Messrs. Henry and Smart recommended the following rates per car mile:—

Full length postal cars	35c
Full length storage cars, 60 ft.	36c
Compartment postal car, 30 ft.	20c
Special trains run exclusively for P.O. Department, per train mile,	\$2.70
When other than postal cars are attached to special train, per train mile,	\$2.15

Closed pouch mails, storage, or overflow mail carried in baggage cars, in charge of baggage man and without a mail clerk in charge, to be paid for at the following rates for each mile of service:—3 ft. unit space, 4c; 7 ft. unit space, 6.5c; 15 ft. unit space, 13c; 30 ft. unit space, 20c

These rates were embodied in a draft, of regulations for the transportation of mails, which was prepared in the Post Office Department and submitted to the railways for consideration. Some of the conditions proposed were objected to by the railways, whose representatives had a conference with the P.O. Department officials early in July, and it was expected that an order in council would be passed shortly thereafter, putting new rates and regulations in force, but we were officially advised on Aug. 21 that this had not been done.

Among the Express Companies.

Jas. H. Young, agent, Dominion Ex. Co., Victoria, B.C., died there Aug. 3.

The Canadian National Ex. Co., has opened offices at Tide Head, N.B., Pathlow, Sask., and Bellis, Alta.

John Pullen, President, Canadian National Express Co., and Mrs. Pullen, have been staying at Metis Beach, Que.

The Dominion Ex. Co. and C.P.R. Co. have moved their Manchester, Eng. office, from 1 Mount St., to 31 Moseley St. J. W. Maine is agent.

Canadian National Ex. Co. opened offices at Adamsville Bartibog, Berry Mills and Red Pine, N.B. Aug. 1, and at Des-saints and Old Lake Road, Que., Aug. 23.

T. E. MacDonnell, Vice President and General Manager, Dominion Ex. Co., Toronto, was on an inspection trip of the company's Maritime Provinces offices, during August.

The Canadian National Ex. Co., through its Foreign Department, has entered into an arrangement with the Red Cross Society, London, Eng., whereby personal packages, not including dutiable goods, such as tobacco, will be handled by it free, from London to Russian destinations, when parcels are sent to render succor to those in distress in Russia. It is necessary, however, to pre-pay all charges to London.

The Express Traffic Association of Canada's application to the Board of Railway Commissioners for approval of Supplement B to Express Classification 5, restricting empties which may be returned at one-half the outgoing rate to the following: egg cases, cream cans, ice cream tubs, meat, bread and cake hampers (not baskets) and standard poultry coops, was heard at Ottawa, June 20, the Association, the Montreal and Toronto Boards of Trade, the Canadian Manufacturers' Association, the Compressed Gas Association, and the Can-

adian Carbonate Co., being represented. The Board issued order 32652, July 31, refusing the application.

As stated in Canadian Railway and Marine World for August, the question of whether the C.P.R. Co. has the right, under its agreement of May 13, 1896, with the G.T.R. Co., to take express traffic from or to any station on the joint section between Toronto and Hamilton, to or from any station on the lines of the C.P.R., or its connections, beyond the section, was answered by the arbitrators in the affirmative. We are advised that while under this decision the Dominion Express Co., has the right to do business to and from any point on the joint section, for places beyond, for the present, at least, its activities will be confined to car load fruit traffic from the Burlington district.

Telegraph, Telephone and Cable Matters.

Vice President Gerrard, of the Commercial Cable Co., has been in Newfoundland, in connection with the company's recent acquisition of the Port Aux Basques-Canso cable.

The commercial Cable Co. has opened new offices in Cabot Bldg., St. John's Nfld., which has been renovated after a fire, which occurred there a few months ago. D. Barron is in charge.

Work was commenced during July on the erection of a wireless telegraph station at Victoria Beach, Man., to be operated by the Dominion Government, in connection with a station at Norway House. The aerial will be 75 ft. high. The work is in charge of Major Steele of the Canadian Air Board.

The Commercial Cable Co.'s new cable repairing s.s. John W. Mackay, arrived at Halifax, N.S., during July, under command of Capt. Lardner, O.B.E., and it is reported that she has been dispatched to Ireland, to undertake repairs at certain of the cable landing stations, where damage has been done by rebels.

Senatore G. Marconi, G.C.M.G., has been presented with the John Fritz gold medal, the highest engineering honor in the gift of the U.S. It is awarded not oftener than once a year, accompanied by a certificate quoting the specific achievement for which it is given, and is signed by representatives of the national societies of civil, mechanical, mining and electrical engineers.

Communication over the Commercial Co's cable between the U.S., Ireland, France, Germany and Northern Europe, was cut off, Aug. 7, by Irish rebels, who seized the cable station at Waterville, Ireland. They also seized the Marconi wireless station at Clifden, Ireland, and the company arranged a receiving station at Ongar, Essex, England, to act temporarily as a substitute. Latest reports from London, Eng., state that there is no alteration in the cable service through Ireland, since the rebels captured the Commercial Cable Co's station at Waterville and the Western Union Telegraph Co's station at Valencia. Apart from the Imperial cable, only 4 cables are in operation between the British Isles and America. It appears that all the cables landing on the west coast of Ireland have been cut. Operations have not yet been resumed at the Marconi Wireless Telegraph Co. at Clifden, Ireland, which was seized by the rebels, but has since been recovered.

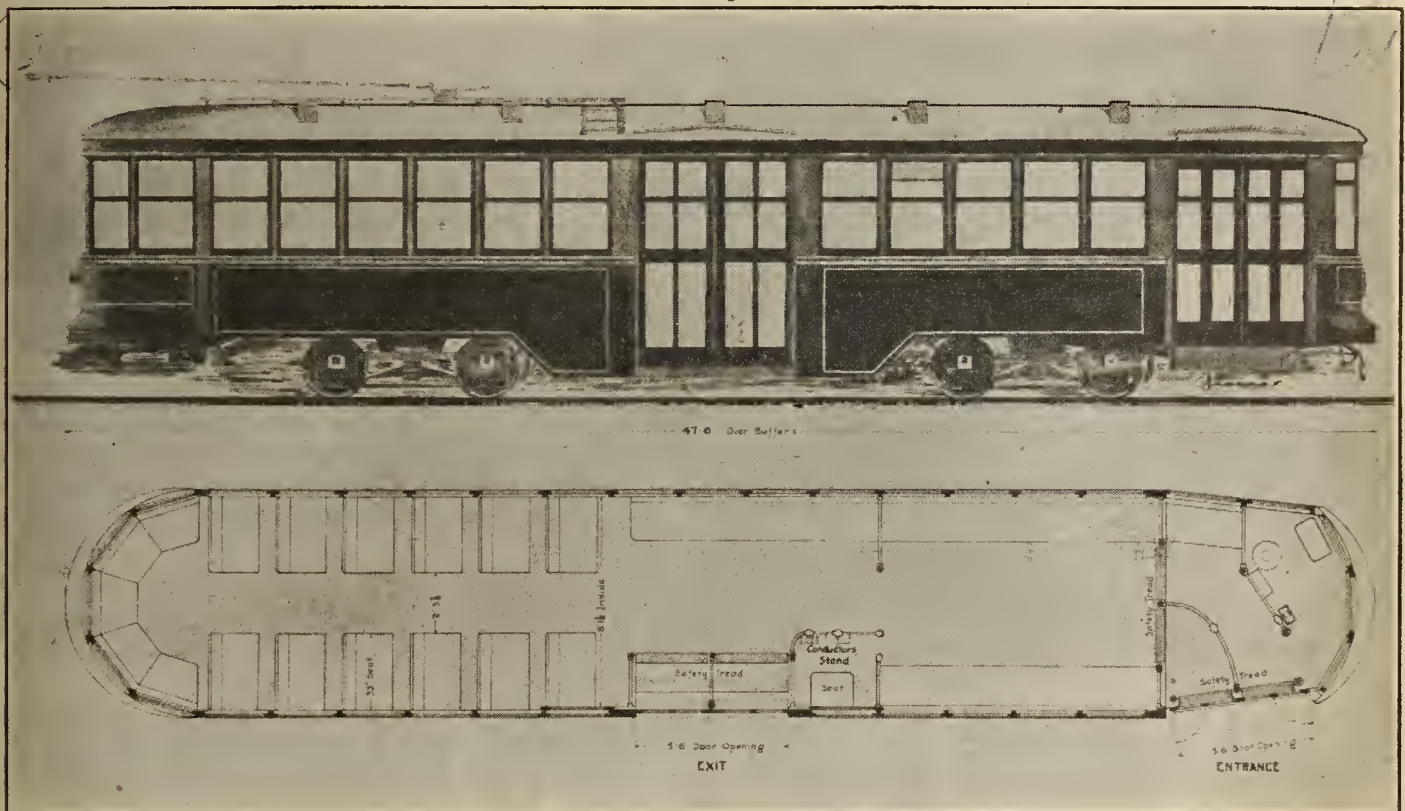
Electric Railway Department

Additional Cars for Toronto Transportation Commission.

The Toronto Transportation Commission has recently ordered 50 motor cars and 100 trailers from Canadian Car and Foundry Co., Montreal, and 50 motor cars from Ottawa Car Mfg. Co., Ottawa. The motor cars will be 4 ft. 8 in. shorter than those acquired by the Commission in 1921, and described in preceding issues of Canadian Railway and Marine World, and are not to haul trailers. They will be equipped so as to be suitable for one-man operation if required by traffic conditions. The trailers will be similar in general design to those secured in 1921, but a new feature will be the arrangement of the doors, by means of which the central one of the three doors may be used for entrance or

side sills and other members in contact with same. The side sills will be of open hearth steel angles, continuous on each side of the car between the body corner posts. On the closed side, the side sill will be straight and on the door side it will be depressed and suitably reinforced at the door opening to provide for the steps. The body bolsters are designed to carry a safe load of 11,000 lb. at each end, when supported in the center. The side body bearings will be of 4 x 1 in. open hearth plates, secured to the body bolster by 5-8 in. bolts. The side bearings will be located 2 ft. 2 in. from center of car to center of side bearings, and a clearance of 1-8 in. between side bearings and truck bear-

The side sheathing will be 3-32 in. open hearth steel, securely riveted to side sill angle, T-bar posts and belt rail. The joints of sheets will be at the posts and covered with splice plates. The letter board plates will be of 16 gauge open hearth steel, securely riveted to the side posts and side plate angle, the bottom edge of the letter board to be reinforced by pressed steel drip moulding. The body side posts will be of rolled steel T-bars, inserted in white ash wood posts, and there will be double side posts adjacent to the door openings. The belt rail will be continuous between the body corner posts on the closed side of the car and between body corner posts and the center door posts on the door side.



Elevation and Plan of Motor Cars—Toronto Transportation Commission.

exit as occasion demands. The chief dimensions of the motor cars will be as follows:

Length over vestibule	45 ft. 10 in.
Length over bumper	47 ft.
Width over side sill angles	8 ft. 4 in.
Width over lower deck eaves	8 ft. 6 in.
Width inside of side lining	8 ft. 1 5-8 in.
Width of center doors between stanchions	5 ft.
Width of front doors between door shafts	5 ft.
From top of rail to under side of sill at center sliding doors	9 3-8 in.
Height from rail to top of roof	10 ft. 8 5-8 in.
Height from rail to top of ventilator	10 ft. 9 7-8 in.
Height from top of rail to top of floor and body	2 ft. 8 1/2 in.
Center to center of trucks	22 ft. 6 in.
Center to center of side posts	2 ft. 5 in.

The motor cars will be of the front entrance, center exit type, with arch roof extending the full length, as shown in the accompanying illustration, and of steel construction.

The underframe will be of open hearth steel, reinforced by diagonal bracings connected securely to the center sills and

ings will be provided. The center plates will be the Commission's standard of cast steel. The underframe is to be made to carry and support, without undue deflection, a uniformly distributed passenger load of not less than 125 lb. per sq. ft.

Platform Framing. The rear end of the car is to be built with the platform continuous in line with the body framing, and circular in form. Both ends of the car will be equipped with 7 in. rolled steel section anti-climbers, joined to the platform end sills by open hearth steel angles or pressings. The rear end sill will consist of an open hearth structural steel member, shaped and connected to the side sill angles and body corner posts with gussets and side plates, and the front end sill will be an open hearth structural steel member, connected to the side sill angles at the body corner posts, running to the front entrance door.

Arch type bulkheads will be provided at each body end, built up of open hearth steel plate, extending clear across the car. The bottom edge of the plate will be reinforced by a steel angle. In addition to the plate at the top of the bulkhead, lateral reinforcement will be provided at the connection between the bottom of the body corner posts and the body end sill, by gussets, to prevent weaving of the body.

The roof will be of the plain arch design, and steel carlines will be used at each post, riveted to the side plate angle by angle connections. White ash wood carlines will be bolted to the steel carlines, and will also be used midway between the steel carlines. The roof boards will be of poplar or basswood, 7-16 in. thick by 2 1/4 in. face, tongued and grooved, and nailed to the wood car-lines. The entire roof will be covered with no. 8 cotton duck, laid in white lead and oil.

The main body floor for the motor cars will be double. The lower floor will be laid diagonally, and will be 5-8 in. thick by 2½ in. face, red pine or spruce. The upper layer will be 5-8 in. thick by 2½ in. face, hard maple. All flooring will be tongued and grooved, and the floor will be supported by steel under-frame members. In the aisles and standing spaces throughout the car, 3-8 x 1 in. maple mat strips will be laid longitudinally at ½ in. spacing, and in such a way as to extend 1-8 in. above the line of the top flooring.

The interior finish will be in birch. The headlining will be 3-16 in. agasote. The advertising card moulding will be birch, and will extend the entire length of the car body. The wainscoting in the car body at the cross seats will be 3-16 in. agasote, and at the longitudinal seats and at the circular seats at the rear will be 5-16 in. white pine, shiplapped.

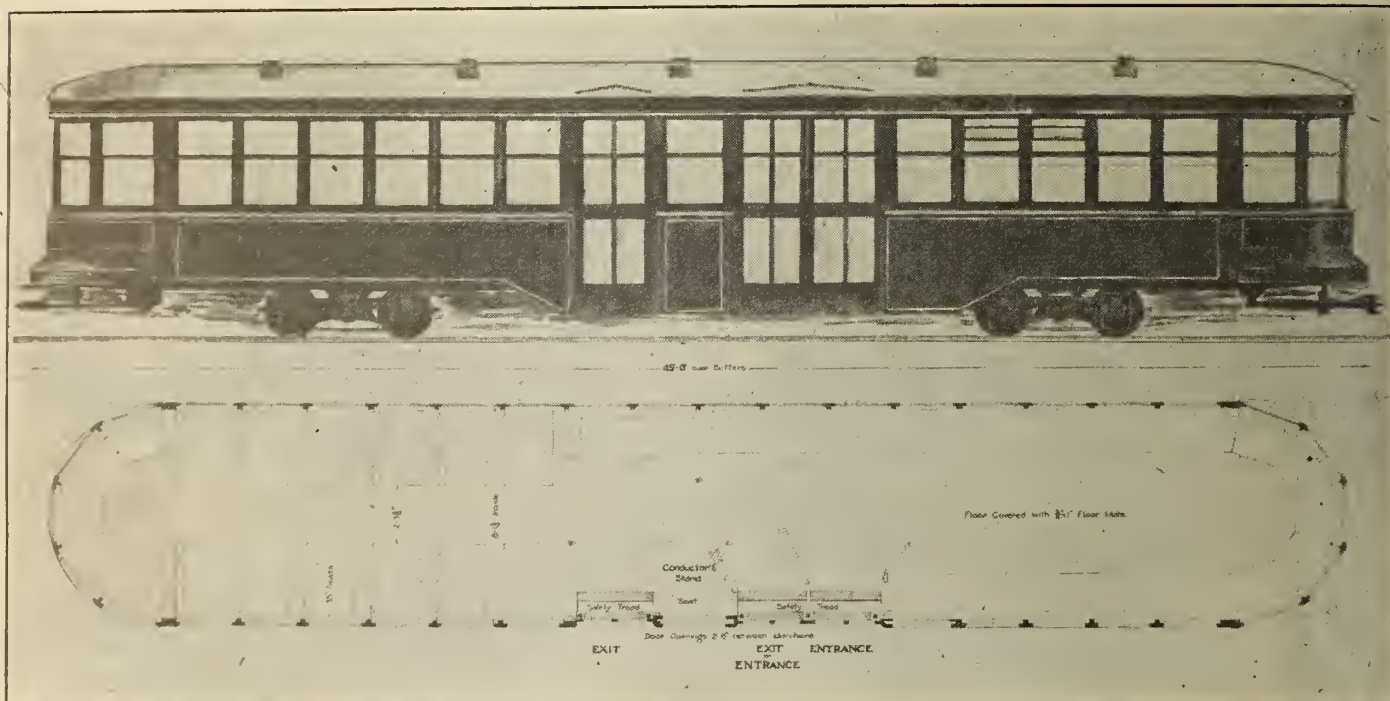
The seating plan for the motor cars is

single plate, chilled iron type, with 2½ in. treads, pressed on the axles at not less than 30 tons and not more than 40 tons pressure. The side bearings will be of the roller self-lubricating type. Axle dimensions will include 3 ¾ x 7 in. journals, 4 15-16 in. wheel seats, 5 in. gear seat and 80¼ in. length over all. The axles will be of open hearth steel, forged and annealed. All connecting pins for the truck levers will be case-hardened and all holes in the levers will be bushed with case-hardened seamless bushings.

The electrical equipment will include 35 h.p. motors, and both electrical and air brake equipment will be furnished by Canadian General Electric Co. The cars will be equipped with the standard one-man safety car apparatus, to provide for one-man operation.

Special equipment. All the wiring will be installed in galvanized steel conduit, except that for the buzzer and single

under the longitudinal seat on the left hand side, so as to sand one rail in front of the forward trucks, and one under a transverse seat on the right side, so as to sand one rail in front of the rear trucks. Each car will be equipped with a life guard, fitted with detachable gate and all necessary equipment. A staffless type hand brake, 12.52 ratio, will be installed in the front vestibule, and the cars will be completely equipped with hand brake rigging, working in conjunction with the air brakes. A switch cabinet, made of wood to match the interior finish, and lined with transite, will be provided in the front vestibule. Drawbars, for emergency purposes only, will be installed so that they will not foul on a curve of 37 ft. 4½ in. radius. These drawbars will be securely anchored to the underframe of each platform, and will have circle bars of the same radius as those on the cars now operated by the Commission.



Elevation and Plan of Trailer Car—Toronto Transportation Commission.

shown in one of the accompanying illustrations and the general arrangement will be similar to that in the motor cars secured by the Commission in 1921, but as the new cars will be 2 panels shorter, there will be a corresponding decrease in seating capacity. All seats will be of birch slat construction.

Heating will be by forced draft heaters, and a 20 gauge galvanized iron graduated duct will run at the floor line from the heater to the bulkhead at the rear of the car, and to the motorman's position at the front.

Lighting will be by 3 circuits of 46 watt, 115-220 volt mill type lamps, suitable for series burning, and arranged 7 in a row at each side of the car. The arrangement of the lighting will be such that in the event of one circuit failing, the remaining lights will be evenly distributed throughout the car. An additional circuit of five 36-watt mill type lamps will be provided for the headlight and front vestibule steps.

The trucks are designed to carry the dead load, and a live load of 150 passengers, assuming an average weight of 150 lb. per passenger. The wheels will be the Commission's standard 26 in. diam.

stroke bell systems, and the cable from the trolley to the lightning arrestors, the latter to be in loom. A switch iron and holder will be installed in the front vestibule. Ten arch roof ventilators, equipped with registers, will be installed, the air opening for each ventilator being approximately 6 x 8 in. A high voltage push button will be placed on each side post and also on the rear vestibule of the car body, there being 29 buttons in all. Electrically welded 2 in. square wire mesh window guards will be applied to all body and rear vestibule windows, except the center rear window. Stationary hand grab poles will be located over the longitudinal seats. The conductor's signal system will consist of 3 high voltage push buttons, one at the conductor's position, one at the rear of car, and one at the front vestibule, which will operate single stroke bells, one in front vestibule and one near the conductor's position. All stanchions and rails will be of hard drawn aluminum. Two foot gongs, complete with floor tube and plunger, will be installed, one at the motorman's position and one in rear vestibule for use when the car is backing. Two sand hoppers will be provided, one

As the cars are to be equipped with but 35 h.p. motors, they will not, as stated above, haul trailers. In using the cars in one-man operation, they will be run on the "pay-as-you-leave" system; the center doors will be inoperative and passengers will enter by the front door nearest to the car body and leave by the front door nearest the front end of the car.

The trailer car's chief dimensions will be as follows:

Length over vestibule	48 ft.
Length over bumpers	49 ft. 2 in.
Width over side sill angles	8 ft. 4 in.
Width over lower deck eaves	8 ft. 6 in.
Width inside of side lining	8 ft. 1 5-8 in.
Width of center doors between stanchions	
Exit doors	2 ft. 6 in.
Entrance doors	5 ft.
Height from rail to top of roof	10 ft. 4 1-8 in.
Height from rail to top of ventilator	10 ft. 4 1/2 in.
Height from top of rail to top of floor	2 ft. 4 in.
Center to center of trucks	26 ft.
Center to center of side posts	2 ft. 5 in.
Height from top of rail to under side of side sill at sliding doors	10 in.

The foregoing dimensions are for the most part the same as those of the trailer cars bought in 1921 and now being operated, and, in general, the new trailers will be very similar to them. In view of the fact that the constructional details

embody the same standards as those of the motor cars above described, and that the trailers now in use have been thoroughly described in preceding issues of Canadian Railway and Marine World, a detailed description of the new trailers will not be given here. Attention is called, however, to a radical departure in door arrangement to be embodied in the new trailers. As shown by one of the accompanying illustrations there are three doors at the center, the one at the right being used always as an entrance door, the one at the left being used always as an exit door, while the center door may be used as an exit or an entrance door, at the conductor's will. The idea, which originated with D. W. Harvey, Assistant Manager, Toronto Transportation Commission, is that under conditions where there are a large number of passengers to enter, the conductor can move the movable bar shown, to the position indicated by the solid line, leaving two doors by which passengers may obtain access to the forward or non-paid portion of the car. If there are a large number of passengers to leave, the conductor will move the bar to the position indicated by the dotted line, giving

A Notable Toronto Street Railway Intersection Installation.

The accompanying illustrations show two stages in renewing the street railway intersection at the corner of Bloor and Bathurst Sts., Toronto, the Toronto Transportation Commission having installed a grand union in that location, recently. Fig. 1 shows the work of excavation preparatory to the removal of the old intersection. The excavation was begun on July 13, and completed on July 15. The concrete was broken by drills, operated by compressed air supplied from compressor cars, and carted away by motor trucks of the type shown in fig. 1. As excavation proceeded, the old steel was blocked up on tiers of ties. The old steel was taken out and the new steel laid in the early morning of July 16, and the speed with which the change was made probably constitutes a record. The removal of the original steel was begun at 12.05 a.m., with the uncoupling of all castings and rail sections, and the burning of tie rods by acetylene flame. As the steel was uncoupled, it was removed in sections by two crane cars, one operating from the south on Bathurst St., and

tions were of solid manganese steel, the rail portion including 1094 ft. of 140 lb. guard rail and 500½ ft. of 122 lb. 7 in. grooved girder rail, A.E.R.E.A. standard. Other material included in the installation was as follows: 64 flat tie rods; 60 round tie rods; 296 pair joint plates; 1704 track bolts; 1764 h.p. nut locks; switch boxes and other miscellaneous materials. The castings inserted included the following: twelve 1750 lb. 15 ft. switches; twelve 1400 lb. 15 ft. mates; four 1350 lb. 12 ft. switches; four 1700 lb. combination mate crossings; 80 crosses ranging from 600 to 1450 lb.; 4 triple frogs, with frog angles 18° 47' 40", 25° 28' 47", and 44° 27' 32"; 4 triple frogs, with frog angles 21° 07' 45", 23° 10' 04" and 44° 27' 32"; 8 half diamonds, angle 89° 59' 06".

All curves in the intersection are spiralled to the Commission's standard, and are of such clearance that the Commission's large new cars may operate past each other on them. All parts were made according to the Commission's Way Department's standards, and all castings were drilled and assembled, and the com-

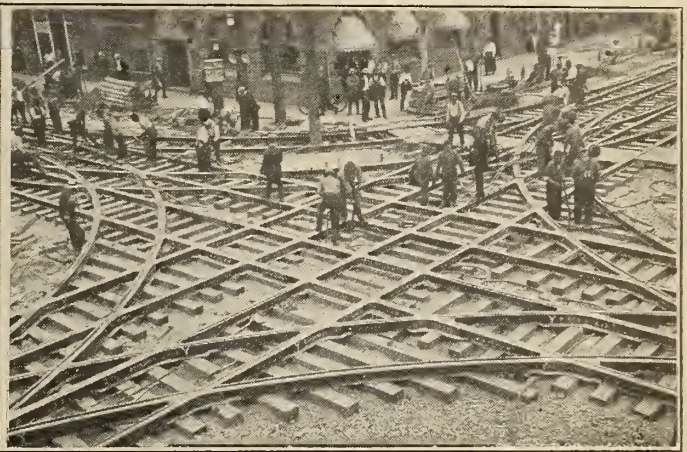


Fig. 1, Excavation for removal of old intersection.

Fig. 2, New grand union intersection installed.

the passengers from the rear or paid portion of the car two doors by which to leave. Operating conditions are generally such that where there are many people to enter the car, there are but few to leave, and vice versa, and it is felt that the new door arrangement will do much to facilitate loading and unloading. Three door engines will be installed, one under the conductor's stand to operate the single door, one under the conductor's stand to operate the middle door, and one under the longitudinal seat to operate the forward door.

Upon these cars being delivered, the seating capacity of the Commission's rolling stock will be from one-third to one half greater than that provided by the former Toronto Railway Co. and Toronto Civic Ry. cars combined, and there will be a total of 1010 cars, 850 of which will be motor cars and 160 trailers. Delivery of the new cars herein described is expected to begin in November and to be completed in Jan. 1923.

Toronto Railway Arbitration.—The board of arbitration to decide the amount to be paid by the City of Toronto for the Toronto Ry. Co's. properties which it took over on Sept. 1, 1921, will resume its sittings in Toronto on Sept. 19, to hear counsel's arguments on the evidence taken. It is expected that a decision will be given in November.

the other from the east on Bloor St. These cars carried the sections of old steel a hundred yards or so down each street, where they were unloaded at the roadside to be left temporarily. The old steel was all out at 1 a.m., 55 minutes sufficing for this part of the job. The ties, sections of new steel, tie rods and other parts were then brought forward on the crane cars, and on flat cars operating on the parallel track, and the installing of the new intersection commenced. Various sections of new steel had been bolted together beforehand, two half crossings being joined, for example, before delivery to the job, this work being done at one of the Commission's material yards. The new steel was all in place and bolting-up practically completed at 4.30 a.m., but 3 hr. and 30 min. being necessary for this portion of the work. Upon all the new steel being placed, the crane cars were dispatched to pick up the old steel which had been temporarily left at the sides of Bloor and Bathurst Sts., and by 5.30 a.m. all the old material had been cleared from Bloor St., and by 6.30 a.m. from Bathurst St.

Fig. 2 shows the new grand union installed complete. It is one of the largest installed on any Canadian electric railway. The total weight of rails and castings which entered into its construction was 203,000 lb. The casting por-

plete intersection inspected, at the steel plant before being taken apart for shipment. The speed with which the intersection was put in, and the absence of delay to traffic in an installation of this magnitude, constitutes a remarkable achievement in electric railway track work, and is characteristic of the efficiency which has consistently marked all the Commission's rehabilitation and reconstruction work.

Hull Electric Co's. Power Project.—Ottawa press despatch, Aug. 22: "Following prolonged negotiations, the Hull Electric Co., has acquired large property holdings in Low Township, along the shores of the Gatineau River, including the riparian rights to the Pagan Falls, about 35 miles from Ottawa, and will, in the course of the next year, establish a hydro power plant, with an ultimate capacity of 150,000 h.p. The cost of construction, it is said will approximate \$10,000,000."

The American Institute of Electrical Engineers, opened its 11th annual meeting at Vancouver, B.C., Aug. 8. W. G. Murrin, Assistant General Manager, British Columbia Electric Ry., being chairman for the reception gathering. The members visited the B.C. Electric Ry. hydro-electric plant on Aug. 11, and were entertained at luncheon by the company at the Wigwam Inn.

Winnipeg Electric Railway Franchise Negotiations.

A Winnipeg City Council special committee which, for some months has had under consideration matters connected with the franchise of the Winnipeg Electric Ry. Co. presented a majority and a minority report to the council recently. The majority report, after giving a review of negotiations based on the company's request for a 10-year extension of the franchise, states the company's last offer of concessions was to reduce fares Aug. 1, 1922, and subsequently effect reductions Aug. 1, 1923, 1924 and 1925, when a 5c fare by ticket would be introduced and would remain in effect until 1937 though subject to revision in 1927 and 1932. It refers to valuation of the traction utility which the company places at \$11,609,925, plus joint use properties, and then places the following considerations before council:

"1—Bylaw 543 under which the contract granting franchise to the company specifically states the period to be 35 years. The bylaw was passed Feb. 1, 1892.

"2—The franchise will expire Jan. 31, 1927.

"3—Bylaw 543 is not the original bylaw governing the contract with the company. This bylaw was 541, which was repealed in favor of bylaw 543 when the latter bylaw was enacted.

"4—The original contract when drafted was for 25 years, which term was altered to 35 years at the time bylaw 541 received its three readings by the city council.

"5—The additional life of 10 years to the franchise was granted at the company's request and was not a voluntary act on the part of the council.

"6—No provision is contained in bylaw 543 giving the company or the city any power to make an application for an extension of the franchise period, but one clause reads, 'Six months prior to the expiration of the franchise the city must notify the company if it is the intention to assume ownership.'

"In view of the foregoing considerations, the committee feel that it is for council to determine whether this committee has any authority to negotiate any contract at present, by which the terms of the franchise governed by bylaw 543 may be extended for 10 years as requested, or if in view of the clause specifically stating at what time any change in ownership shall be negotiated, the present time is inopportune for action in this respect.

"After several weeks of conferences and after weighing very carefully the matters involved in A. W. McLimont's letter, and in the instructions of council, your committee has decided to make the following recommendations:

"Item 1.—The question of taking over the street railway at present or in 1927 should be decided by the people and not by council. That it is inopportune from the citizen's standpoint that any plebiscite should be taken at present, our reason for such opinion being that municipal ownership of traction utilities in various parts of this country is in its infancy. That by the time the franchise period falls in we will be possessed of definite and accurate information as to the success or failure of similar undertakings in cities of comparable size to Winnipeg, or even larger (we have in mind Toronto, Seattle, Detroit, and San Francisco.) The citizens cannot but be assisted in arriving at a proper decision

either to renew the franchise or assume ownership when the time comes, by the actual experience of such cities as we have just referred to.

"Item 2.—The agreement for July, 1921, as to fares, controls the relations of the company and the city only for the remaining period of the franchise. The company in its application for extension only offers a reduction of fares. This, however, is covered by the agreement referred to, which makes provisions for an annual revision, only no definite valuation for fare-making purposes has been mutually agreed upon. This agreement provides that in fixing this fare, regard must be had to the value of the property devoted to the service of the citizens. This value has never been definitely ascertained and unless this can be done by agreement the fixing of this value may in the future involve another arbitration. The Public Utilities Commission fixed a value for ratemaking purposes in 1920. This valuation has, however, never been accepted by the city, and the company has definitely stated that is not satisfied with it.

"Item 4.—This must be settled by the citizens when the time has arrived to determine the franchise and for the present we recommend continuance under bylaw 543 and subsequent agreements.

"Your committee feel that some cognizance must be taken of the claim made by the company that it finds itself financially embarrassed; that certain extensions are required, and overdue accounts to the city remain unpaid and it cannot finance these from current revenues. It has occurred to your committee that in so far as necessary extensions of lines within the city are concerned, the city might assist the company in a practical manner to finance such work.

"Your committee realizing it has no specific authority to discuss negotiations from this angle, and following the recommendations contained herein, that bylaw 543 and subsequent agreements be left in effect and the franchise question left until such time as council decides to refer same to people, that your committee be authorized to confer with the company for the purpose of discussing and if possible arriving at a basis upon which extensions could be financed by the assistance of the city, and if a satisfactory plan can be worked out to report back to council for authority to carry same into effect."

The minority report says:—"We feel that there is opened to the council in this matter one of four courses:

"1—Let matters stand as they are until 1927, or,

"2. To finance all required expenditures of the company up to an estimated amount of \$2,500,000;

"3 Finance the requirements of the traction system within the city only up to an estimated amount of \$1,000,000;

"4. Extend time for falling in of the franchise from 1927 to 1937 for a consideration and on conditions to be negotiated and settled between the company and the committee, which settlement will have to be approved by the council, certain fundamental conditions being agreed to by the company as a sine qua non.

"As to no. 1, the minority members of the committee feel that in justice to the citizens and to the council they would not be performing their duties in recommending this, for the simple reason that the whole purpose of the settling of

the lawsuit and entering into negotiations with the company was with a view to settling the outstanding difficulties between the city and the company and this would not be accomplished if matters were allowed to remain as they are and nothing be done. The council in instructing the committee to conduct these negotiations obviously had the question of these necessary extensions and improvements before it.

"As to no. 2, the undersigned feel that this cannot be recommended to the council for the simple reasons: That in the present condition of the city finances with a great deal of reconstruction work necessary on the streets and a large number of additions which the city should undertake in the performance of legitimate municipal undertakings, the city cannot spare \$2,500,000 and in the undersigned's opinion this money should be brought into the city from outside at the expense of a private undertaking for circulation within the city. It is not within the normal municipal functions of a council to finance private undertakings, even though they be in operation of public utilities. In the financing of the street railway company the city would also be financing a light and power utility which is in opposition to a municipally owned concern.

"As to no. 3, the undersigned do feel that this cannot be recommended for the reason:

\$1,000,000 would not be sufficient to give the necessary relief and it would leave the most troublesome and longest-standing questions still unsettled. It would again be better for citizens at large to have this money introduced from outside at the expense of a private undertaking instead of impairing the credit of the city to that extent and hampering much needed legitimate municipal work which will have to be undertaken in the near future. This also is not within the usual scope of the work of a municipality.

As to no. 4, the undersigned agree with the report prepared by the chairman of the special committee in realizing that the company has satisfied the special committee that it cannot raise the money for necessary work without an extension of the time for the falling in of the franchise; and as we feel that the settlement of these matters is of very vital importance to the citizens at large and that it is very desirable that this \$2,500,000 should be spent and circulated within the city we recommend that the special committee be authorized to negotiate with the company for extending the time for the falling in of the franchise from 1927 to 1937 on terms to be negotiated between the committee and the company, and to be afterwards approved by the council. Among terms of the new agreement to be: The fixing definitely of a reduced fare for 1922, 1923, 1924 and 1925, as offered by the company as offered in the vice president's letter of June 29, 1922, the maximum fare to remain between 1925 and 1937 as set out in letter as follows: Cash fare, 6c. All adults' tickets, 5 for 25c, good all days, and all time. Children's tickets, 8 for 25c.

In connection with these reports of the committee the company in its Public Service News, stated that it offered the city in consideration of the postponement from 1927 to 1937 of the city's right to acquire the company's railway,

to put into effect Aug. 1, a revised schedule of fares which would give a 5c fare on the whole system during certain hours and provide for the reduction of all fares to 5c within three years, the several fare schedules being as follows: Aug. 1, 1922—Cash fare, 7c; white tickets good at all times, 4 for 25c; red tickets, good from 6 to 8 a.m., and from 5 to 6.30 p.m., 5 for 25c; Sunday fare 5c cash; children's tickets, good at all times for those under 16, 8 for 25c. Aug. 1, 1923—Cash fare, 6c; white tickets, good at all times, 6 for 35c; red tickets, good from 6 to 8 a.m., and from 5 to 6.30 p.m., 5 for 25c; Sunday and children's fares as above. Aug. 1, 1924—Cash fare, 6c; white tickets, good at all times, 9 for 50c; red tickets, good from 6 to 8 a.m., and from 5 to 6.30 p.m., 5 for 25c; Sunday and children's fares as above. Aug. 1, 1925—Cash fare, 6c; all adult's tickets, 5 for 25c, good all days all times; children's tickets, 8 for 25c, good at all times for those under 16. In addition to these fare reductions the company proposed as part of its arrangement to pay all outstanding taxes, to pay amounts found to be due for damage by electrolysis, to complete work now on hand, to carry out recommendations for prevention of electrolysis, to do other work in connection with poles and lines, to instal motor bus services as may be agreed upon, and to make extensions of trade and car service as may be agreed upon.

The City Council gave consideration to the report on July 28, and at a special meeting Aug. 2, when the following resolution was adopted: "That the special committee appointed to negotiate with the street railway company be instructed to proceed with negotiations along the lines laid down in the minority report submitted and to report back to council for confirmation, and should a tentative agreement be reached as a result of such negotiations the committee to report on same and also on submission of such agreement to a referendum."

Ald. Douglas, who was chairman of the special committee from its inception, asked to be relieved from that position, at a meeting of the committee Aug. 10, and Ald. Sparling was appointed in his place.

Vancouver Harbor Railway Electrification.

In connection with the electrification of the Vancouver Harbor Commission's railway lines on Granville Island, reference to which was made in Canadian Railway and Marine World for July, pg. 374, we are officially advised that a contract was let to W. W. Fraser & Co., Vancouver, for the electrification of 2.4 miles of track, at an approximate cost of \$10,000. Some alterations have been made in the track to conform with the Railway Act's requirements as to clearance. The contract called for completion in August. The specifications provided for the construction ready for operation of a complete system of overhead trolley construction, carried on cedar poles, with all connections, feeders, insulation, etc., the track bonding and all other necessary work.

The electrified lines will be operated by the British Columbia Electric Ry. on behalf of the Commission, on rates authorized for switching service by the Board of Railway Commissioners. Previously the switching on the island was done by motor truck.

The New Brunswick Power Co. and the City of St. John.

The question of the distribution of hydro-electric power in St. John, N.B., from the New Brunswick Government power plant at Musquash, which is approaching completion, is the subject of considerable discussion at present. It was thought that an arrangement would be made with the N.B. Power Co., for the distribution of the power, but the ratepayers voted in favor of its distribution by the city. For some time past investigations have been going on to ascertain the cost of a distribution plant. A draft contract for the distribution of power on behalf of the city was submitted by the company, and the City Solicitor presented a report on this in which he drew attention to a number of matters, and advised the calling in of an electrical expert for consultation.

It appears that J. J. Boddell, New York, N.Y., has secured an option on substantially all the N.B. Power Co.'s common stock, and he wrote the mayor of St. John on July 20, that he and his associates were prepared to deliver to the city the company's common stock, to pay the principal of outstanding bank loans, to obtain the consent of the holders of 1st preferred stock to a reduction of dividend from 7% to 6%, to obtain the consent of holders of 2nd preferred stock to a reduction of dividend from 7% to 5% and to obtain a release from the trustees of the mortgage of certain water power rights and lands owned by the company on the Lepreau and Magaguadavic Rivers. The consideration to be given by the city for the above to be a guarantee of the principal of the bonds with interest at 5% and sinking fund, the guarantee of the 6% interest on the 1st preferred stock, and the 5% on the 2nd preferred stock, and for all the other properties including the Eastern Electric Co., together with capital expenditures made since 1917, against which no securities had been issued, the city to issue \$690,000 of 30-year 5½% bonds. He concluded his letter as follows: "Under this plan the city will acquire control of all (operating) properties of the company, consisting of the electric light and power, gas and street railway and electric supply departments at total annual interest and dividend charge of \$208,900. The annual interest and dividends on the bonds and preferred stocks of the company guaranteed by the city amount to \$170,950—all surplus operating revenue in excess of \$170,950—will be available to meet the interest requirements on the bonds issued by the city to acquire control of the company. The surplus operating revenue of the company for the five months ended May 31, 1922, after deduction for depreciation, was \$137,027.94, or at an average monthly rate of \$27,405.58. If this rate is maintained through the balance of the year the net earnings for the calendar year will exceed \$320,000."

On Aug. 3, H. Phillips, made a lengthy report to the Mayor, of the company's property, in the course of which he said, "I am convinced that the most practical method to secure for the consumers the full benefit of the Musquash development and of the hydro policy, and at the same time promote the best interests of the city as a whole, is to take over the power company's operation if possible. He also made recommendations with regard to the company's electric railway, which would require an estimated expenditure of \$120,000 for new cars, and \$100,000 for track work.

Upon this offer the city Solicitor, on July 25, advised that it is not within the city council's power to make such an agreement as was suggested. He pointed out that the city has under the statutes of 1920, chap. 140, sec. 18 to expropriate the company's property on giving 12 months notice, and upon the expiration of such notice to take possession of the property and capital stock on payment of the appraised value and 10% in addition thereto. This opinion was concurred in by M. G. Tee, K.C.

The city council, in committee, on Aug. 16, considered the matter, and a proposal by the Mayor to submit it to a vote of the ratepayers. After discussion it was decided not to submit the matter to a public vote, and this recommendation was immediately reported to the council as a whole and approved.

Reported Agreement for Sale of Hamilton, Grimsby and Beamsville Electric Railway.

A Hamilton press report states that a basis of agreement has been reached between the Hydro Electric Power Commission and the Dominion Power and Transmission Co., for the sale by the latter of the Hamilton, Grimsby and Beamsville Electric Ry. The purchase of this line by the Commission would do away with the necessity of building a considerable portion of the projected Toronto, Hamilton, St. Catharines and Niagara hydro electric railway on the section between Hamilton and St. Catharines.

The H.G. and B.E.Ry. has a total main line length of 22.6 miles. The operating statistics for the year ended Dec. 31, 1920 were:—gross earnings, \$207,387; operating expenses \$224,256; taxes, funded debt, etc., \$17,860; net loss for year \$34,729. Total car mileage, 431,238; fare passengers carried, 936,846; tons of freight carried, 55,376.

Ottawa Electric Railway Co's Franchise Negotiations.

The Ottawa City Council appointed a special committee in January, to consider a renewal of the Ottawa Electric Ry. Co's franchise for a further period of 30 years, following a vote of the ratepayers on Jan. 1, when two other propositions, viz: to take over the railway upon the expiration of the present franchise, or to enter into a service at cost agreement were defeated by considerable majorities.

The committee engaged R. M. Fenster, Fort Wayne, Ind., as an expert adviser, and has had a number of meetings to discuss the proposed new agreement. While there have been some statements in the daily press as to the progress of the matter, nothing official has been given out. The press report states it is expected to have the expert's reports on the company's business by the middle of September, and that a draft agreement will be ready for consideration in time to have it submitted to the ratepayers in November.

Winnipeg Electric Ry. has recently speeded up service on several of its lines by eliminating some stops, and the city council's public safety committee has declined to interfere to get the former stopping places restored.

Toronto - Hamilton - Niagara Falls Electric Railway.

The Toronto City Council on July 27, passed a resolution requesting the Hydro Electric Power Commission of Ontario to proceed with the construction, equipment and operation of a railway from Toronto to Port Credit, and directed the execution of an agreement for that purpose.

The agreement is to be made jointly with Mimico and New Toronto towns and Etobicoke Township in York County, and Toronto Township, and Mimico village in Peel County, to provide for the building of an electric railway from a passenger terminal at the foot of Yonge St., Toronto, westerly to Sunnyside, using Harbor Board and private right of way wherever possible, thence to the Humber River, parallel to the G.T.R., continuing parallel thereto across the Humber and Credit Rivers. The amount of debentures to be issued by the several municipalities in respect of the construction and equipment of the line is as follows: Toronto City, \$4,240,196; Etobicoke Tp., \$401,335; Mimico Town, \$111,200; New Toronto Town, \$82,250; Port Credit Village, \$54,050; Toronto Tp., \$220,542. Total \$5,109,573. The line is to be part of the projected Toronto-Hamilton-Niagara line, for the construction of which bylaws were passed some years ago. Several of the municipalities are now reviewing these bylaws and Oakville was the first to pass a confirmatory resolution on Aug. 21.

The Toronto Electric Light, Power and Railway Clean Up Deal.

What is known as the clean up of the Mackenzie interests, which has been in process of settlement since Dec., 1920, was consummated Aug. 16, when the agreement for the purchase from the Toronto Ry. Co., by the Hydro Electric Power Commission of Ontario of the electric power production plant at Niagara Falls, the power line from there to Toronto, the distribution system in Toronto, and the Toronto and York Radial Ry. Co.'s electric railways was signed by Sir William Mackenzie, President, and J. G. Grace, Secretary, Toronto Ry. Co., Sir Adam Beck, Chairman, and W. W. Pope, Secretary, Hydro Electric Power Commission of Ontario. The preliminary agreement for the transfer of these properties was signed Dec. 3, 1920, the total consideration being \$32,734,000, which is to be paid by the assumption of obligations of the various companies amounting to \$22,775,177 and the issue of bonds amounting to \$9,958,823. The properties involved in the transaction are those of The Toronto Power Co., the Toronto and Niagara Power Co., the Electrical Development Co. of Ontario, the Toronto Electric Light Co., the Toronto and York Radial Ry. Co., and the Schomberg and Aurora Ry. Co. While the sale is made to the H.E.P.C. of Ontario, that commission is acting for the city of Toronto with respect to the purchase of the following properties: Toronto and Niagara Power Co.'s distribution system within the city for \$7,226,295; the portion of the Toronto and York Radial Ry.'s, Metropolitan Division within the city, \$585,000; the Toronto and York Radial Ry.'s, and the Schomberg and Aurora Ry.'s, remaining lines, \$2,375,000. These properties are to be paid for by the city assuming bonds for \$840,000 and issuing 20-year 6% city bonds for \$6,971,295 for the

first properties named, and by the issue of \$2,375,000 of 6% bonds to be deposited with the H.E.P.C. of Ontario, as security for the Commission's bonds to be issued in payment of the property.

The purchase, so far as the city is concerned was ratified by the voters at the municipal elections Jan. 1, 1921. The time since then has been taken up with the examination of titles, discussions as to the adjustment of various properties, and of questions affecting the entrance of radials into the city, the adjusting of matters affecting the bond issues of the various companies being taken over, and the securing of necessary legislation. The various negotiations were so far advanced that final legislation to permit the matter to be

Canadian Electric Railway Association.

Honorary President, E. A. Robert, President, Montreal Tramways Co., and Quebec Ry., Light, Heat & Power Co.

Honorary Vice President, Wm. C. Hawkins, Managing Director and Secretary, Dominion Power & Transmission Co.

Honorary Council. Thos. Ahearn, President, Ottawa Electric Ry.; Acton Burrows, Proprietor, Canadian Railway and Marine World; Geo. Kidd, General Manager, British Columbia Electric Ry.; Lt.-Col. J. E. Hutcheson, General Manager, Montreal Tramways Co., and director, Quebec Ry., Light, Heat & Power Co.

President, Major F. D. Burpee, Manager and director, Ottawa Electric Ry.

Vice President, H. H. Couzens, General Manager, Toronto Transportation Commission.

Executive Committee, The President, the Vice President, the immediate past President (G. Gordon Gale, Vice President and General Manager, Hull Electric Co.) and D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co.; E. P. Coleman, General Manager, Dominion Power & Transmission Co.; A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Ry.; D. W. Houston, Superintendent, Regina Municipal Ry.; A. W. McLimont, Vice President and General Manager, Winnipeg Electric Ry.; R. Mayne-Read, Superintendent, Quebec Railway, Light & Power Co.; W. R. Robertson, General Superintendent of Railways, Hydro-Electric Power Commission of Ontario; W. L. Weston, Manager, Nova Scotia Tramways & Power Co.; H. E. Weyman, Manager, Levis County Ry.; C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Treasurer, W. S. Hart, Managing Director, Three Rivers Traction Co.

Auditor, Lt.-Col. G. C. Royce, General Manager, Toronto Suburban Ry.

Secretary, D. N. Gill, Comptroller, Ottawa Electric Ry., Ottawa, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

carried through was passed at the Ontario Legislature's recent session. By-laws to complete the transaction so far as the Toronto City Council is concerned were passed on July 27. In addition to the bylaws for the issue of debentures as required by the purchase agreement the council authorized the increasing of the H.E.P.C. of Ontario's bond issue by \$600,000 for making extensions or improvements on the Toronto and York Radial Ry., and the Schomberg and Aurora Ry. On Aug. 23, the Ontario Government passed an order in council, ratifying the agreement between the H.E.P.C. of Ontario and the Toronto Ry. Co., and agreeing to guarantee some \$16,000,000 of bonds in connection with the arrangement.

The Canadian Electric Railway Association's executive committee will meet in Chicago, Ill., on Oct. 4, at 10 a.m., in one of the meeting rooms on the Municipal Pier, during the American Electric Railway Association's annual convention.

Electric Railway Passenger Fares.

Calgary Municipal Ry.—At a conference between the Calgary, Alta. city commissioners and R. A. Brown, Superintendent, Municipal Ry., Aug. 2, it was agreed that there should not be any reduction in adult's fares this year, but it recommended that the council approve of a reduction of school children's fares, increasing the number of tickets sold for \$1 from 32 to 40. Superintendent Brown is reported to have stated that this reduction would not increase the traffic by more than one-half of 1%.

Kingston, Portsmouth and Cataragui Electric Ry. Co.—Kingston, Ont., city council at a special meeting recently, authorized the amending of the section as to fares in the company's charter. We are officially advised that the fares hitherto have been: cash 5c; tickets 4 for 25c; children's and workmen's tickets 8 for 25c, workmen's tickets being good between 6.30 and 7.59 a.m., and between 5 and 6 p.m. The increased fares authorized are:—cash 7c; four tickets for 25c; workmen's tickets good during the same hours as heretofore, 6 for 25c; children's cash fare 5c, or 8 tickets for 25c, for children between 5 and 12 years. The new fares were expected to be put into effect early in September. Application will be made to the Ontario Legislature for confirmation of the agreement under the Railway Act, sec. 210.

United States Fares.—According to a compilation just made by the American Electric Railway Association, the average rate of fare charged by U.S. electric street railways, based on rates in effect in 275 cities of more than 25,000 population, was 7.37c on Mar. 1 of this year. Ten-cent cash fares are now charged in 140 cities, while 5c fares are charged in only 28 cities. The other cities range in fares from 5 to 9c, with an additional charge for transfers. Incidentally it is noted that the public is now largely recognizing that an adequate fare is necessary to an adequate service. One U.S. paper remarks: "Human nature is somewhat queer. If the street car company had asked a 10c fare in this city and the council had granted it, there would have been a riot. The 'buses ask 10c and get it and the people seem glad of the opportunity of getting the transportation at almost any price. It is strange that we are unwilling to pay 10c for a street car ride and are quite willing to pay 10c for a 'bus ride. The street car has many advantages. It runs on schedule time. It runs all day during the slack hours as well as during the busy hours. It is established in the minds of the folks as a means of getting from one place to another. Yet we hold down the traction fare and grin over the 'bus fare. We wonder why the public takes this attitude. Is the feeling against traction companies so deep-seated that people will not give them a square deal? Up until recently, we thought that people would not pay a 10c fare. We are still unconvinced that they would pay it in such numbers as would make it profitable for a traction company. The fact, however, that they are now paying it and paying it without undue grumbling leads us to the conclusion that perhaps we have never been altogether fair to a losing street car business."

The Montreal Trades and Labor Council authorized its executive recently to approach the street railway men's union with a view of inducing it to rejoin the council, from which it withdrew some months ago.

Electric Railway Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—The construction of the Broadway West line to Alma Road was, a press report states expected to be completed by Aug. 31, so as to permit operation on Sept. 1. (Aug. pg. 429).

Calgary Municipal Ry.—The Calgary Alta. city commissioners are considering the advisability of returning the municipal railway from the cost of building and keeping in repair the roadway inside the tracks, and for 18 in. on each side, on the outside. It was stated that this means that the railway has to carry about 40% of the cost of the street surface which is fixed generally. R. A. Brown, Superintendent, was authorized to obtain information as to the practise of other cities in regard to the matter.

Repairs on the paving between the tracks was reported to have been started Aug. 4, at the 17th Ave. and 1st St. West intersection, where a concrete sub base is being put in, and new ties laid. Similar work is being done at several points on 17th Ave., and 4th St. West. (June, pg. 15).

Grand River Ry.—Extra gangs are reported to be ballasting the lines. (Aug. pg. 429).

Kingston, Portsmouth and Cataraqui Electric Ry.—A press report states that in connection with the increase of fares granted, the company proposes to relay certain portions of its track in connection with the paving of streets by the city council. (May, pg. 256).

Kitchener and Waterloo St. Ry.—A press report states that Kitchener voters have approved of a bylaw to raise \$70,000 by debentures for the improvement of the railway, by laying a second track from Union to William St., Waterloo, Ont., and for the erection of car barns on Preston Road, Kitchener. (Aug. pg. 429).

London St. Ry.—A press report states that following a conference between B. Currie, President, and the Mayor on Aug. 8, paving on Dundas St. East was likely to be put in hand within a few days thereafter. The company desires to lay the track with new 80 lb. T rails, and to have the cost of the paving spread over several years. (May 1921, pg. 268).

Moncton Tramways, Electricity and Gas Co.—A press report states that tenders have been invited for the erection of a car barn to replace the one destroyed by fire Dec. 25, 1919. The new structure will it is said be of concrete, and will be of the most modern type of construction. Accommodation will be provided for 6 cars, and the building will be so erected that a repair strip can be added. J. W. Frase, Moncton, N.B., is the architect. (Dec., 1921, pg. 660).

New Brunswick Power Co.—Rails for relaying tracks on Prince William St., St. John, were delivered recently, and the work is in progress. (Jan. pg. 42).

Ontario Hydro Electric Ry.—Essex Division.—Four spurs are reported to have been laid from the main line on Sandwich St., Windsor, to the Detroit River bank, to facilitate the shipping of beer to the United States. (Aug., pg. 429).

Ottawa Electric Ry.—The Hull, Que., City Council has under consideration the question of authorizing Ottawa Electric Ry. to lay a loop line, to permit it to use double truck cars on its line entering the city. The company has endeavoured to get permission for this work on several occasions but has hitherto been refused,

on the ground that it would be an infringement of the Hull Electric Co's franchise. The present suggestion is that the Ottawa Electric Ry. assume all liabilities and defend all actions that might result. The company's plans include the extension of the line so as to form a loop, the relaying of the present line, and the erection of a waiting room at Eddy Park. (Aug., pg. 429).

Quebec Ry., Light and Power Co.—A press report of Aug. 15, stated that E. A. Robert, President, had advised the Mayor of Quebec, that the company would start shortly, on certain extensions of lines and push them as rapidly as possible. One of the extensions to be constructed will it is stated, be a belt line running from St. Valliera St. along St. Charles Cemetery, through Bell's Hill to join the Sillary line. (Aug. pg. 429).

St. Thomas Municipal Ry.—The St. Thomas, Ont., city council is reported to have passed a bylaw authorizing the removal of the Y. at Elgin and Wellington Sts., and the construction of another at the south end of Pleasant St.

Sherbrooke Ry. and Power Co.—We are officially advised that the company is relaying its tracks on the following streets in Sherbrooke, Que., which are being paved:—Belvedere St., 12 ft.; Frontenac St., 1500 ft.; Alexander St., 1400 ft.; Bower Ave., 400 ft. (Nov. 1921, pg. 548).

Rule of the Road in Nova Scotia and New Brunswick.

The Nova Scotia and New Brunswick legislatures last session passed acts changing the rules of the road so as to conform to the practice in the other Canadian provinces except Prince Edward Island. The new Brunswick act provided that the change comes in force by proclamation, it being understood that it would be on Jan. 1, 1923, the same date as was named in the Nova Scotia act which was passed at a later date.

When the New Brunswick proclamation was issued the date fixed for making the change was Dec. 1, 1922. The Nova Scotia act changed a section of the Revised Statutes, chap. 81, and fixed the date for the change as Jan. 1, 1923, but in amending the Motor Vehicle Act of 1918, the legislature, while amending the section dealing with the rule of the road, did not fix any date for the change, although a provision was inserted that all motor vehicles should carry a plate with the words "Turn to the right," from Jan. 1, 1923, to July, 1923. It was held that the act amending the Motor Vehicle Act comes into operation immediately after assent had been given thereto. The rather contradictory state of affairs this brought about was considered by the Nova Scotia Government, with the result that on Aug. 3, application was made to the Dominion Government to disallow the N. S. legislation, and an order in council was passed, Aug. 5, granting the application, on the ground of certain misunderstandings concerning the date when the legislation should become effective. The matter will probably be dealt with at the Legislature's next session.

No action has been taken in the matter in New Brunswick since the issue of the proclamation fixing the coming into operation of the change of the rule in that province for Dec. 1.

Mainly About Electric Railway People.

A. T. Goward, who completed 25 years service as Local Manager, British Columbia Electric Ry., at Victoria on June 29 was presented by other officials there with a rose bowl. He first entered the service in 1890 with the National Electric Tramway and Lighting Co.

Fred R. Miller, one of the members of the Toronto Transportation Commission, underwent an operation, Aug. 6, and is reported to be progressing favorably.

G. E. Waller, General Superintendent of Railways, Dominion Power & Transmission Co., Hamilton, Ont., had his name forged to a cheque for \$31.60 recently, by Shelton Metoxer, who was arrested at Grimsby, Ont., and admitted the offence.

B. Whelan, Division Superintendent, International Ry., was arrested at Niagara Falls, Ont., recently, on a charge of violating the Canadian Customs law, by using a motor car in conveying passengers from the car barns to the upper bridge. A press report states that his car was held by the custom authorities pending the payment of a penalty of \$400. It is stated that the law referred to governs the operation in Canada of vehicles licensed in the U.S., under which the operator is permitted to carry passengers to and from Canada and U.S. points, but not from point to point in Canada.

Brandon Municipal Railway's Operating Results.

In connection with press reports suggesting the possibility of the Brandon, Man., Municipal Ry. ceasing operations, which were referred to in Canadian Railway and Marine World recently, we are officially advised that when the civic estimates were being considered, the deficit on the railway had to be provided for, and some remarks were made by one or two aldermen which give rise to the report that the cessation of operation was possible, but that such a proposal was never discussed by the City Council. The deficit in operation for 1921 was the largest there ever had been, due to the extra maintenance of tracks and roadway, as the ties had been in over seven years, and had to be replaced in most parts of the track. During 1921, there was spent on track alone about \$5,000 extra, and in addition power charges were increased to 4½c per k.w. hour at the switchboard.

The Levis County Ry. has ordered 8 Birney safety cars, Canadian standard, from Canadian Brill Co., to be delivered in October, and 3 single truck double broom sweepers, one double truck rotary snowplough, and one double truck combination nose plough-ice cutter and leveller, to be also used as a construction car in summer, from Russell Car & Snowplough Co, Ridgway, Pennsylvania.

A motor bus service is reported to be in operation between Ottawa and Prescott, Ont., 62 miles. One round trip a day is made, at the same fare as charged by the railway between the same points. The bus route is 20 miles longer than the railway line and goes through territory that is considerable distance from a railway station. H. A. White, Prescott, Ont., is operating the bus and expects to put on another at an early date.

Toronto Transportation Commission's Work.

The Toronto Transportation Commission's progress in its work of track construction and rehabilitation has been detailed in preceding numbers of Canadian Railway and Marine World, and at the time of writing (Aug. 21) about three quarters of the work decided on for completion in 1922 has been finished. The undertakings remaining to be completed during this year are as follows: On Dundas St., between Roncesvalles Ave. and Keele St., the track is to be resurfaced and the joints welded; on Ossington Ave., between Bloor St. and Lansdowne Ave., the track joints are to be welded and built up; on Bloor St. between Spadina Ave. and Avenue Road, the track is to be completely rehabilitated; on Teraulay St. between Bloor St. and Davenport Rd. an extension is to be constructed; on Bloor St. between Yonge and Church Sts. the track is to be rehabilitated; on Dundas St. between Teraulay St. and McCaul St. the track is to be resurfaced and repaired and the joints built up; on Victoria St. between Queen and Dundas Sts. the track is to be resurfaced and the joints built up; on Danforth Ave. between Hillingdon and Luttrell Sts. the track joints are to be welded; on Kingston Rd. between Columbine and Victoria Park Aves., an extension is to be built, and on Yonge St. between Farnham and Deloraine Aves., an extension is to be built to replace the Toronto and York Radial Ry's Metropolitan Division single track line.

All other work as set forth in preceding issues of Canadian Railway and Marine World as under way, if not in the above list, has been completed. The double track extension on Yonge St. between Farnham and Deloraine Aves., has not been begun. While the Commission has been prepared for some time to proceed with this work, on being given authority to do so, that authority has been withheld pending the settling of details of the agreement by which the city and the Hydro Electric Power Commission of Ontario are taking over certain public utilities from the Toronto Ry. Co., and allied interests. When this extension on north Yonge St. is completed, all Yonge St. cars will not run as far north as Deloraine Ave., which is at the northern city limits. On account of traffic density decreasing as the city limits are approached, a majority of the cars will be turned short of the limits. The location for the turning loop has not been definitely decided on.

In addition to the straight track work specified above, a large number of pieces of special work remain to be installed during this year at the following locations: 1. Intersection, Howard Park and Roncesvalles Aves.; Davenport Rd. and Dovercourt Rd.; Bloor St. and Avenue Rd.; St. Clair Ave. and Yonge St.; Eglinton Ave. and Yonge St.; Glengrove Ave. and Yonge St.; King and Bay Sts.; Front and York Sts.; Adelaide and Yonge Sts. 2. Other work, loop to be installed for turning north Yonge St. cars probably at Lawton Ave.; entrance, exit and other special work at Eglinton car house; loop at Deloraine Ave. and Yonge St., northern city limits; special layouts at Russell car houses; Bingham St. and Park Ave. loop on Kingston Rd. extension.

Yonge St. and Eglinton Ave. Car house. As stated in Canadian Railway and Marine World for August, the Commission invited tenders for the construction of a car house on the property ac-

quired by it some time ago at Yonge St. and Eglinton Ave. Details of the proposed dhouse were also given. We are officially advised that the contract has been let to Wells and Gray, Toronto, and that construction has commenced and is proceeding rapidly. The car house will be 306 x 136 ft., and of 3-bay construction. The contract also includes an office building. Both car house and office building will be of concrete construction.

Dundas St. Cross-Town Line. Representations having been made by business interests that the east and west cross town lines on Queen St. and College St. are so far apart that another cross-town line between the two is desirable, and it having been suggested that an extension of the line on Dundas St. West, to cross Yonge St. and continue on Dundas St. East would fill the need felt, the Commission agreed to lay tracks on the desired route if and when the city provided the necessary right of way. Accordingly, the city has undertaken the removal of buildings on the east side of Yonge St. in order that a line may be built through from Yonge St. to strike Dundas St. East near Victoria St. and construction of the new line will commence as soon as the buildings are removed and the right of way provided.

Canadian National Exhibition Loading Facilities. In past years the large crowds attending the Canadian National Exhibition, held annually at Toronto, have, on leaving the exhibition grounds, entered the street cars on the street and paid their fares on the cars in the usual manner, and on account of the large number of passengers to be handled, delay and confusion have invariably resulted. The Commission has arranged to obviate this delay by acquiring an area of land near Dufferin St. entrance to the exhibition grounds, upon which enclosures have been erected and arranged so that passengers will pay their fare on entering the enclosure, and embark without further delay on the waiting cars. Space has been provided for four cars to be loaded simultaneously.

General. The Commission's efforts to improve the operating efficiency of Toronto's street railway system are evident more and more as time passes in the better service given. The improvement would be more evident to a person who had been away from the city for some time and then returned, than to those who have lived continuously in it and to whom the great improvement effected is not so evident because it has been brought about gradually. The city was visited recently by Peter Witt of Cleveland, Ohio, who is reported as saying, "When the rehabilitation undertaken by the Toronto Transportation Commission is complete, Toronto will have the best car service on the continent." He was also reported as stating that the Commission is using the largest surface cars in street railway operation in the world, and that its largest cars are 2 ft. longer than any others.

At the time of writing (Aug. 21) the Commission's forces of extra employees engaged in construction and rehabilitation work number 1,700. In June, when the maximum number were employed, there were 3,800. During July the number kept above 3,000, but in early August it got down to 2,400 and has decreased steadily since then. When work is begun on the double-track on North Yonge St. and on Kingston Road, it is probable

that the number of employees will again increase, unless the greater part of the work now in hand is completed before these two large jobs are commenced.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies.—

	June 1922	June 1921	12 mos. to June 30, 1922	12 mos. to June 30, 1921
Gross	\$802,511	\$803,903	\$10,220,054	\$10,097,256
Expenses	622,697	620,291	7,449,025	7,323,689
Net	179,814	183,692	2,771,029	2,773,567

Cape Breton Electric Co.—

	May, 1922	May, 1922	12 mos. to May 31, 1922	12 mos. to May 31, 1921
Gross	\$48,051	\$52,551	\$672,629	\$678,878
Expenses and taxes	42,354	41,164	592,128	581,491
Net	5,697	11,387	80,501	97,387

Montreal Tramways Co. has paid off the unredeemed balance of \$600,000 of Montreal St. Ry. 1st mortgage 4½% bonds, which were due in August, thus leaving the first and refunding mortgage 5% gold bonds, due July 1, 1941, as its only bonded indebtedness. At the commencement of this financial year, the company had among its liabilities, underlying bonds, less redeemed and cancelled up to June 30, 1920, amounting to \$3,273,153, and on May 1, the unredeemed balance of an issue of 1902, of \$1,500,000 4½% gold bonds, and \$2,238,666 4½% debentures, were paid off, the total redemption being \$2,700,000. In addition to these payments, the company has paid 17½% of dividend arrears, approximately \$550,000, and also about \$500,000 rental to the city.

Nova Scotia Tramways and Power Co.—A press report says that statistics of operation for the 6 months ended June 30, show a remarkable change in earnings, compared with the corresponding 6 months of 1921. The gross earnings were \$735,543, against \$757,628, but there was a big drop in the operating costs, they being \$512,752 this year in comparison with \$614,806 in 1921. Taxes were \$59,535 against \$63,027, and interest and sinking fund charges were \$103,570 against \$102,076. The surplus for the six months was \$59,686 in comparison with a deficit of \$22,381 to June 30, 1921. While there was a decrease of about \$22,000 in gross earnings, operating expenses were decreased about \$112,000, thus making the ratio of operating expenses 69.91% compared with 81.37% for the corresponding period 1921.

Quebec Ry., Light, Heat and Power Co.—At a meeting of directors, July 20, it was explained that it was the 25th anniversary of the replacing of the old horse car lines by the present electric railway. In 1897 there were only 4.5 miles of track being operated by the Quebec District Ry., the lines being entirely located in the lower town.

An operating committee consisting of E. A. Robert, President; Lt-Col. J. E. Hutcheson, K. B. Thornton and Hon. L. C. Webster, has been appointed to transact business relative to the company's development and to make reports to the directors' meetings.

A report as to the company's finances for the six months ended June 30, was submitted by W. J. Lynch, General Manager. This showed:—Gross earnings, \$1,346,018.78; operating expenses \$1,230,066.28; net surplus, \$115,952.57 against a deficit of \$5,481.45 for the corresponding period of 1921.

Winnipeg Electric Railway.—

	June 1922	June 1921	6 mos. to June 30, 1922	6 mos. to June 30, 1921
Gross	\$417,754	\$446,209	\$2,753,487	\$2,856,715
Expenses	322,533	327,475	2,036,912	2,146,609
Net operating	95,221	118,734	716,575	710,106
Fixed charges	57,375	59,268	358,557	360,054
Net Income	\$ 37,845	\$ 59,466	\$ 358,017	\$ 349,151

Electric Railway Notes.

Winnipeg Electric Railway's Oldtimers' Association held its 13th annual picnic at Selkirk, Man., Aug. 10.

Moncton Tramways, Electricity and Gas Co., is reported to be in the market for 2 new passenger cars, and a new sweeper.

Toronto Transportation Commission has recently eliminated a number of stops on several of its lines, to speed up the service.

The London St. Ry. Co. is reported to be considering purchasing some motor busses for operation in conjunction with its electric railway.

The London St. Ry. Co., asked the London, Ont. City Council on Aug. 8, for permission to operate one-man cars in the city, and was authorized to place five on its lines as an experiment.

The special transportation commission appointed to study London, Ont. transportation needs consists of Mayor Wilson, chairman; Aldermen Childs and Drake; Sir Adam Beck and P. Pocote, the two latter being members of the London Railway Commission. The commission decided to engage the services of an engineer, and to obtain information regarding trackless trolleys, and other phases of electric transportation in cities. It expects to have its report ready in December.

The Port Arthur, Ont., Public Utilities Commission is reported to have decided, Aug. 10, that provided satisfactory arrangements could be made with the Fort William public utilities committee and the Board of Railway Commissioners, the operation of one-man cars would be started Sept. 1. The delay in putting these cars in operation has been that the Board of Railway Commissioners had not authorized the cars to be operated across certain Canadian National Rys. tracks in Port Arthur, and the Port Arthur Public Utilities Commission will not take the responsibility of putting a man at the crossings, until the Board has ordered it. The Fort William committee threatened, it was stated, to turn its cars at the city boundary rather than hold back their operation any longer.

The International Ry. Co.'s employees who went on strike in Buffalo, N.Y., early in July, taking with them the employees of the Niagara Falls Park and River Ry., the company's line in Canada, continue out. The lines are being operated by non-union men to an increasing extent. There have been a number of acts of violence, of various kinds in Buffalo. jitney competition was extensive, and legal proceedings were taken to prevent its continuance. The Ontario Railway and Municipal Board was applied to in order to have the service on the company's Canadian division resumed, and in conformity with an order made July 19, the service was resumed July 25. Three cars are reported to have been put in operation at first, police protection being provided. The patronage was at first small, but in a few days public confidence was restored and traffic was reported to have become about normal.

Electric Railway Employees' Wages, Working Conditions, Etc.

Hull Electric Co.—The agreement made between the company and its employees, following the finding of a board of conciliation which sat early in the year, expired July 1. The wages payable under that agreement were 2c an hour less than the scale in operation prior to Dec. 1, 1921, when the company proposed a cut of 10% and were for motormen and conductors per hour as follows:—First 6 months, 39c; second 6 months, 42c; second year, 44c; third year and thereafter, 46c. Under the new agreement, which was signed recently after negotiations, motormen and conductors in the company's employ at July 1, will be paid 2c an hour less than the above rates, according to their standing, while men coming into the company's service after July 1, will receive as follows:—First year, 37c; second year, 39c; third year, 42c; fourth year and thereafter 44c. The rates for linemen are 50c for class 1 men; 47c for class 2 men; and 44c for class 3 men. Overtime after 10 hours will be paid at the rate of time and a quarter.

Ontario Hydro Electric Rys.—Essex Division. It was stated in Canadian Railway and Marine World for August, that, following a notification by the management that a reduction of 5c an hour would be made in the wages of motormen and conductors, on the expiry of the agreement on June 30, the men stated that they would walk out in protest. We are advised that this was incorrect, the negotiations between the management and the men having been most harmonious and no threat of striking having been made. We are also informed that operators of one-man cars and trackless trolleys are not being paid 2c an hour extra, but get the same as conductors and motormen of 2-men cars.

Motor Omnibus Notes.

The Quebec City police are reported to be endeavoring to put a stop to the soliciting of patronage by motor bus agents.

The Grey Bus line operating on the Fox Creek Road, Moncton, N.B., had one of its cars destroyed by fire, while making its return trip to Moncton, Aug. 8.

The London, Ont., city council is reported to have fixed \$100 as the license fee for each motor bus operating in the city. The buses are required to operate on regular routes and on regular schedules to be advertised.

A motor car which is said to combine the comforts of a limousine with the capacity of a charabanc, is reported to be operating between Boston, Mass., and Montreal, Que. On a recent trip 16 passengers were taken to Montreal.

After having been adjourned on several occasions, the case against R. E. Warren, who operates a motor bus line between Woodstock and Ingersoll, Ont., was disposed of by the police magistrate who fined him \$10 because the buses were being operated without a license, in contravention of the Public Vehicles Act, 1920. Notice of appeal was given.

London, Ont., merchants are, a press report states, handling more than half of their local freight and parcel business by motor truck and auto routes. One merchant is stated as claiming to be saving 15% on his delivery cost in this way. Local freight and express shipments by railway are said to have been considerably reduced within the last few months.

R. E. Warren, Manager of bus lines operated between Woodstock and Ingersoll, in opposition to the Woodstock, Thames Valley and Ingersoll Ry., was fined \$10, and \$10 costs, or 20 days imprisonment, at Woodstock, Aug. 10, for operating a public vehicle contrary to the Public Vehicles Act 1920, and with failure to take out a license, to be conspicuously displayed on his buses.

The Ontario General Omnibus Co., Ltd. has been incorporated under the Ontario Companies Act, with authorized capital of \$600,000 and office at Toronto, to conduct a carrying and general forwarding business, as principal and agent, to act as storage warehousemen, and to carry on a transfer and express business, by motor trucks and motor busses. The company is authorized to acquire franchises from municipalities for the operation of such services in accordance with the provisions of any statutes affecting the operation of motor vehicles. The incorporators are nominal.

Hamilton, Ont., police magistrate on Aug. 21, fined a number of motor bus companies \$50 each for operating in the city without having taken out a municipal license as required by a bylaw passed by the city council July 27. The proceedings were instituted against the Guelph Bus Co., the Lake Shore Bus Co., Lishmann Bros., the Hamilton Binbrook Service, and the Ontario General Omnibus Co., formerly the Blue Bird Bus Co. The companies propose to appeal against the decision on the ground that the city's bylaw did not apply to the service given by these companies. The police magistrate refused to permit the buses to operate without a license pending the appeal.

British Columbia Electric Ry. Co.'s Stave Falls Power Development.—The B.C.E.R.Co. has under construction a large extension to its power development plant at Stave River Falls, 47 miles from Vancouver. The work immediately in hand according to a press report includes the raising of the present dam at the falls, sufficient to raise the level of water in the river by 27 ft.; the concreting of the present spillway, the construction of an additional spillway, and the enlargement of the present power house, which contains 3 generators, producing 22,000 h.p. A fourth generator is being added, and when the addition is built to the power house, a fifth generator set will be put in. The plans provide for the construction of a second dam, at Red Bridge, which it is said will submerge the whole valley, and give a fill of 22,000 acre feet of water. When the work is finally completed the plant will produce 72,000 h.p.

Quebec Railway, Light, Heat and Power Co. and Quebec City. In connection with the notarial protest served on the Quebec Ry. Light, Heat and Power Co. by the Quebec City Council, details of which were given in Canadian Railway and Marine World for Aug., pg. 426, a conference of the company's directors with representatives of the City Council took place, July 20. A few days later K. B. Thornton, one of the directors, presented a letter from the President, E. A. Robert, to the Mayor stating that, without prejudice, and to bring about a temporary arrangement pending a final settlement, the company would reduce the price of gas from \$1.75 to \$1.55 per 1000 cubic feet, with a minimum charge of 75c a month. This arrangement, it was stated would go into effect immediately upon its acceptance by the council.

Marine Department

Shipbuilding and Ship Repairing Throughout Canada.

Thos. Cantley, of New Glasgow, N.S., one of the Nova Scotia Steel & Coal Co's. directors and formerly a Canadian National Rys. director, bought some little time since the German steel schooner Alda, which was ashore at Miramichi, N.B., and which is 103 ft. 7 in. long; 22 $\frac{1}{4}$ ft. broad and 9 $\frac{1}{4}$ ft. deep, and which was built at Hammelwarden in 1889. He has had her cut in two at New Glasgow, and is lengthening her about 25 ft.

Collingwood Shipbuilding Co., Collingwood, Ont.—The s.s. Charles Dick, which has been built by this company for the National Sand and Materials Co., Welland, Ont., for securing and carrying sand and gravel, underwent her trial trips towards the end of July, after which she was taken over by her owners, and left Collingwood for Welland, Aug. 2. She was specially designed for the

work in the rivers and lakes, and has been specially built to supply materials for large contracts. She is said to be the first of this type of ship to be built in Canada.

Imperial Oil s.s. Imperowal cleared from the Collingwood Shipbuilding Co's yard, Aug. 2, after hull repairs necessitated by striking a rocky ledge.

Harbour Marine Co., Victoria, B.C.—The plant at this yard, which is owned by the Victoria Machinery Depot Co., is being offered for sale by tender. In addition to the shipbuilding plant, there is also for sale, a travelling crane, 2 $\frac{1}{2}$, 7 and 10 tons capacity, situated on adjacent tracks. The plant was erected on the Songhees Indian Reserve, by Victoria Machinery Depot Co., to build two ships, Canadian Britisher and Canadian Scot-tish for Canadian Government Merchant Marine.

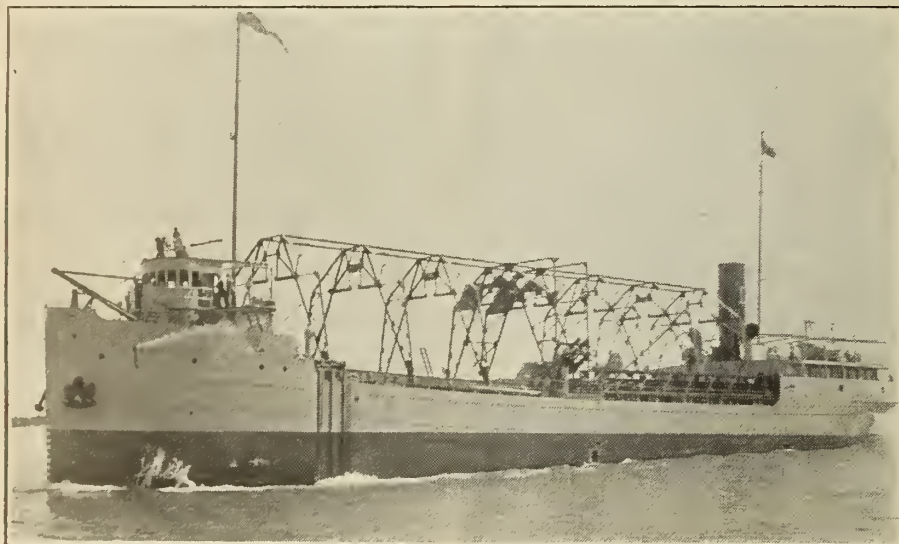
overboard to either port or starboard side. The unloading apparatus will be run by 5 motors, power to be furnished by a 156 k.w. steam turbine generating set. The ship will be built of steel, and classed to the highest requirements of the American Bureau of Shipping for lake service. A double bottom 3 ft. deep will be fitted, extending between peak bulkheads, with side tanks 8 $\frac{1}{2}$ ft. deep for the full length of the cargo space. The crew's accommodation has been designed with consideration for convenience and ventilation. The after deckhouse will contain quarters for the engineer, firemen and deckhands, together with dining room, galley, pantry, etc., with cooks' quarters adjoining. The captain, officers, electrician and wireless operator will be located forward. The keel will be laid this autumn, when construction will be pushed so that the ship may be delivered for the re-opening of navigation in 1923.

Port Arthur Shipbuilding Co., Port Arthur, Ont. launched the s.s. Mathewston, Aug. 12, for Mathews Steamship Co., Toronto. The christening was performed by Mrs. A. E. Mathews, wife of the President and General Manager of the owning company, the builders presenting her with a wrist watch, and Mr. Mathews with a tie pin. After the launching, the company entertained about 200 people to luncheon at which, James Whalen, President, was chairman. The Mathewston, an illustration of which was given in our August issue, is being built for the grain trade on the Great Lakes. Her dimensions are,—length 550 ft., breadth 58 ft., depth 31 ft. The Canada Steamship Lines' s.s. W. Grant Morden, the largest Canadian bulk freight steamship on the Great Lakes, and built by the same builders, has the following dimensions—length 604 ft., breadth 59.2 ft., depth 27.8 ft. The contract for the Mathewston's construction was given at the end of 1921, and the keel was laid May 10 last. She is expected to be completed and ready for operation about the middle of September. Capt. John Moles, brother of Capt. F. G. Moles, master of the Northern Navigation Co's s.s. Huronic, has been appointed master.

United States Government Cannot Operate Ships Economically.

Chairman Lasker, of the U.S. Shipping Board, sent a letter to each member of Congress recently, in which he said in part. "The Shipping Board admits that it cannot operate its fleet remotely as economically as private owners operate their ships; the history of the prior boards shows that they were unable to put the operation of the Government fleet on a proper business basis. The Shipping Board believes that the fleet under its charge can never be profitably or successfully operated under Government control, because of the inherent and insurmountable handicaps incident to the Government ownership of ships. The reasons for these conclusions are elaborately covered in the statement enclosed."

May not what is sauce for the U.S. goose, be also sauce for the Canadian gander?



Sand and Gravel Dredging Steamship Charles Dick, built for National Sand & Material Co., Welland, Ont., by Collingwood Shipbuilding Co., Collingwood, Ont.,

This ship was fully described in Canadian Railway and Marine World for July, page 380.

work she is to undertake, the hold being divided into 2 large hoppers, each 60 ft. long, with carrying capacity of approximately 2,000 cub. yds. of sand and gravel. The hoisting and trawling machinery is in a space about 10 ft. long, between the two hoppers. The pump room is forward of the forward hopper, and the two pumps are each connected with an 18 in. suction direct connected to the shell. The suction pipes are removable and are to be removed when the cargo is loaded. The master and crew are accommodated forward, and the dining room, mess room, galley and engineers' quarters are in a deck house aft. The ship's dimensions are as follows: length over all 258 ft., beam 43 ft., depth 20 ft., total d.w. carrying capacity 3,000 tons. The main propelling machinery consists of triple expansion, surface condensing engines with cylinders 19, 32 and 56 in. dia. by 36 in. stroke, taking steam from 2 boilers, each 14 ft. 7 in. dia. by 10 ft. 8 in. long, at 180 lb. working pressure, under natural draft. She has been built under the British Corporation for the Survey and Registry of Shipping, and classed B.S. She will

Midland Shipbuilding Co., Midland, Ont.—The Great Lakes Transportation Co. has ordered from this company a canal size self-unloading ship of the single deck type, and following dimensions—length 259 ft.; breadth 43 ft.; of 2,000 tons on a 14 ft. draft. The depth, 25 $\frac{1}{2}$ ft., with a carrying capacity propelling machinery will consist of a vertical triple expansion engine, with cylinders 17, 25 and 43 in. dia. by 30 stroke, steam to be supplied by 2 Scotch boilers 12 $\frac{1}{2}$ ft. dia. by 11 ft. long, with a working pressure of 185 lb. The unloading gear will discharge 500 tons of coal an hour, the conveyor running at 300 ft. a minute. These conveyors will consist of 2 steel belts 4 ft. wide, running the full length of hold, and will be located about 7 ft. each side of the center line. The cargo will be carried to the forward end of the hold where it will pass into a hopper with a single outlet at bottom, allowing it to fall on to central belt which will convey it up through the deck and on to a boom. This boom will be of steel, 75 ft. long, with a rubber belt conveyor running its full length, and it will be arranged to swing

H.M.S. Raleigh, Wrecked at Belle Isle Strait.

H.M.S. Raleigh, which had been cruising off the Labrador coast, ran aground at Amour Point, Belle Isle Strait, Aug. 8. The crew, except 11, who lost their lives, were landed near by, at Forteau Bay, on the Quebec Labrador coast. H.M.S. Raleigh arrived in North American waters in May last as the flag ship of the North Atlantic squadron. She is one of four ships of the improved Birmingham class, and was built at Glasgow, Scotland, in 1919, the average cost being £1,671,000. Her dimensions are,—length b.p. 565 ft., length overall 605 ft., beam

in the German light cruiser type, and also for hunting enemy commerce raiders in the Atlantic, and for this purpose had extra large fuel capacity. As it was possible that oil fuel might not be obtainable at that time at different naval stations and ports, they were equipped with some coal and 4 small coal burning boilers, arranged to provide sufficient steam for cruising speeds. The hulls are armour plated 3 in.-2 in. side amidships, 2½ in.-1½ in. side bow, 2½ in.-2¼ in. side stern, 1 in. upper deck amidships, 1½ in.-1 in. deck over rudder and 3 in.

through Belle Isle Strait, may have deflected her from her course. She was in charge of Commander S. S. Spence, and was proceeding to Forteau Bay, to join H.M.S. Calcutta, on which Vice Admiral Sir William Pakenham had been cruising along the coast. The extent of the damage sustained had not been made public, but divers have been making an underwater survey, and at the time of writing, (Aug. 20), it is not known what decision, if any, has been arrived at, as to the possibility of salvaging her. The Quebec Salvage and Wrecking Co's s.s. Lord Strathcona and barge G.T.D., were immediately dispatched to the scene, and Capt. Kjerland, who was in charge, is stated to have expressed his confidence that she could be salvaged. Three of the bodies of those drowned when the ship struck, were recovered, and buried ashore, and the crew, with the exception of about 100, retained in connection with the salvage operations, were picked up and returned to England, by the C.P.R. s.s. Montrose. The U.S. Navy offered whatever assistance was necessary, and was thanked by the Admiral, with the assurance that the help offered was not required. The U.S. cruiser Olympia, under Rear Admiral N. A. McCully, was however, stated to have visited the wreck, while other ships of the British North Atlantic squadron were standing by.

Amour Point, Que., on the north side of Belle Isle Strait, latitude 51° 27' 26" north, longitude 56° 50' 28" west, is about 2.8 miles southwestward of the point of Anse a loup Bay, in the narrowest part of the strait, which is there only 9¼ miles wide, the widest part between Belle Isle and Cape Bauld being 14 miles. The point is low, but rises in a series of terraces, faced by cliffs, to a hill 190 ft. high, at three quarters of a mile northward. There are several rocks within about a cable off the point. It has a white light, maintained by the Newfoundland Government, at an elevation of 152 ft. above high water, occulting 20 seconds from a circular white stone tower 104 ft. high, and visible 18 miles in clear weather. It has a diaphone for use during thick or foggy weather.

The Newfoundland and Labrador Pilot says that reliance should not be placed on hearing this signal, as sometimes, from unexplained causes, the sound cannot be heard, even from short distances. The illustration is by courtesy of the Toronto Globe.

What is a Subsidy?—During committee hearings at Washington, D.C., recently, on the Merchant Marine Act 1922, commonly called the Subsidy Bill, some objection was taken to the use of the word subsidy, it being pointed out that it is not used in the bill at all, the word "compensation" being used instead. A question was asked as to why compensation was to be paid to operators, and the questioner was informed that the strict legal meaning of the term meant the placing of persons on a parity, and not the payment of benefits in return for services performed. Others refer to the direct aid as provided for in the bill, as neither subsidy nor compensation, but as an accommodation to tide the merchant marine in foreign trade over its training period. What is provided for in the bill, is a grant from the Government to assist in the establishment of an enterprise deemed advantageous to the public, and that is a definition of a subsidy.



H.M.S. Raleigh, ashore at Amour Point, Belle Isle Strait.

on waterline 58 ft., extreme 65 ft., draft mean 17¼ ft., maximum 20½ ft. She is equipped with Brown-Curtis turbines, with a designed shaft horse power of 65,000, and steam is supplied by 12 small tube Yarrow boilers, equipped for coal and oil burning. She is also equipped with seven 7.5 in., six 12 lb., four 3 in. AA, four 3-lb., two 2-lb. pom-pom, four M.G., and eight Lewis guns, and six 21-in. torpedo tubes, 4 above and 2 below water. The 4 ships of this class were begun under an emergency war programme, and were ordered December, 1915. They were planned to meet possible improvements

conning tower and are also fitted with anti-torpedo protection, the bulges being 5 ft. deep, and there are unpierced bulkheads below the lower deck. She is arranged for a complement of 730 men, but the crew is said to have been 800.

The ship's messages stated that she struck on a shoal and was lying easily about 200 yards from the shore, with her water line a few feet under water at the bow, and the same above, at the stern. At the time of the disaster, she was running at dead slow, on account of a thick fog, and it is suggested that the strong tide which ebbs and flows

Canadian Government Merchant Marine Ltd., Operation, Etc.

Officers of Steamships.—The following changes have been made in captains and chief engineers, since those mentioned in our last issue,—Canadian Beaver, chief engineer, R. G. R. Fairweather; Canadian Commander, Capt. D. H. MacLean; vice Capt. J. D. McKenzie, transferred to Canadian Cruiser; Canadian Cruiser, Capt. J. D. McKenzie, transferred from Canadian Commander, vice Capt. A. L. Starratt; Canadian Explorer, Capt. W. Wyman, vice Capt. P. J. Murphy, transferred to Canadian Spinner; Canadian Gunner, Capt. A. E. Seaman, chief engineer, J. S. Cann; Canadian Hunter, chief engineer, W. Fotheringham; Canadian Navigator, Capt. D. M. Dickson, vice Capt. A. J. Gilbert; Canadian Ranger, chief engineer, P. C. Bennett; Canadian Runner, Capt. W. H. Millar, vice Capt. D. O. Davies; Canadian Signaller, Capt. J. H. Hubley; chief engineer, S. Gruzeli; Canadian Spinner, Capt. P. J. Murphy, transferred from Canadian Explorer, vice Capt. R. V. Bennett; Canadian Warrior, Capt. J. A. Lintlop, chief engineer, J. H. Cumming.

The s.s. Canadian Commander, which ran ashore at Plate Point, Little Miquelon, July 3, sustaining considerable hull damage, is at Canadian Vickers' yard, Montreal, undergoing repairs, the cost of which will it is said be in the neighborhood of \$100,000.

The steamships Canadian Gunner, Canadian Signaller, and Canadian Warrior, which have been laid up at Halifax, N.S., for some time, were ordered to be prepared for service, the first by July 29, the second by Aug. 8, and the third by Aug. 4. They have been chartered to Eaton-Nelligan Shipping Ltd., Montreal, to carry pulpwood between Cape Breton and the Great Lakes.

The s.s. Canadian Pioneer, which grounded near Dominion Park, Montreal, towards the end of July, was released the same day without damage, and after examination proceeded on her voyage to Liverpool, Eng. Three days later, she collided with an iceberg about 9 miles east of Belle Isle Strait, and put into North Sydney, N.S., with a hole in her starboard bow below the waterline, which had caused her fore peak to be flooded, but the water was kept under control by the ship's pumps. The forward bulkheads were intact and no damage was sustained by the cargo. It was stated that the collision occurred in a fog, that the iceberg was seen, and the ship veered, but that a spur of the iceberg about 10 ft. below the surface caused the damage to the ship. A survey made by a diver at North Sydney, July 31, showed that her starboard bow plates were badly sprung and the forepeak frame work twisted. Temporary repairs, consisting of calking of seams and cementing the forepeak, were made and it was reported that permanent repairs will probably be made in England at a cost of from \$15,000 to \$20,000.

The s.s. Canadian Rover, ran ashore, during a heavy fog, in Portlier Pass, on the east shore of Vancouver Island, July 29. She was refloated on the rising tide without damage, and proceeded on her trip to Ladysmith, where she loaded coal.

The s.s. Canadian Victor, which passed through the Panama Canal, towards the end of July, bound from Montreal to New Zealand and Australia, had amongst her general cargo of 5,911 tons, a number of motor cars weighing 2,470 tons.

Coal Shipments from Great Britain.—Five C.G.M.M. ships were scheduled to sail from British ports during August, with approximately 22,500 tons of British anthracite coal, as follows: Canadian Conqueror, from Swansea, Wales, Aug. 17, with 4,000 tons for Montreal; Canadian Otter, from Swansea, Aug. 26, with 2,500 tons, for Montreal; Canadian Pioneer, from the River Mersey, Aug. 26, with 7,000 tons for Montreal, Quebec or Three Rivers; Canadian Volunteer, from Swansea, Aug. 29, with 2,000 tons, for Montreal, and Canadian Mariner, from the River Mersey, Aug. 31, with 7,000 tons for Montreal, Quebec or Three Rivers. The date of the Canadian Pioneer's sailing may be interfered with, owing to repairs necessitated by a collision with an iceberg in Belle Isle Strait at the end of July.

Montreal Sailings.

Liverpool service.—Canadian Mariner, Sept. 9; Canadian Spinner, Sept. 23; Canadian Conqueror, Oct. 7; Canadian Pioneer, Oct. 21.

London service. — Canadian Cruiser, Sept. 7; Canadian Ranger, Sept. 21; Canadian Constructor, Oct. 5; Canadian Cruiser, Oct. 19.

Glasgow service.—Canadian Squatter, Aug. 18; Canadian Carrier, Sept. 15; Canadian Navigator, Oct. 13.

Cardiff and Swansea service.—Canadian Navigator, Sept. 2; Canadian Otter, Sept. 16; Canadian Squatter, Sept. 30; Canadian Runner, Oct. 14.

Australia and New Zealand service.—Canadian Miller, Sept. 21; Canadian Mariner, Oct. 26.

Barbadoes, Trinidad and Demerara service.—Canadian Coaster, Aug. 30; Canadian Logger, Sept. 13, Canadian Beaver, Sept. 27; Canadian Harvester, Oct. 11; Canadian Coaster, Oct. 25.

Hamilton, Bermuda, Nassau, Kingston and Belize service.—Canadian Fisher, Sept. 14; Canadian Forester, Oct. 5; Canadian Fisher, Oct. 26.

Newfoundland service.—Canadian Sapper, Sept. 21.

Vancouver Sailings.

Australia and New Zealand service.—Canadian Scottish, Sept. 5; Canadian Freighter, Sept. 20; Canadian Highlander, Oct. 5; Canadian Britisher, Oct. 25; Canadian Skirmisher, Nov. 20; Canadian Traveller, Dec. 20.

Oriental service.—Canadian Inventor, Sept. 10; Canadian Prospector, Oct. 25.

Indian service.—Canadian Transporter, Aug. 30.

Contract Claim Appeal Dismissed.—The Supreme Court of Canada has dismissed the Canadian Government Merchant Marine appeal against the British Columbia Appeal Court's judgment on the Canadian Trading Co's. claim for damages sustained for not carrying out a contract for shipment of lumber. It appears that the Canadian Trading Co., made contracts for shipment of 1,000,000 ft. of lumber to Australia, by the s.s. Canadian Inventor, and 250,000 ft., by the s.s. Canadian Prospector, in March 1920. Owing to delayed delivery of these steamships by the builders, the Canadian Trading Co. was put to certain expenses in rehandling the lumber, which was admitted. The C.G.M.M. denied liability on the ground that there was an implied condition in the freight contract, that it was entered into conditional on the continuation of the service and the sailing of the steamships between the ports named. In the original trial, a verdict was given in favor

of the C.G.M.M., but this was reversed by the B.C. Court of Appeal, and that court's judgment has been upheld, with costs. It was finally held that the wording of the contract applied to the continuance of the C.G.M.M. services between B.C. and Australian ports, and not the actual running on time of the two steamships named in the contract. The delay in the shipbuilding yards was beyond the C.G.M.M.'s control, and equally beyond the Canadian Trading Co's control, but the responsibility for the non-fulfilment of the contract rested with the C.G.M.M.

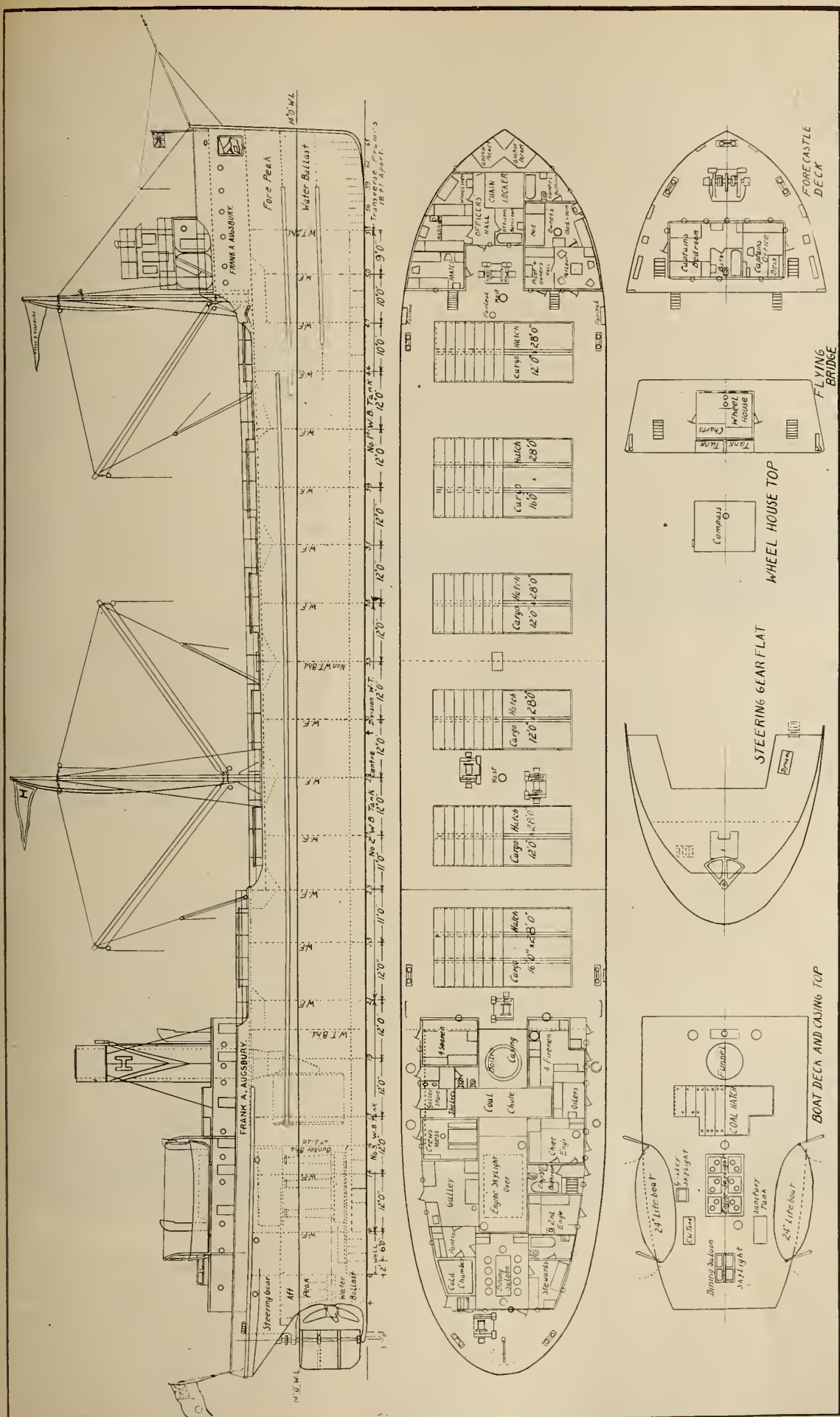
Navigation Aids by Radiotelegraph.

The Marine Department announces that messages appertaining to navigation of any ship are handled without charge between the captain of a ship and any government department, or other official, the officer in-charge of any radiotelegraph station, and any person whatever, in connection with weather conditions and forecasts, tide and ice conditions and reports on aids to navigation, from the following stations,—Red Head, St. John, N.B., Lurcher Lightship, Cape Sable, Barrington Passage, Halifax, Sable Island, and North Sydney, N.S., Cape Race, Belle Isle, Point Amour, Nfld., Heath Point lightship, Grand Stone Island, Cape Bear, P.E.I., Fame Point, Clarke City, Father Point, Grosse Isle, Quebec, and Montreal, Que.; Kingston, Toronto, Port Burwell, Point Edward, Tobermory, Midland, Sault Ste. Marie and Port Arthur, Ont.

The following stations, in addition to the foregoing information, broadcast weather, ice and other reports, respecting dangers to navigation at routine periods,—Barrington Passage, Cape Sable N.S., Cape Race, Belle Isle, Nfld., Fame Point, Father Point, Quebec, Que. Kingston, Toronto, Port Burwell, Point Edward, Midland, Sault Ste. Marie and Port Arthur, Ont.

These stations are owned by the Dominion Government and operated by Marconi Wireless Telegraph Co. of Canada, under contract with the Government, with the exception of the stations at Barrington Passage, N.S., and St. John, N.B., which are owned and operated by the Dominion Government. Especially urgent reports respecting dangers to navigation are transmitted by all the foregoing stations on 600 meters, immediately on receipt, in addition to the general routine transmission.

An Ottawa press dispatch of Aug. 1, stated that in carrying out the Government's policy to give up commercial radiotelegraphy, which was undertaken as a war emergency, the Barrington Passage, N.S. station will be closed shortly. This follows on similar action by the British Government with regard to the Admiralty medium power radio station at Bermuda which was closed on July 1. As a consequence the commercial service between Barrington and Bermuda has been suspended and as the Government has no other use for Barrington it will be closed. Both were war stations, having been erected in 1915 as part of the chain of naval radio stations, extending from St. John's, Nfld., to Demerara, British Guiana, Barrington acting as the connecting link between St. John's and Bermuda. The closing of Bermuda and Barrington terminates the North Atlantic chain of naval radio stations.



Steel Bulk Freight Steamships for George Hall Coal Company of Canada.

The accompanying illustrations show profile and plans of one of the four steel bulk freight steamships which are being built by Fraser Brace Co., at Three Rivers, Que., for the George Hall Coal Co., of Canada. They are of full Welland Canal size, about 3,500 tons each, single screw driven, and will be classed B.S.⁸ with the British Corporation for the

Registry of Shipping. Their principal dimensions are,—length over all 258 ft., length b.p. 250 ft.; breadth moulded 43 ft., depth moulded 20½ ft. They have full topgallant forecastle and long raised quarterdeck aft. They have been designed so that every modern improvement has been taken advantage of, to make for economy in operation, rapid-

ity in handling cargo, etc. The hulls are built on the Isherwood system, with water ballast in a cellular double bottom, which is divided longitudinally for about two-thirds of the ship's length, for turning purposes in working the cargo, and water ballast is provided for in the fore and after peaks. There are two cargo holds with 6 large hatches, 4 of them being 12

2 x 28 ft., and 2, 16 x 28 ft., the last two being specially arranged for handling beams and billets 60 ft. long. Arrangements are also made for carrying heavy pulpwood cargoes in the holds and on the foredeck. Under the forecastle, accommodation is provided for passengers, and spacious quarters for the officers and pilot, all in separate rooms with baths, w.c.'s,

etc. complete. The captain's rooms on the fore-castle deck consist of sleeping room, office, bath room, etc. The navigating bridge is arranged over the captain's rooms and extends the full width of the ship, with a wheel house containing the steering wheel, compass, docking telegraph, telephone, speaking tube, engine room indicators, etc. with the standard steering compass on top. The dining room, engineers, stewards, pantry, refrigerating room, galley and engine room staff, including deck hands, are accommodated in a 60 ft. house aft on the quarter deck.

The propelling machinery consists of triple expansion engines, with cylinders 19, 32 and 56 in. diam. by 36 in. stroke, supplied with steam by 2 Scotch multitubular boilers, each 14 ft. 7 in. diam. by 10 ft. 8 in. long, at 180 lb. working pressure. The boilers are equipped for coal burning, and there is bunker accommodation for 150 tons. An ash ejector is provided in the stokehold for discharging ashes. There are the usual ballast pumps and auxiliaries, and extra large pipes are fitted to the ballast tanks for rapid filling and emptying. Powerful steam and hand steering gear is placed aft over the after peak, controlled from the wheel house forward, and top of the deckhouse aft. Three steam winches are provided for rapid handling of cargo, and there are 2 specially designed steam winches for warping purposes. A combined steam and hand windlass is placed on the fore-castle deck, with one of the warping winches alongside, for warping. A patent snubbing wire compressor, and the George Hall Coal Co's special fair leads and bollards are supplied for the quick and efficient working of the ship in and out of docks and through canals. There are 2 pole masts, and 3 heavy derricks, for working the cargo. A complete system of electric lighting is provided, with large cluster lights, for use when the cargo is being handled, regulation signal lamps, etc. The equipment includes a refrigera-

ting plant for making ice, and for keeping the refrigerating chamber cool, and providing cold water for the ship's use. The plumbing system includes water purifier, baths, w.c.'s, lavatories, constant supply of running water, and hot water when necessary. There are 2 life-boats to each ship, with patent davits and disengaging gear, placed aft on top of the deckhouse. Each ship has been designed for a d.w. carrying capacity of 2,500 tons. on canal draft of 14 ft., with grain capacity of about 120,000 bush.

Great Lakes Transportation Co's Finances.

The Great Lakes Transportation Co. Ltd. Midland, Ont., has issued \$1,000,000 of 7% ten-year serial mortgage bonds, dated July 1, and maturing \$100,000 annually to July 1, 1932. They are issued in \$1,000 and \$500 coupon bonds, interest payable half-yearly, with privilege of registration as to principal only, and are callable in whole or in part, on any interest date, at the company's option, on three weeks notice, at par and accrued interest, plus a premium of ½% for each year or portion of the uncompleted term.

The company was incorporated under the Dominion Companies Act in 1914, and through extensions and additions has become one of the largest Canadian transportation companies doing a general carrying business. Its steamships have a d.w. tonnage of 48,935, and in addition to the transportation business, it owns a modern grain elevator at Midland, Ont., with a capacity of 3,000,000 bush. It also has ample dock facilities and a coal dock with modern coal handling equipment there. During the 1921 navigation season, it moved on the Great Lakes, about 1,500,000 tons of grain, coal and package freight, all of which passed through Canadian ports.

The bonds are secured by a first mortgage on the following ships: Glenshee, 10,130 tons; Glenisla, 7,590 tons; Glenorchy, 6,575 tons; Glenmavis, 3,000 tons; Glenstriven, 3,370 tons; Glenbrae, 3,400 tons; Glenfinnan, 4,350 tons; Glenlyon, 4,425 tons; Glencairn, 3,120 tons; and Glenlivet, 2,975 tons; and also by a first mortgage on the coal dock property at Midland, and are further secured by the deposit of the entire capital stock issue, less directors' qualifying shares, of the Midland Elevator Co., Ltd., on which there is no mortgage, and on which none will be permitted while any of these bonds are outstanding. In addition to the foregoing security the bonds are secured by a floating charge on all of the company's other assets. The total issue of bonds is limited to \$1,500,000, of which \$1,000,000 have been sold to Richardson, Sheppard and Co., Toronto, and of the remainder, \$250,000 are retained in the treasury to be disposed of should the company require to do so, the balance of \$250,000 only being available for issue to the extent of 70% of the cost, or fair value, if the fair value be less than the cost, of additions to the company's fleet of steamships or other fixed assets, and then only if the net average earnings for the last preceding fiscal years have been at the rate of at least 2½ times the interest charges on bonds then outstanding and those proposed to be issued. The trust deed provides for the retirement annually of \$125,000 par value of the bonds.

In addition to its fixed assets, the company owns the Midland Elevator Co's. entire capital stock and also substantial interests in other steamship companies, and coal companies, working in close co-operation, and which yield the company a very considerable tonnage. The steamships have been appraised by Hugh Calderwood, representing the American Bureau of Shipping, at \$2,726,528, after allowing for depreciation. This amounts to \$55 a ton. The Midland Elevator Co's.

Ships Registered in Canada During April and May, 1922.

In compiling the following lists of ships registered, steamboats and motorboats operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, n.h.p. etc.	Owner or Managing Owner
126082	B.C.P. (1)	Vancouver, B.C.	Vancouver, B.C. 1908	80.5	18.0	7.8	95	43	23 Sc.	H. S. McLellan, Vancouver, B.C.
150619	Etta Mac*	"	Puget Sound, Wash. 1918	94.5	14.6	7.9	85	48	20 Sc.	Coal Harbour Wharf and Trading Co., Vancouver, B.C.
150372	F. H. Anson	Montreal	Twin Falls, Ont. 1922	75.0	20.7	9.9	112	16	16 Sc.	Abitibi Power and Paper Co., Ltd. New Sun Life Bldg., Montreal.
126151	Francois C.*	Sorel	Sorel, Que. 1909, 1921	96.3	18.6	6.1	114	67	13 Sc.	A. Beaudet, Sorel, Que.
150371	M. & F. Dredge, 16	Montreal	Montreal 1921	283.8	48.2	19.0	1964	1190	191 Sc.	Minister of Marine, Ottawa, Ont.
150001	Rio Bonita*	Vancouver, B.C.	Puget Sound, Wash. 1918	94.5	14.6	7.9	101	57	17 Sc.	Walithy Ltd., Vancouver, B.C.
105496	Sea Plunger	Vancouver, B.C.	New Westminster, B.C. 1900							
			Vancouver, B.C. 1921	43.0	12.3	5.0	17	11	11 Sc.	Wm. N. Simpson, Vancouver, B.C.
150650	Taurilla*	Vancouver, B.C.	Puget Sound, Wash. 1918	94.5	14.6	7.9	85	48	30 Sc.	Coal Harbour Wharf and Trading Co., Vancouver, B.C.

(1) Re-measured. *Motorboats.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owner or Managing Owner
1411	C. F. Gordon	Halifax, N.S.	Schr.	Weymouth, N.S. 1919	139.0	33.7	12.7	425	369	R. G. Beazley, M.O., Halifax, N.S.
150303	L. Co. No. XIV	Victoria, B.C.	Barge	Seattle, Wash. 1905	82.5	24.5	6.0	98	98	Sidney Canning Co., Victoria, B.C.
141167	thb O.	Shelburne, N.S.	Schr.	Shelburne, N.S. 1922	98.2	24.2	9.9	122	119	Harvey & Co., St. John's, Nfld.
150614	G. S. & McD. No. 10	Vancouver, B.C.	Dredge	New Westminster, B.C. 1920	89.0	35.0	6.0	166	166	Grant Smith & Co., and McDonnell, Vancouver, B.C.
11222	G. (1)	Yarmouth, N.S.	Barge	Canning, N.B. 1902	88.5	28.0	7.7	122	122	Hugh Cann & Son, Ltd., Yarmouth, N.S.
141777	Humana	La Have, N.S.	Schr.	Belliveau Cove, N.S. 1922	119.5	26.8	11.3	164	119	A. Creaser, M.O., Riverport, N.S.
150104	Mahaia	Lunenburg, N.S.	Schr.	Lunenburg, N.S. 1922	117.4	25.8	11.0	115	97	B. C. Smith, M.O., Lunenburg, N.S.
150283	Mane L.	Sorel, Que.	Barge	Sorel, Que. 1922	124.9	23.5	12.8	262	251	Transportation and Shipping Co., Quebec, Que.
150284	M. L.	Sorel, Que.	Barge	Sorel, Que. 1922	124.8	23.5	12.8	264	253	"
150543	Nile I	St. John, N.B.	Sloop	Wards Brook, N.S. 1912	42.8	13.4	5.1	17	17	Annie M. Rowan, St. John, N.B.
150559	Sail No. 17	Victoria, B.C.	Barge	Victoria, B.C. 1922	100.7	31.0	9.3	259	259	Victoria Tur Co., Victoria B.C.
141223	St. Clair Theriault	Weymouth, N.S.	Schr.	Belliveau Cove, N.S. 1919	135.5	31.6	11.0	331	274	Clair Theriault Shipping Co., Belliveau Cove, N.S.

(1) Recovered wreck

Ontario Paper Company's Steamships.

coal dock and fixed assets have been appraised by the Canadian Appraisal Co., the coal dock having a present depreciated value of \$268,521.18, and the elevator property a present depreciated value of \$361,028.84; the combined value of the assets on a strict appraisal basis, which are security for the bond issue, being \$3,856,078. The company's investments, exclusive of the elevator property, have a book value, which is said to be materially less than their actual value, of \$718,106.35.

The average net earnings for the past five years, derived from operations, eliminating all other sources of revenue, and after deducting depreciation, available for interest on these bonds, are stated to have been over five times the interest charges on the present issue.

The directors are: James Playfair, Midland, Ont., President and Managing Director; J. A. Richardson, Winnipeg; J. A. Paisley, Cleveland, Ohio; D. L. White Jr., Midland, Ont.; F. A. Magee, Hamilton, Ont.; W. J. Sheppard, Waukegan, Ont. and D. S. Pratt, Midland, Ont.

Canal Statistics for June.

The Dominion Bureau of Statistics Transportation Branch, reports traffic through Canadian canals during June as follows:—

Sault Ste. Marie, Canadian and U.S. Canals, traffic increased by 140% over May, due mainly to iron and ore shipments increasing from 1,379,850 to 6,617,660 tons. Grain shipments decreased about 50%, bituminous coal shipments continued light, and anthracite coal stopped altogether. Compared with June 1921, grain and ore shipments were considerably heavier, but these gains were offset by the reduction in coal, little change being shown in the aggregate.

Welland Canal traffic decreased 11% from June 1921, due to decrease in coal and corn shipments. Rye and oil also decreased, but wheat and oats increased. From the opening of navigation to June 30, wheat shipments were 11,980,000 bush. against 8,362,000, for the same period of 1921. Bituminous coal ship-

The steamships Chicago Tribune and New York News, which are illustrated on this page, and which arrived in Canada recently, were built at Wallsend-on-Tyne, England, and at Londonderry, Ireland, respectively, for the Ontario Paper Co.'s pulp service between Quebec ports and Thorold, Ont., and will be operated by the Ontario Transportation and Pulp Co. Their leading dimensions are: length b.p. 250 ft.; breadth, extreme, 43 ft.; depth, moulded, 19 ft. 4 in. They have each an approximate d.w. capacity of 2,300 tons on a 14 ft. mean draft. The hulls are built with straight stem and elliptical stern, of materials in accordance with the British Corporation's requirements for lake service and the

officers' and seamen's quarters are in the fore end, and in the forward deck house there is an owner's suite. The engine and boiler space is arranged in the stern, and is separated from the after hold by a watertight bulkhead. The chart room, captain's day room, and sleeping quarters, are in a steel house on the fore-castle deck, and above this is another steel house, containing the wheel house, holding the steering standard, compass, telegraph to engine room, etc. The engines are of the ordinary marine reciprocating type, triple expansion, with 3 cranks, driving a single propeller, and supplied with steam by 2 cylindrical, multitubular, single ended boilers, with a working pressure of 180 lb. per sq. in.



Steamship New York News, 2,300 d.w. tons, built for Ontario Paper Co., Thorold, Ont.

Gulf of St. Lawrence. Each hull is divided into 2 large holds by a water-tight bulkhead, and each hold has 3 large cargo hatches. In order to have clear spaces in the holds, there are no pillars supporting the deck, but in place of them there is a heavy binding beam and web frame fitted between every hatch, and substantially fixed to the deck. A steel rubbing piece is fitted on each side of the ship above the load water line, for most of the length, and in addition there is a substantial oak fender round

The building of all machinery and boilers was supervised by British Corporation surveyors, and the owner was represented by Major H. Maitland Kersey, D.S.O., formerly Managing Director, Canadian Pacific Ocean Services Ltd., London, Eng.

Shipping Reprisals. It was announced in the British House of Commons recently, that the Customs Consolidation Act of 1853 empowers the Government to impose such duties on foreign ton-



Steamship Chicago Tribune, 2,300 d.w. tons, built for Ontario Paper Co., Thorold, Ont.

ments were 94,324 tons against 252,610 tons for the same period of 1921.

St. Lawrence Canals.—Compared with June 1921, coal shipments, hard and soft, decreased 35,286 and 70,862 tons respectively; corn decreased 51,026 tons; and oils 14,327 tons; barley, oats and wheat increased 14,674, 24,980 and 41,005 tons respectively, the decrease of all freight being 75,126 tons for June. Passenger traffic increased 2,604, or 37%.

the stern at the upper deck level, and another on each side of the bows about 12 ft. below the deck. The rudder is of the single plate balanced type, and is of large area, to facilitate quick manoeuvring. There is a complete installation of electric light, including clusters of lights for the holds. The engineers and firemen are accommodated in a steel deck house aft on either side of the engine and boiler space, and the master's, of-

nage or goods, as may be necessary to counteract any disadvantage British trade or shipping may suffer from preference granted by foreign Governments to their ships or goods.

Vancouver Shipping Statistics. The total tonnage of ships entering Vancouver B.C., during 6 months ended June 30, was 2,013,357 gross, and 1,221,118 net, compared with 1,884,042 gross, and 1,163,699 net, for same period of 1920.

Dominion Wreck Commissioner's Enquiries and Judgments.

Enquiries have been held and judgments delivered in connection with the following casualties,—

Grounding of s.s. Canadian Commander.

Held at Montreal, July 27, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. J. B. Henry and A. Musgrave, as nautical assessors, into the grounding of Canadian Government Merchant Marine s.s. Canadian Commander at Plate Point, Little Miquelon, July 3, when she suffered considerable damage. She was bound from Chatham N.B. to England. The evidence, showed that every precaution had been taken. A departure was taken from Bird Rock and a course laid which would have brought the ship some 12 miles south of the St. Pierre Miquelon group. Fog came on, but the speed was maintained for about 3 hours after, when half speed was ordered. Three soundings were taken, the last one, 26 fathoms, indicating shoaling, the course was altered one point, which, under ordinary circumstances, would have proved sufficient allowance. A set from the southward was foreseen and allowed for, and when shaping the course by the last observation, the compass was free from any deviation on the course, and the log proved true. The master, Capt. D. H. Maclean, was about, though not actually on the bridge when the ship grounded. Ships had been spoken to by wireless, to the northward, which gave confidence to the master that the ship was in a safe position. The mate, on noticing a small craft on his starboard, gave an order hard to port, and he then saw white ahead on the starboard bow, which he took for ice, and gave an order hard to starboard and stop engines. On the master coming on the bridge, it was found that the white seen was breakers and the order full speed astern was given and executed, but the ship grounded on a ledge. Every means which the situation demanded was executed to float the ship, without success, and then help was called. The court felt that the master should have communicated with the signal stations and obtained his position by the direction finding apparatus, but he stated that he was not under any apprehension as to his position, beside which, the wireless stations were far apart and his instruments had not power enough to obtain reliable information. The hard to starboard order would have been a wrong maneuver, if the white seen on the starboard bow had been ascertained as breakers, but being thought to be ice, no criticism can be made of the order and the movement. The court therefore exonerated the master, and the first officer, C. Beavers, and stated that the grounding was due to a stronger set of a current from the south, not anticipated, in view of the climatic conditions existing. In returning the officers' certificates, the court hoped that the seriousness of the casualty would prove a sufficient caution to both, to beware of currents which are known to vary in direction and velocity.

Cairndhu-Spray Collision.

Held at Montreal, July 6, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. J. B. Henry and C. Lapiere, as nautical assessors, into the collision between the Cairn Line s.s. Cairndhu and the Sincennes-Mc Naughton Line's steam tug Spray, with tow, near Isle St. Ours, in the River St. Lawrence, July 1, when 6 lives were lost.

The evidence showed that the master of the tug Spray, N. Mongeau, was below, and came on deck a moment before the collision took place, so could give no information as to the previous movements and position of his ship, but confirmed the evidence that the two-blast signal was given by the Spray, which awakened him. The court attached much significance to his statement that he always used the north side during the eight trips he had made this season, and also considered that his admission that it was contrary to existing rules, was of great import. He left his ship in charge of a man, M. Houde, who is termed a pilot, with the one instruction to be called if needed. This man, had been with the tug on each trip this season, on each of which, the wrong side of the channel was used, violating article 25. The regulations do not call for more than one certified man for a tug, consequently when the master retires, he must necessarily leave control to a man who does not possess officially known qualifications, therefore it would seem imperative for the master to give explicit instructions, other than to be called when needed. The court expressed the opinion that the master, being the only certificated man on board, was not justified in being in his room asleep, especially when he had left Montreal at 8 p.m. and would have been in Sorel about 3 a.m., and that he should have been in the wheelhouse close at hand, to instruct and direct. Marsden, in referring to article 25, holds that a master navigating on the wrong side of the channel, is guilty of a misdemeanor, which will almost subject himself and his owners to liability for any collision occurring when he is on his wrong side, unless it is proved that his being on the wrong side is unavoidable. The evidence of the second officer of the s.s. Cairndhu would indicate that the Spray was nearly in the center line of the channel, and would be in that position to slightly counteract the effect of the current, which has a tendency to set toward the south. Had the Spray maintained that position to within a reasonable distance, and then ported, no collision would have occurred. Instead, two 2-blast signals were given, and evidently a hard to starboard order corresponding to the signal. This action was indefensible and unwarranted and consequently the tug flagrantly violated article 25, the onus of the collision resting with her.

The s.s. Cairndhu's second officer, T. D. Healy, was on duty, having received instructions to call the master if needed, and as there was the risk of collision, the court expressed the opinion that in failing to call the master, he was guilty of a breach of discipline. In the court's opinion the risk of collision occurred when the 2-blast signals were heard from the Spray, and the second officer should have immediately summoned the master by a hurried and rush call. Further he should at once have suggested to the pilot, E. A. Paquin, what action to take, or have taken upon himself the responsibility to meet the requirements of article 23 and 29. The second officer stated that when the persistence of the tug was seen, he took a survey of the situation, and a doubt had arisen in his mind. It was time for action, but instead, he left it to the pilot, and thus failed to measure up to his responsibilities. He also stated that he could not give a signal without using the helm, which the court considered a most absurd reply.

Five minutes elapsed between the 2-blast signals and the collision, and there was ample time to stop the ship and reverse, and call the master, as well as perform many other evolutions. His attempt to avoid collision was considered an extremely tardy movement. He stated that he found it strange to hear 2-blasts, but kept at full speed. As soon as he saw a collision was inevitable he put the engines full speed astern, which performance, the court considered unworthy of a seaman. He admitted that the only possibility to avoid a collision was to go full speed astern, which admission, condemned his conduct. In face of article 25, he stated that the Spray was the one to keep out of the road, and not the Cairndhu, and that it was for the tug to find out that it could not get across the Cairndhu, an absolutely wrong interpretation of his duties. On this evidence, the court felt justified, without any possibility of erring, in finding that the second officer was wilfully disobedient to the master's orders and that he failed to measure up to his responsibilities.

The pilot, E. A. Paquin, in his evidence, did not agree with the second officer as to the sighting of the Spray's green light, but this was considered unimportant. The condition of his eyesight was questioned, and though he passed a satisfactory examination at the commencement of the season, the court thought it advisable to have a further examination before the court, with the result that it was found to be normal. He stated that when a quarter of a mile from the tug, he ported the helm 1½ points. If the second officer's version was to be accepted, which it was, the slight porting of the helm was wrong; it should have been hard-ported, with a full speed astern order simultaneously. The pilot knew that it was a tow, approaching, and its probable length was indicated by the extra mast-head lights. Marsden's 5th edition could have been cited ad infinitum in support of the court's contention that the Cairndhu, through the agency of the pilot, violated article 29. There was a special circumstance arising when the two blasts were heard, to obligate an immediate reversing of engines, and it was imperative that this should have been done. The explanation offered by the pilot that he did not see the Spray's green light until at 2 ship's lengths, due to it being dimmed by the Cairndhu's bright lights, was rejected, in view of the second officer's evidence that it was seen timely, and indicates an improper or an indifferent lookout on the pilot's part. In a previous case the court expressed sympathy with those who are in charge of deep draft ships, for the mystifying behavior of tugs and other small craft whose masters are responsible parties, either through ignorance of the proper application or execution of the rules of the road, or perhaps through indifference, which places these valuable ships in jeopardy. In this case, the Spray's action was unwarranted and inexcusable, but there was time for those on the Cairndhu to reflect and act, and hence the court felt justified in finding the pilot in default, equally with the second officer. With respect to signals by means of the steam whistle, article 28 was neglected by the Cairndhu. This article is obligatory, and the whistle must be given on giving an authorized course. A 1-blast signal should have been given when

the Spray's unauthorized 2-blast signals were heard.

The court found that the steam tug Spray, was chiefly to blame, through inviting collision by an inexcusable manoeuvre, and the master, Capt. N. Mongeau, was guilty of culpable negligence, his certificate 5,018 being suspended for 12 months from July 18. Capt. W. Whitehead of the s.s. Cairndhu was exonerated from blame. T. D. Healy, second officer of the s.s. Cairndhu, was found in default, and his certificate was suspended for 6 months. As his certificate was returned to him principally in order not to cause delay in the departure of the Cairndhu, and in view of the indefinite adjournment of the case, then in contemplation, the court ordered that the agents or owners take steps to have his certificate, No. 0011471, returned to the court, the suspension to date from the time it is delivered to the agents or owners, when it is to be sent by registered mail to the Dominion Wreck Commissioner at Ottawa. The pilot, E. A. Paquin, of the Cairndhu, was found in default, and his license was suspended for 6 months from July 18. In meting out such light penalties, considering the gravity of the casualty, the court bore in mind the Spray's peculiar and inexcusable action and expressed itself as feeling keenly the loss of life, and extended its sympathy to the relatives of those lost.

Airedale-Orthia Collision.

Held at Quebec, Que., July 21, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. J. B. Henry and W. H. Miller, as nautical assessors, into the collision between the s.s. Airedale, owned by C. A. Stuart and Co., London, Eng., and the Donaldson Line s.s. Orthia, 2 miles northwesterly of White Island Reef lightship, in the River St. Lawrence, July 4. The master of the s.s. Airedale, Capt. J.N.S. Butcher, stated that he was on deck, the ship proceeding at slow speed, when the Orthia's whistle was heard slightly on the port side or nearly ahead, and the speed was reduced to dead slow. When at 150 ft. distance, he saw the masthead lights, 3 short blasts were given and the engines put full speed astern, the collision ensuing. The master of the s.s. Orthia, Capt. G. Pearson, stated that the Orthia was going slow, having the tide with her, the speed at the time of the collision being about 5½ knots. He heard 2 blasts of the whistle, and gave 2 blasts in answer, the helm then being ordered hard to starboard, which order had scarcely been put into effect, when a hard to port was given, the collision ensuing. The Airedale's masthead lights were seen 2 or 3 points on the starboard bow, the red light being first seen, then the green, and the helm was hard to port at the time of the collision. The evidence, in both cases, was practically corroborated by all other witnesses. In summarizing it, the court expressed the opinion that the force of the wind was sufficient to cause the sound of the whistles to be carried broader to port, hence, if the signals were heard nearly ahead, it is possible that the Orthia was slightly on the starboard of the Airedale. The Airedale's speed had been reduced from slow to dead slow, 7 minutes before the collision, with the flood of 2½ knots almost directly ahead, and her speed over the ground could not have been more than one knot, under the circumstances permissible. Having the Orthia on her port bow, she complied with articles 16, 21, 23, 27 and 29, article 25 not being considered in this

casualty. On the appearance of the Orthia's green light, engines were put full speed astern, and the requisite 3-blast signal given. The Airedale's position with respect to the Orthia is indicated by the damage done, an oblique angle from the bow pressing the forward part of the wound inward, and the withdrawing bringing outward the plates of the after part of the wound. While the damage was considerable, the penetration was slight, and her immediate withdrawal indicated that her speed was practically nil at the moment of impact. The tearing of the lower part and the bending to starboard was due to the Orthia's speed. Whether the Orthia heard the sound of the Airedale on the port or starboard bow, of which, by the way, there was no mention in the log, it was her duty to have reduced her speed of 5½ knots, which, having the tide with her, was, in the court's opinion, too great in a fog so dense. The Orthia's pilot, L. Thivierge, stated that he thought that the ship, which proved to be the Airedale, was bound for the Saguenay. On a point of this kind, it is not permissible to presume, there was a doubt, and article 16 should have been followed. Regarding the Orthia's speed, cognizance was taken of the fact that the tide was with her, and that it was necessary to maintain some speed in order to permit evolution, but it was considered that the engines should have been stopped until the speed had been reduced, then restarted to enable the ship to be controlled. The Orthia failed to obey article 19. In the first instance she had the Airedale on her starboard, and it was her duty to take such precautions as to ensure her safety as well as that of the on-coming ship. The evidence as to the wind's direction was contradictory, but consideration of the effect was taken and dealt with in the evidence, and there was nothing in the log to indicate the wind's direction prior to the collision. The Orthia had the wind behind her, or on her quarter, while the Airedale in facing it felt the exact force of it. Respecting the starboarding order, and the replying to the Airedale's 3-blast signal, with 2 blasts, the court felt the Orthia was excusable under the circumstances, and since the Orthia did not alter her course under that order, which was immediately followed by a hard to port, the signals did not contribute to the collision, and hence a violation of article 28 was not brought against her. In viewing the contradictory evidence the court was of the opinion that the Orthia failed to observe the letter and spirit of articles 16, 19, 27 and 29. It therefore found that the Orthia was alone to blame for the collision, but in view of the conditions of weather and tide, as well as the locality, it did not deal with the master's or the pilot's certificates, but reprimanded

them both severely, especially for failure to observe articles 16 and 19, and cautioned them against surmising what the other ship was doing when not in sight, or what she would do when seen. The duty of masters, officers and pilots is to exercise proper judgment; extraordinary judgment and skill are not demanded; and to have constantly in mind that the rules of the road have been framed with a view to their observance. The Airedale's master and pilot were exonerated from any blame for the casualty. The Airedale offered and rendered the assistance expected by law.

Great Lakes Grain Ship Chartering.

Cleveland, Ohio, press dispatch, Aug. 18.—The grain trade was a little more active today and some chartering was done for prompt and future loading. A big steamship was placed to load at South Chicago, Ill., for Buffalo at 2½c. A medium size ship will take a cargo from Duluth to Buffalo next week at 2½c, and one of the same class will load at Duluth the last 10 days of Aug. at 2½c to Buffalo, or 2¼c to Georgian Bay. A small steamship will take a jag of flax from Fort William to Duluth at 4c. Two big carriers were chartered to load at Duluth for Fort William the last half of September for Buffalo at 3c. Shippers were bidding 4c from head of Lake Superior to Buffalo for the last half of November, but ship owners want a dispatch guarantee for that loading period.

Atlantic Steamship Co. Ltd. has been incorporated under the Dominion Companies Act, with capital stock consisting of 2,000 shares without nominal or par value, provided that business be commenced with a capital of \$10,000, and office at Toronto, to conduct a general business of transportation of passengers, mail and freight, and to own and operate ships, steamship and railway terminals, wrecking outfits, wharves, dock yards, etc. The incorporators are,—G. M. Jarvis, G. S. O'Brien, E. R. Lynch, H. Dennis, and B. Cameron, Toronto.

Canada Steamship Lines' Finances.—The Prudential Trust Co. received Aug. 15, proposals to sell first mortgage debenture stock and bonds of Canada Steamship Lines, Ltd., to be purchased by approximately \$255,000 paid by the company to the trustees for the purpose of the sinking funds under the terms of the trust deeds. The company has given notice that it will redeem, Sept. 1, series 2 to 10, and series 2 to 9 of the 10-year serial first mortgage collateral bonds, each for an aggregate principal amount of \$500,000 and series 10 for an aggregate principal amount of \$1,500,000, at 103½ and accrued interest.

Ships Added to and Deducted From the Canadian Register During April and May, 1922.

	Steam.—Tonnage—			Sailing.—Tonnage—		
	No.	Gross	Net	No.	Gross	Net
Added.						
Built in British Possessions	29	2,548	1,559	9	1,474	1,356
Bought from foreigners	5	295	168	1	98	98
Registered anew	8	341	209	2	756	643
Other ships	1	34	33	1	122	122
Totals.....	43	3,218	1,969	13	2,450	2,219
Deducted.						
Wrecked or otherwise lost	3	526	364	3	176	176
Broken up or unfit for use	16	264	165	24	1,392	1,336
Sold to foreigners	1	791	393	2	1,096	933
Registered anew	3	270	148	8	1,081	973
Totals.....	23	1,851	1,070	37	3,745	3,513

American Association of Port Authorities' Toronto Meeting.

The American Association of Port Authorities will hold its annual meeting in Toronto Sept. 14-16, the following being the programme:—

Sept. 14.—9.30 a.m. Registration of delegates. 10.30 a.m. Address of welcome by Mayor of Toronto and Chairman, Toronto Harbor Commission. Reply by Association's president. 10.30 a.m. President's report. 10.45 a.m. secretary's report and treasurer's report. 11 a.m. Appointment of committees. 11.15 a.m. Report of fire protection committee. 12.15 p.m. Address by E. H. Outerbridge on The Port of New York. 1 p.m. Luncheon tendered delegates. 2.30 p.m. Address by B. F. Cresson, Jr., on What are the factors at a port which will determine the kind and amount of freight handling machinery and equipment that is justified? 3.30 p.m. Address by Brancroft Hill on control of waste fuel oil in harbors. 4 p.m. Address by R. E. Lambert, on teaching port facts in university schools of commerce, business colleges and high schools of commerce. 4.30 p.m. Address by J. H. Walsh on the navigation or industrial canal of the port of New Orleans. 5.30 p.m. Address by J. Meigs on the proper ratio of berthing space to the cargo tonnage requirements of ports. 7.30 p.m. Informal dinner.

Sept. 15. 9 a.m. Address by J. B. Strauss on the present and future port of Chicago. 9.45 a.m. Address by Capt. F. T. Chambers on free ports. 10.30 a.m. Address by J. H. McCallum on the port of San Francisco. 11.15 a.m. Address by S. McClay on port organization and term of office. 12. Address by F. W. Cowie on the port and its relation to production. 1 p.m. Luncheon. 2.30 p.m. Inspection of port and city. 8.30 p.m. Address by Dr. H. Von Schrenk on destructive action of marine borers. 9 p.m. Address by W. H. Adams on rail freight rates and development of lake ports. 10 p.m. Address by C. Kehr on seaports in nation and world planning.

Sept. 16. 9 a.m. Address by Dr. Bryson Cunningham on British port methods. Reports of committees, election of officers.

The present officers are:—president, B. Thompson, Tampa, Fla.; secretary, M. P. Fennell, Jr., Montreal; treasurer, V. Gelineau, Jersey City, N.J.; vice presidents, 1st, J. S. Smith, Jersey City, N.J.; 2nd, J. H. McCallum, San Francisco, Cal.; 3rd, Lt.-Col. G. H. Kirkpatrick, Vancouver, B.C.; directors, Maj.-Gen. L. H. Beach, Washington, D.C.; J. N. Cole, Boston, Mass.; Dr. W. T. Christensen, Seattle, Wash.; W. G. Ross, Montreal; A. G. King, Norfolk, Va.; T. S. McChesney, New Orleans, La.; E. L. Cousins, Toronto; executive committee, Brig.-Gen. A. E. Labelle, Montreal; M. H. Bronsdon, Providence, R.I.; M. F. Steinberger, Baltimore, Md.

U.S. War Claims against British Government.—The U.S. Shipping Board Chairman announced recently that a settlement of claims against the British Ministry of Shipping, arising out of transactions during and after the war, has been made, by the payment to the Board of \$12,000,000.

Prospect Shipping and Towing Co. Ltd. has been incorporated under the British Columbia Companies Act, with \$60,000 authorized capital, and office at Vancouver, to carry on business as tugboat owner, steamship and scow operator, etc.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

32. June 14.—92, Newfoundland, Quebec and Prince Edward Island, radiotelegraph stations to be closed. 93, New Brunswick, Northumberland Strait, Richibucto harbor entrance, change in position of front light of Bar range.

33. June 16.—94, Ontario, Lake Huron, Georgian Bay, Sawlog Point, character of buoy to be changed; Gin Rocks, buoy to be established. 95, United States, Lake St. Clair, wreck buoy removed. 96, United States, Lake Huron, Detour Point, radio compass station established. 97, United States, Lake Superior, radio compass stations established.

34. June 23.—98, British Columbia, Vancouver Island, West Coast, Quatsino Sound, hydrographic information.

35. June 26.—99, Ontario, Lake Superior, sailing directions for Canadian shores issued. 100, Ontario, Lake Superior, Mission River entrance, shoal, buoy established.

36. June 27.—101, British Columbia, Vancouver Island, Esquimalt Harbor, air harbor established, caution. 102, British Columbia, Queen Charlotte Sound, Tribune Channel, Humphrey Rock, depth. 103, British Columbia, Queen Charlotte Sound, Blunden Harbor, uncharted shoal. 104, British Columbia, Queen Charlotte Sound, Christie Passage, uncharted rock.

37. June 29.—105, Ontario, Lake Erie, southwest of Long Point, obstruction reported. 106, Ontario-Michigan, Detroit River, Livingstone Channel, light to be established, gas buoy to be discontinued. 107, United States, Lake Superior, White Fish Bay, Point Iroquois light station, characteristic of light to be changed.

38. July 3.—108, Nova Scotia, Bay of Fundy, Walton harbor, buoy established. 109, Nova Scotia, southeast coast, north entrance to Canso harbor, uncharted shoal. 110, Quebec, Gulf of St. Lawrence, Magdalen Islands, Etang du Nord, hand fog horn to be moved.

39. July 8.—111, Quebec, St. Lawrence River, Lake St. Francis, entrance to Soulanges Canal, light to be established, gas buoy to be discontinued. 112, Ontario, Lake Erie, east of Point Abino, buoys placed by private parties. 113, United States, St. Clair River, gas buoy moved.

40. July 8.—114, New Brunswick, north coast, Miramichi Bay, Newcastle, chan-

nel partially closed. 115, Quebec, St. Lawrence River, between Quebec and Montreal, below Lanoraie, wreck, buoy placed temporarily.

42. July 14.—117, Nova Scotia, Bay of Fundy, Lurcher shoal, lightship to be removed from her station temporarily for repairs. 118, Nova Scotia, Bay of Fundy, Lurcher shoal lightship, radiotelegraph hours of service. 119, New Brunswick, Northumberland Strait, Kouchibouguac Bay, Kouchibouguac bar, back range light re-established.

43. July 14.—120, Ontario, Lake Ontario, Toronto, buoys placed by private parties. 121, Ontario, Lake Huron, Cape Hurd Channel, off southwest bank, character of buoy to be changed. 122, Ontario, Lake Huron, North Channel, Little Current, depth in eastern entrance of channel.

44. July 27.—123, Ontario, St. Lawrence River, above Brockville, buoy placed by private parties. 124, Ontario, Lake Ontario, Toronto harbor, western entrance, additional lights in range light-houses. 125, Ontario, Lake Superior, Lamb Island to Thunder Cape, new edition of chart.

45. July 27.—126, Nova Scotia, Bay of Fundy, Cape d'Or, light established. 127, Quebec, Lower St. Lawrence River, Cape Magdalen to Pointe des Monts, new chart issued. 128, Quebec, St. Lawrence River between Quebec and Montreal, new editions of charts.

Esquimalt Drydock Construction.—We were officially advised Aug. 8, that work on construction of the drydock in Skinner Cove, Esquimalt Harbor, B.C., had been resumed by the contractors, P. Lyall and Sons Construction Co., in accordance with the original plan. Most of the excavation inside the inner cofferdam was completed, and the building of the outer cofferdam was well under way, and was expected to be completed early in September. This will allow of the removal of a portion of the inner cofferdam, and the completion of the excavation for the main basin. The concreting in the inner portion of the main basin was commenced about the middle of August and was expected to be carried to completion without interruption. Three of the 100 ft. cribs for the landing stage had been sunk in position and the remainder were expected to be placed before the end of August, when the building of the parapet wall on the outer side of the cribs and the completion of the fill between the landing stage would be proceeded with. About 250 men are at work.

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during July, 1922:

Articles	Canadian Canal	U.S. Canal	Total
Lumber	1,552	40,924	42,476
Flour	633,533	352,000	985,533
Wheat	1,776,890	15,431,952	17,208,842
Grain, other than wheat	2,169,629	4,817,835	6,987,464
Copper	4,917	6,498	11,415
Iron Ore	49,616	8,893,043	8,942,659
Pig Iron	80	.....	80
Stone	1,383	3,250	4,633
General Merchandise	2,280	6,823	9,053
Passengers	5,198	3,417	8,615
Coal, Soft	11,515	160,850	172,365
Coal, Hard .....	.....	6,052	6,052
Iron Ore .....	.....	.....	.....
Manufactured Iron and Steel	2,248	1,831	4,079
Salt	1,667	8,679	10,346
Oil	2,381	31,998	34,379
Stone .....	.....	85,382	85,382
General Merchandise	50,351	44,685	95,036
Passengers	5,358	3,717	9,075
Summary			
Vessel Passages	557	2,462	3,019
Registered Tonnage	821,318	8,499,901	9,321,219
Freight—Eastbound	221,681	9,605,770	9,827,451
Westbound	68,162	339,477	407,639
Total Freight	289,843	9,945,247	10,235,090

Sea Sled Built in Canada.

The accompanying illustration shows a sea sled, which has been built for demonstration purposes by Canadian Vickers Ltd., Montreal:

The dimensions are, length, moulded, 38½ ft.; length overall 41 ft. 2 in.; breadth, moulded 7¾ ft.; breadth, extreme over guards, 8 ft. 1 in. Features of the hull design are the inverted "V" shaped bottom, and the straight vertical sides, with the chines curving up forward like sleigh runners. It is claimed that these give the hull great strength, stability in rough water, freedom from pounding and shipping spray, and planing ability at high speed.

There are 2 large cockpits, the forward one being particularly roomy and well appointed, the upholstery and finish being on a par with the highest class of automobile and motor boat work. The remainder of the hull is decked over, and divided by transverse bulkheads, forming, together with the engine space,

on outside of transom, and a line shaft with steering column, and wheel at helmsman's position. It is claimed that by means of this apparatus, the sea sled can be steered with the ease and efficiency of an automobile.

The deck equipment comprises running lights and searchlights, glass windshields, flagpoles and cleats and fairleads. The bottom is painted in bronze, the topsides and deck and superstructure are of polished mahogany, and this, with polished brass fittings and high class workmanship throughout, gives a very pleasing and highly finished result.

The sea sled described was taken from Montreal to Toronto in August, stopping at several places en route, and giving demonstrations. Owing, it is said, to a local pilot's error, the sled ran on a shoal, about 7 miles west of Brockville, and had to be towed back to Brockville, where new propellers were fitted. The hull was not damaged.

During the war she was attached to the Ninth Cruiser Squadron, patrolling in the neighborhood of the Canary Islands and along the West African coast to Sierra Leone. During the later stages of the war, she was attached to the Tenth Cruiser Squadron, on patrol work in the North Sea, and, in the closing period, acted as convoy for ships proceeding to and from Australia.

Two cruises will be run from New York during the forthcoming winter, by the s.s. Empress of Britain, to the West Indies, Panama, Venezuela, Nassau and Bermuda. The first trip will commence on Jan. 20 and the second on Feb. 20, the fares ranging from \$250 to \$2,500, the latter being for 2-berth cabin with bathroom, etc., en suite. The s.s. Empress of Britain, which was completely overhauled and equipped with oil burning furnaces recently, has large promenade decks, swimming pool, gymnasium, etc., and carries an orchestra.

Northern Tug and Barge Co. Ltd. has been incorporated under the British Columbia Companies Act with \$10,000 authorized capital, and office at Victoria, to own and operate ships and carry on a general navigation business.

The United Fruit Co., New York, has ordered 3 motorships, driven by electric motors, with current generated by Cammellaird - Fullagar - Diesel engines, from Cammel Laird and Co., Birkenhead, Eng. The ships will be classified by the British Corporation.

The icebreaking steamship J. D. Hazen, built for service in the St. Lawrence River, sold to the Russian Imperial Government in the early stages of the war, for White Sea service, and repurchased by the Dominion Government, as mentioned in our last issue, was acquired from the French Government, through the Anderson Co. of Canada, and arrived at Quebec, Que., Aug. 6, from Cherbourg, France, under command of Capt. Jno. Hearn. Before being taken over by the Dominion Government, she was thoroughly examined and overhauled, and classed 100 A1 at Lloyd's. She left Quebec, Aug. 17, for Sorel, where she is to be berthed until required for service in the ice in the St. Lawrence River. So far, as is known at present, no repairs are necessary, with the exception of small running repairs and a few minor alterations, which will be done by the Marine Department's employees. Her headquarters will be at Quebec.

Newfoundland-West Indies Service.—The Newfoundland Government received tenders to August 21, for supplying two steamships for operation between St. John's and the West Indies. Under the proposed service, a steamship will leave St. John's every three weeks, calling at Havana, Jamaica, Porto Rico, Martinique, Barbados, Trinidad and other islands in the West Indies, making one call each trip at these ports. The service is intended to be continuous throughout the year, and the contract is to be for five years. It is proposed to commence the service in October or November, with one steamship, and to place the second steamship in operation about Oct. 1923. The steamships for the service must be classed X 100 A1 at Lloyd's, and have a speed of at least 12 knots an hour, and a d.w. capacity of about 2,000 tons. They must be equipped with all modern improvements, and have accommodation for 20 first class passengers. Tenders were to state the rate per round trip for the performance of the service, which is also to include carrying mails.



Sea Sled, built by Canadian Vickers, Ltd., Montreal.

separate watertight compartments, thereby adding considerably to safety in case of damage. The hull construction is entirely in wood. The framework, including the keel and chines, are mostly of white oak, specially designed for lightness and strength combined. The planking of the bottom, sides and deck is mahogany, with a double inner skin, on the bottom, of cedar, worked diagonally. The fastenings are brass screws to the framing, and copper rivets in the fore and aft seamstraps, there being about 36 fastenings per sq. ft. of surface.

The propelling machinery consists of two 6-cylinder model G.R.S. Stirling marine motors, fitted with electric starting system, and fuel tank air pressure pump. The propeller shafts are of Tobin bronze 2½ in. in. dia. and run out through a heavy shaft log built into the transom at stern, with specially designed heavy bronze bearing and stuffing box on inside and force feed lubrication to all bearings. The two propellers are of manganese bronze 32 in. dia. of special pattern, in accordance with the Sea Sled Co's surface propeller system of propulsion, in which there are no outboard fittings of any description on the boat's bottom, and only half the propeller blades are immersed. The principal advantages of this system are claimed to be freedom from fouling; shallow draft; shaft protected and lubricated; freedom from cavitation; greater mechanical efficiency than in any other speed boat design.

The steering gear is of special design, and consists of bronze rudder plates, one on each side of the drawn-in stern, controlled by rack and pinion gear, fitted

Canadian Pacific Railway Ocean Steamship Services.

The s.s. Empress of Canada, which completed her first trans-Pacific voyage recently averaged 19.75 knots, the engines developing 21,000 h.p. She beat previous records on the eastbound trip by 8½ hours. She is the largest steamship on the Pacific Ocean, and on this trip, exceeded her contract speed and completed her voyage, without a hitch.

The s.s. Montclare, a sister ship of the Montrose and Montcalm, sailed from Liverpool, England, Aug. 18, for Montreal, on her maiden trip. During the winter she will sail into St. John, N.B. She is about 16,400 tons, and has accommodation for 500 cabin and 1,250 third class passengers. Her dimensions are: Length, 566 ft.; breadth, 70 ft.; depth, 51 ft.

The motion picture programmes which were adopted on the company's trans-Atlantic steamships last year, having proved popular, it has been decided to extend the service to all the passenger steamships on the Atlantic and Pacific Oceans. The films are of an educational nature, depicting Canadian scenery and industry, and are of Canadian manufacture throughout. They are supplied by the company's Colonization and Development Department.

The s.s. Victorian arrived at Montreal, during August, her first appearance in the St. Lawrence this year, following the completion of her charter to the British Government, for the transport of British civil servants to and from India.

United States Merchant Marine Affairs.

The U.S. Shipping Board Emergency Fleet Corporation, has appointed T. V. O'Connor, J. B. Smull, E. P. Farley and J. E. Sheedy, to make a survey of the Board's tonnage, particularly the part of the fleet which is laid up, and to recommend what repairs and reconditioning should be undertaken.

At a recent auction of 102 triple expansion vertical type marine engines, ranging from 500 to 2,800 h.p., located at various points in the U.S., \$155,850 was realized. Among the purchasers was David Dick, President, National Sand and Material Co., Welland, Ont., which company has just had a ship of a special type built by Collingwood Shipbuilding Co., Collingwood, Ont.

The U.S. Shipping Board announced during July that 40 of its ships of approximately 300,000 tons, had been chartered to carry coal from Wales and the English east coast. It was stated that if carrying coal westward appeared likely to delay sailings on the regular lines, some of the reserve ships would be utilized, but no additional ships were required for July, as the board stated that the situation had been helped out by the fixing of 31 British steamships to carry approximately 200,000 tons.

A. D. Lasker, Chairman, U.S. Shipping Board, has announced the following changes in the Emergency Fleet Corporation: Col. J. W. McIntosh, formerly Chief of Subsistence, U.S. Army, Chicago, Ill., appointed Vice President in charge of finance, vice H.S. Kimball, New York, resigned to become Fiscal Agent of the corporation; S. Henry, formerly Vice President, Baltimore Dry Docks and Shipbuilding Co., Baltimore, Md., appointed Vice President in charge of sales, vice E. P. Farley, resigned to re-enter private business; J. B. Smull, formerly Vice President in charge of charters and allocations, appointed President; W. J. Love, formerly Vice President in charge of traffic, appointed Vice President and General Manager. A. F. Mack, District Manager, New York District, has severed his connection with the corporation.

The total expenses incurred by the U.S. Shipping Board in excess of income for June, from ship operations, including overhead, repairs, insurance and layup expenses, were \$2,783,216.29. The corresponding excess of expenses over income for May was \$2,660,486.81. In June, 198 total voyages were completed, and in May, 205. The net excess of outlay over income on voyage operations for May, excluding overhead, repairs and insurance, was \$376,445.84. In June, for the first time, income exceeded outlay, to the extent of \$204,531.75. This was partly due to an increase in passenger revenue, in which there was an excess of income over outlay, excluding overhead, repairs and insurance, of \$354,630.78, an improvement of \$137,261.65 over May. There was an improvement in the option of cargo ships, in June. The excess of outlay over income in May was \$863,320.17, against \$317,816.78 in June. Tanker voyages decreased from 40 in May, to 22 in June. The excess of income over outlay on these voyages for June, was \$153,310.74, a decrease of \$114,234.67 from May. Charter hire receipts for May were \$79,829.27, against \$70,634.99 in June. The outlay for repairs in May was \$1,019,232.65, and in June \$1,461,016.71. Insurance premiums were, May \$329,839.88; June \$418,873.40. Layup expenses, May \$365,452.51; June

\$365,572.61. Salaries and wages, May \$477,209; June \$471,396.80. General expenses, May \$172,136.20; June \$282,523.51.

The U.S. Shipping Board is putting into effect a new freight bill of lading covering shipments on its ships. It is stated that there are a number of general clauses, which, it is believed, should be common to all bills of lading, and that in most services, the new bill can be used, with the addition of a few special clauses necessary in the particular trade, or route. The valuation per package has been increased from \$100 to \$250, and claims may be filed within six months after written notice has been given to the carrier. All references to theft and pilferage have been omitted. It consists of 11 short sections, in addition to the general exception clause, and the provisions for payment of general average. The subrogation clauses, by which a carrier became entitled to insurance placed on the goods by the shipper, have been eliminated. Bills of lading have, of late, become so complicated and lengthy that neither shipper nor carrier could be sure of his rights until after a lawsuit.

The Merchant Marine Bill 192, which, among other things, proposed to provide a number of aids to shipping, in the form of subsidies for U.S. ships operated in the foreign trade, and restrictions against foreign ships engaged in trade with the U.S., will not, according to a Washington, D.C., press dispatch of Aug. 19, be proceeded with during the present session of congress. It is stated that a conference which Republican leaders have had with President Harding, has resulted in the abandonment of the measure, so far as the subsidies are concerned, for the present, as the political issues are already so many, that it is thought they should not be further complicated by the injection of a controversy over the policy of ship subsidies. The main subsidies were to be granted ships of 1,500 tons gross and upward, classified according to speed from 13 knots upward and were to range from 2-10 of 1c upward, to 2-1-10c for over 23 knots, for each 100 nautical miles travelled. It has been estimated that on the present basis, the annual subsidy would amount to \$50,000,000. Fuller details of the bill's provisions have been given in previous issues.

The U.S. Shipping Board has chartered 65 of its ships for transportation of coal from Wales and the east coast of England to U.S. ports.

At the time of writing (Aug. 19), no decision had been reached on the American Steamship Owners Association's request that government ships be withdrawn from intercoastal and coastwise service. It was agreed that a questionnaire be sent to each of the privately owned lines in the intercoastal trade, requesting information as to the number of ships operated, tonnage carried east and west, and whether they will guarantee to maintain regular schedules, and visit ports designated by the U.S. Shipping Board, if government ships are withdrawn. The only government operated line affected by this, would be the North Atlantic and Western Steamship Co., known as the Nawsco Line, operating 4 ships from Portland, Me., to Puget Sound and intermediate ports, and the only line serving Portland in this trade, between U.S. ports on the Atlantic and Pacific Oceans, via the Panama Canal.

Montreal Harbor Improvements.

The Montreal Harbor Commissioners have announced their plans for further harbor improvements, involving an estimated expenditure of \$4,500,000, which have been approved by the Marine Department, following an inspection of the harbor, by Hon. E. Lapointe, Minister of Marine. The plans cover the erection of an additional grain elevator, with an initial capacity of 2,000,000 bush., with the intention of increasing the capacity, ultimately, to 8,000,000 bush., at an approximate cost of \$2,347,000 for the first unit to be built; preparations for plans, etc., for a new bridge to be built across the harbor, \$50,000; extension of the high level quay walls, between sections 25 and 35, \$475,000; extension of wharfage by 500 ft., \$250,000; extension of Jacques Cartier pier, \$200,000; extension of Alexandra pier, \$400,000; extension of King Edward pier, \$450,000; improvement of channel approach to Bickerdike pier, \$97,849.65; and paving and extension of the harbor railway terminals to the new wharf levels east of section 25, \$50,000. These amounts will be provided out of the recent Government loan of \$5,000,000.

It is expected that work on the various projects will be commenced immediately, and the first unit of the grain elevator is expected to be ready for operation by the autumn of 1923. In connection with this unit, conveyor galleries will be provided to serve 7 berths, 4 on the Tarte pier, 2 on the upper bulkhead wharf, and 1 on the lower bulkhead wharf. The elevator will be able to take grain from lake ships by travelling marine legs, at the rate of 40,000 bush. an hour, and at the same time will unload 48,000 bush. from railway cars, these being emptied by car dumpers, 4 at a time. Grain will be shipped to ocean steamships at the rate of 90,000 bush. an hour, to seven berths, each of which will be provided with two conveyor belts. The construction of the proposed bridge across the harbor may be commenced as soon as the engineers have completed tests and designs, the preliminary work being done by the commissioners' own staff. It is stated that the commissioners expect to secure from the Government about \$10,000,000 for the construction of the bridge, which will connect with the south shore, by way of St. Helens Island, and that the bridge will carry two electric railway lines, to be operated as part of the commissioners' terminal and radial lines, two street railway lines, two roadways and sidewalks. The extensions to the Jacques Cartier, Alexandra and King Edward piers, will add 300 ft. to their present length of 1,000 ft., and provide suitable accommodation for the larger type of ships now coming to the port. The present sheds will also be extended to cover the additions. The wharfage of 1,687 ft., between sec. 25 and 35, is to be brought up to high level for the accommodation of ocean steamships, the remainder remaining at low level for the use of river steamships.

Newfoundland Iron Ore Shipments. It is reported that approximately 750,000 tons of ore will be shipped to Rotterdam, Germany, from Wabana, Bell Island, Nfld., for transshipment by canals to German manufacturing centers. Twelve steamships a month are to sail for Rotterdam between August and December, with ore. Since 1914, overseas shipment of iron ore from Wabana has been practically nothing.

Mainly About Marine People.

John Allsop, formerly General Agent, for Canada, Royal Mail Steam Packet Co., Halifax, N.S., who left for England in June, to take up new duties, in the company's head office in London, has we are officially advised, been appointed an Assistant Manager of the company with office at Atlantic House, Moorgate, London.

Sir Aubrey Brocklebank, head of the Brocklebank Line, and a director of the Cunard Steamship Co., has been elected a director of the Suez Canal Co., vice the late Sir Thomas Sutherland.

Hon. Jacques Bureau, Minister of Customs & Excise, is acting as Minister of Marine and Fisheries, during Hon. E. Lapointe's absence in Europe, attending the Genoa conference.

K. J. Burns, formerly General Agent, Great Northern Ry., Vancouver, B.C., and latterly Manager, Canadian Robert Dollar Co., is reported to have been appointed Managing Director of the latter company, vice A. Melville Dollar resigned.

A. Melville Dollar is reported to have resigned as Managing Director, Canadian Robert Dollar Steamship Co., and also as Treasurer, Pacific Steamship Co.

Sir Thomas Fisher, General Manager, Canadian Pacific Steamships, Ltd., London, England, lectured under the auspices of the British Legion, at Albert Hall, Portsmouth, Eng., recently, on Canada. Lantern pictures illustrating a journey through the Dominion were shown.

F. W. Fowler, Assistant Dock Superintendent, C.P.R., Quebec, was married there recently, and sailed for England on the s.s. Empress of France, Aug. 8, when he was presented with a silver tea set, by his staff.

F.G. Frieser, at one time Export Freight Agent, C.P.R., Montreal, and later Export Freight Agent, C.P.R., and General Agent, Freight Department, Canadian Pacific Ocean Services, New York, has been appointed Special Assistant to Traffic Manager, U.S. Shipping Board Emergency Fleet Corporation, with supervision of homeward rates and traffic. Since leaving C.P.R. service, he has been in charge of the Emergency Fleet Corporation's European Division at New York.

Hugh D. Gillis, of Port Hawkesbury, N.S., heretofore engineer s.s. Chignecto, has been appointed, by the Civil Service Commission, as Inspector of Dredges, Public Works Department, for the Maritime Provinces, at an initial salary of \$1,800 a year. Full particulars of his duties were given in Canadian Railway and Marine World for July pg. 381.

J. H. G. Hagarty, a former director of the St. Lawrence and Chicago Steam Navigation Co., now one of the constituent companies of Canada Steamship Lines Ltd., died at Toronto, July 26, aged 76. He was a son of the late Chief Justice Sir John Hagarty, and lived in Toronto, where he was born, nearly all his life. He was a member of the Royal Canadian Yacht Club from its inception, and for several years had been a life member.

E. Hawken, Assistant Deputy Minister of Marine and Frank Macdonell, Chairman of the Board of Steamship Inspection, Ottawa, who went to Europe in March, in connection with the purchase of the icebreaking steamship J.D. Hazen, by the Marine Department, returned to Ottawa, Aug. 4.

James H. Holley who has been appointed Travelling Passenger Agent, Ocean Traffic, C.P.R., Winnipeg, was born at Holyoke, Mass., March 17, 1894, and entered transportation service in Nov. 1907, since when he has been to March 1912, junior clerk, report clerk, sleeping car clerk and ticket clerk, station ticket office, C.P.R., Winnipeg; March 1912 to Feb. 1916, Assistant City Passenger Agent, Grand Trunk Pacific Ry., Winnipeg; Feb. 1916 to April 1919, overseas as pilot, R.N.A.S., and from April 1919 to July, 1922, in T. Eaton Co's service, in Winnipeg.

Alex. Johnston, Deputy Minister of Marine, spent a few weeks holiday, during August, visiting relatives in Nova Scotia.

H. E. Kane, formerly Port Agent, Canadian Government Merchant Marine, St. John, N.B., was presented with a set of military hair brushes by the staff recently, on leaving to take up his new duties with Nagle and Wigmore.

Richard Knox, heretofore acting Superintendent Engineer, Canadian National Rys., and Grand Trunk Pacific Coast Steamship Co's coastal steamship services, Vancouver, B.C., has been appointed Superintendent Engineer, vice A. L. Brownlie, resigned.

Dr. W. L. McDougald, President, Montreal Harbor Commissioners, entertained Prime Minister W. L. M. King; Hon. E. Lapointe, Minister of Marine and Fisheries, and M. P. Fennell, Jr., General Manager and Secretary, Montreal Harbor Commissioners, at his camp at Lake Osgood, N.Y., recently.

H. N. McMaster, heretofore Superintendent, Montreal Transportation Co., and Canada Steamship Lines, who resigned recently, has opened a syndicated marine service office in Montreal, as appraiser, arbitrator, consulting master mariner, insurance and ship broker and marine surveyor.

C. H. Neroutsos, son of Capt. C. D. Neroutsos, Marine Superintendent, British Columbia Coast Service, Victoria, B.C., has been awarded one of the C.P.R. scholarships in connection with the recent June matriculation examinations, entitling him to four years tuition in the Faculty of Applied Science, McGill University, Montreal.

Capt. John Ross, who handled the steamboat Maid of the Mist, below the Niagara Falls, for 33 years, died at Niagara Falls, N.Y., Aug. 5, aged 73.

P. D. Sutherland, General Passenger Agent, Ocean Traffic, C.P.R., Hong Kong, China, who visited Montreal, during July, returned to Hong Kong, July 27, from Vancouver, on the C.P.R. s.s. Empress of Australia's first trip to the Orient.

British Columbia Pilotage.—The B.C. Pilotage Association is reported to have decided to amalgamate with Vancouver Pilots Ltd., the new service to be under the management of a committee of seven, one from each of the Victoria, Vancouver and Nanaimo Boards of Trade, who shall be owner, manager or agent of an ocean steamship line, three pilots, one of whom shall be from Vancouver Pilots Ltd, and two from the B.C. Pilotage Association, the seventh member to be the President of the Canadian Merchant Service Guild, providing he is not a pilot, in which case, the Vice President shall act. The committee will be known as the Pilotage Management Board. It is expected that the formal amalgamation will be effective Oct. 1.

Steamship Rapids Prince Aground in Lachine Rapids.

Canada Steamship Lines s.s. Rapids Prince, bound from Prescott to Montreal, went ashore, off Heron Island, below the Lachine Rapids, July 30, through the breaking of a rudder chain. Immediate attempts to reach the ship from the shore, with two motor boats, were abandoned, on account of the strong current, and the 400 passengers remained aboard for the night. The ship was well equipped, and everything possible was done for their comfort. On the following morning the transfer of passengers to the shore was commenced, and all of them were landed safely between 10 a.m. and 5 p.m., exceptional service being rendered by H. Guerin, Mayor of La Tortue, who steered the lifeboat 10 times, through the heavy current, between Heron Island, where the passengers were landed, and La Tortue, where automobiles were provided by the company, to convey them to Montreal. Only one accident occurred in the course of landing the passengers. One of the stewards, in returning to the ship, fell from the lifeboat and was drowned. The conduct of the officers and crew in a very trying situation, was highly spoken of. A contract for salvaging the ship was let to the Donnelly Salvage and Wrecking Co., Kingston, and preparations were immediately made for carrying out the work, which is admitted to be one of considerable difficulty. It is stated that a hauling engine will be placed on a small island about 1,800 ft. farther up the river, and a cable laid from the engine to the stern of the ship, and she will be hauled round, until she turns straight, heading down stream. She will then be hauled straight across a whirlpool into the channel.

Atlantic and Pacific Oceans.

Manchester Liners' s.s. Manchester Corporation arrived at Quebec, Aug. 10, with a large hole in her bows, through having struck an iceberg in Belle Isle Strait. She was drydocked at Lauzon.

The White Star Line s.s. Megantic will make three cruises this winter to the West Indies and Panama Canal region, the first being Jan. 15, the second Feb. 17, and the third March 22, all from New York, and taking 28 days each.

The White Star Line s.s. Doric, 16,600 tons, for the St. Lawrence route, was launched at Belfast, Ireland, Aug. 9. She is a sister ship of the s.s. Regina, already on the route, and it is expected that she will be placed in the Montreal service next spring.

The Royal Mail Steam Packet Co. is operating a fast freight service between British Columbia points, the U.S. west coast, and Great Britain, via the Panama Canal. The service is given by both steam and motor ships, each steamship having accommodation for 12 first class passengers. No other class of passenger is carried.

The Hudson's Bay Co's s.s. Baychimo, which sailed from Montreal, recently, on her annual trip to Hudson Bay ports, is reported to have gone ashore near the Gulf of Objutorka, early in July. It is stated that she was refloated after a portion of her cargo had been jettisoned. She sustained some bottom damage, but not so much as to prevent her from continuing her voyage.

The Thomson Line, through its agents, Robert Reford Co., announces the re-

sumption of its service between Montreal and Mediterranean ports, originally established in the 60's and interrupted during the war. The s.s. Nordkyn will load in the Mediterranean, calling at Italian ports, Smyrna and Patras, for Montreal, during the latter part of September and October.

The Donaldson Line s.s. Orthia, which was held responsible, by the Dominion Wreck Commissioner, for the recent collision with the s.s. Airedale, near White Island, St. Lawrence River, was sold, during August, as she lay, in a wrecked condition, at Quebec, Que., to the Quebec Iron and Metal Co., Quebec, for breaking up. She was built at Sunderland, England, in 1896, and was screw driven by engine of 400 h.p., classed 100 A1 at Lloyd's, and had the following dimensions,—length b.p. 377 ft., breadth 46.6 ft., depth 6.9 ft., tonnage 4,225 gross, 2,694 net.

The Canadian-Australian Line's s.s. Waitemata, was towed into Victoria, towards the end of July, by the steam tug, Tyee, 31 members of the crew having deserted at Anacortes, Wash., when a sympathetic strike had been declared by the firemen, following a strike of longshoremen, who declined to work what they termed unfair cargo. On the arrival of the ship at Victoria, there was only one deck hand on board, in addition to the ship's officers. The deserters were detained at Anacortes by the U.S. immigration authorities, and deported to Canada, where they reshipped on the Waitemata after signing articles afresh.

The French s.s. Indo-Chine and the Danish s.s. Sarmatia collided Aug. 11, in the St. Lawrence River, near Three Rivers, both ships grounding on a sandbank near by. It is stated that the collision was due to heavy smoke along the river. After uncoaling both ships, steam was got up and high tide awaited, and the s.s. Sarmatia cleared herself during the evening of the same day, and proceeded to Quebec, without aid, though she had a large hole in her port side. The s.s. Indo-Chine had more difficulty in extricating herself, but she was assisted by the wash from the s.s. Megantic, which passed at a good rate of speed, and she afterwards proceeded to Montreal, without apparent damage.

Maritime Provinces and Newfoundland.

The Dominion Public Works Department received tenders, Aug. 29, for building a pile wharf at Canso, N.S.

The Dominion Public Works Department has received tenders for the extension of, and repairs to the breakwater at Friars Head, and for the rebuilding of a cribwork head to the public wharf, at Port Hood, N.S.

The lightship maintained on Lurcher shoal, off Yarmouth, N.S., will be removed from her station about Sept. 15, to undergo repairs, during which, her station will be marked with a gas buoy, painted red, and showing an occulting white light. She will be off her station about a month.

The steam yacht Pawnee, which has been operated by Colony Steamship Co., in the Conception Bay service, between Carbonear and Portugal Cove, calling at Harbor Grace and Bell Island, is reported to have been sold to the Bell Island Steamship Co., for \$15,000, and it is said that she is to be continued in the same service, in conjunction with other of the latter company's ships. She was

at one time owned by G. Dexter, Boston, Mass., and later by F. J. Reed, who offered her to the Newfoundland Government for mail carrying purposes. During the war she acted as a patrol boat in the neighborhood of Cape Cod. Her dimensions are,—length 115 ft., breadth 15 ft., depth 8 ft. She is equipped with triple expansion engine of 400 h.p., for a speed of 15 knots an hour.

Province of Quebec.

The name of the s.s. Yioco, owned by Magog & Newport Steam Navigation Co. Montreal, has been changed to MOUNTAIN MAID.

The French steam trawler Andre Pierre ran ashore on Miquelon Island, Aug. 9, and became a total loss. Her crew was saved.

The Dominion Public Works Department received tenders Aug. 23, for the construction of a wharf at La Malbaie (St. Etienne de Malbaie).

Quebec harbor improvements are reported to be well under way. The dredging at the mouth of the St. Charles River was commenced early in July, and is being proceeded with. The facing of the old breakwater pier, in line with shed 18, and the south end of Pointe a Carcy Wharf, at the end of shed 17, is being renewed, and a concrete floor is being laid in shed 17, replacing a wooden one.

Dr. W. L. McDougald, President, Montreal Harbor Commissioners, was host to about 175 representatives of the dairy industry from Glengarry, Stormont and Dundas Counties, Ont., Aug. 15, on a visit of inspection to the cold storage plant at the port. The party were taken round the harbor on the s.s. Sir Hugh Allan and inspected the coal wharves, grain elevators, and especially the cold storage plant with which their business is chiefly concerned.

Differences between shipowners and their employees, members of the Ship-liners' Union, at Montreal, which have been under discussion since the early part of the navigation season, are reported to have been settled, the employees agreeing to accept the reduction in wages made in April. This new rate is 50c an hour for day work, and 60c for night work, or 5c less than the amount recommended by a conciliation board, appointed to enquire into the matter at the men's request.

An action is reported to have entered at Quebec, Que., against Canada Steamship Lines Ltd., by Municipal Debentures Co., claiming \$101,000 damages, for alleged breach of agreement. It is claimed that some time ago the plaintiff was given the handling of an issue of bonds for Canada Steamship Lines, and was given to understand that it would handle future issues. Early this year, Canada Steamship Lines sold \$6,000,000 of bonds, which plaintiff claims were not handled by it, contrary to agreement.

The Montreal Harbor Commissioners have issued a notice to masters, pilots and other persons in charge of ships arriving at Montreal on any Saturday, to arrange their arrival so as not to enter the harbor above Longue Pointe between 10 a.m. and noon, local time, and notifying them that any infringement of this rule will be considered a violation of the harbor bylaws. It was stated that latterly the sailing of large passenger steamships has been interfered with by the arrival of coal carrying steamships at the time set for their departure, and accidents have been narrowly averted.

The Gaspé Cotier Co's s.s. Brumath sank at Port Daniel, Chaleur Bay, Aug. 1, after a fire on board. She was operated between Montreal and Paspébiac, and sailed from Montreal with a full cargo, July 24. She was built in 1920, by National Shipbuilding Corporation, Three Rivers, Que., under a contract, for the French Government, and was bought by the present owner about a year ago, for Gaspé coast service. She is screw driven by engine of 48 h.p., and her dimensions are,—length 195.5 ft., breadth 40.1 ft., depth 15.3 ft., tonnage 1,141 gross, 662 net.

Ontario and the Great Lakes.

A. B. McLean and Sons are reported to have made arrangements for the building, by day labor, of a dock for unloading sand and gravel, at a cost of about \$60,000, at Sault Ste. Marie, Ont.

A strike of freight handlers at Port Arthur, Ont., Aug. 21, caused some inconvenience in loading and unloading ships the men demanding an increase of 5c an hour, from 35 and 37c to 40 and 42c.

The Dominion Public Works Department received tenders, Aug. 29, for rebuilding of 200 lin. ft. at the easterly end of the south section of the temporary pile protection breakwater in the main harbor north, at Port Arthur.

The George Hall Coal Co's s.s. Senator Derbyshire ran aground at Goose Neck Island in the St. Lawrence River, near Ogdensburg, N.Y., Aug. 15. She was not considered in any danger, and a wrecking crew was dispatched from Kingston to release her.

Sault Ste. Marie city council, has been considering steps to be taken to prevent ships from discharging water ballast above the locks and contaminating the city's water supply. The matter is being further dealt with by the city's board of health.

The Minister of Public Works is reported to have stated to L. O. Clifford, M.P. for South Ontario, at Oshawa, Aug. 13, that among the first new works to be undertaken by his department will be harbor accommodation at Oshawa for Great Lakes ships, at an estimated cost of \$500,000.

Charges have been entered in the U.S. District Court, at Detroit, Mich., against 2 U.S. steamships for dumping ashes in Neebish Channel, against 2 for passing a steamship and barge between Big Point and Brush Point, and against 1 for passing up through Neebish Channel, a violation of the rules governing navigation on the St. Marys River.

A Kingston press dispatch of Aug. 22 said it was rumored that J. E. Russell, of Toronto, salvaging, towing and lightering contractor, etc., might take over the Montreal Transportation Co's plant there. We are advised that Mr. Russell is not contemplating doing so. The plant referred to comprises wharves and elevator.

The s.s. Glenclova, which was built for Great Lakes Transportation Co. and operated subsequently by Glen Transportation Co., has been re-transferred to the Great Lakes Transportation Co., which company has also the Canadian Government Merchant Marine steamships J. A. McKee and Thomas J. Drummond under charter.

The Northern Navigation Co., on account of the retirement of Capt. A. M. Wright, as master of the s.s. Noronic, has made the following changes,—Capt.

H. J. Aikins transferred from s.s. Hamonic to s.s. Noronic; Capt. W. Montgomery transferred from s.s. Huronic to s.s. Hamonic; Capt. F. G. Moles, transferred from s.s. Rapids King to s.s. Huronic.

The U.S. Lake Survey reports the stages of the Great Lakes in feet above mean sea level, for July, as follows,—Superior 602.49; Michigan and Huron 580.67; St. Clair 575.42; Erie, 572.76; Ontario 246.92. Compared with the average July stages for the past 10 years, Superior was 0.14 ft. below; Michigan and Huron 0.35 ft. below; Erie 0.20 ft. below, and Ontario 0.04 ft. above.

The Kirkwood Line commenced a freight steamship service between Quebec, Three Rivers, Montreal and Toronto, during August, with the s.s. Greypoint, bought recently in Europe. The Grey-point is a steel steamship, built in Sweden 1,100 d.w. tons. She was operated during the war, between British and Continental ports, in the North Sea. She arrived in Canada recently from Belfast, Ireland, and loaded sugar at St. John, N.B., for Toronto. She sailed from Toronto, Aug. 16, with cargo for St. Lawrence ports.

Imperial Oil s.s. Talaralite, which was ordered from the Pacific coast, where she had been operated for some time, to the Great Lakes, for the company's service, arrived at Montreal recently, considerably damaged in the bows by contact with ice. She passed through a heavy four days storm off Cape Hatteras, and later had five days in the ice at the mouth of the St. Lawrence River. Her top hamper was swept away at Cape Hatteras, and 22 forward plates were damaged in the ice.

W. Smith, Port Huron, Mich., is proceeding against the Port Huron and Sarnia Ferry Co., for \$2,500 for damage sustained following the boiler explosion on the ferry steamboat Omar D. Conger, March 26, when a portion of the boiler landed on the top of his house and crashed through to the cellar. The company claims that it was a marine accident, and under the U.S. marine law, persons sustaining damages through a marine accident, can only claim against the ship, and not against the owners.

A number of men engaged on steam shovel work on Welland Ship Canal contracts, struck work, Aug. 14, on the question of being paid by the month, instead of by the hour as hitherto. The men claimed that they lose a lot of time through wet weather, and that that time could be usefully employed in cleaning machinery, etc. Several of the sub-contractors agreed to the monthly rate, and a number of the men resumed work the same day, it was reported as likely that the other sub-contractors would eventually fall in line.

It was announced Aug. 14, that dredging would commence shortly in the lower approach to the Sault Ste. Marie ship canal, where a shoal had formed in the center of the channel as a result of the waste carried through from the power canal. Though no trouble has, as yet, arisen from this shoal, it is considered advisable that it be removed before any trouble develops. A depth of 18 ft. was shown over the shoal recently. The depth of the shoal is given as about 2 ft., and it is stated that the channel is about 200 ft. wide, whereas it should be 360 ft.

The s.s. T. P. Phelan, owned formerly by Canada Steamship Lines Ltd., and the s.s. Jed owned formerly by J. F. Sowards, Kingston, which were wrecked

some time ago, and both of which were abandoned to the underwriters as constructive total losses, have been sold as they lie, the former at Toronto, and the latter at Kingston, by R. Parry Jones, representing the underwriters, through Capt. J. B. Foote, of the Toronto Insurance and Vessel Agency, to E. A. Woodward, grain dealer, Winnipeg, and associates. They will be taken to Fort William, where they will be overhauled and fitted for use in grain transfer in the harbor.

British Columbia and Pacific Coast.

Grain shipments through Vancouver, during this season, will, it is expected, at least equal those of 1921. Enquiries from Chinese and Japanese buyers are already numerous.

The Canadian Naval College at Esquimalt which closed on the completion of the term in June, will, it is reported, not be reopened in the autumn, and it is said to be the Dominion Government's intention to close the college indefinitely.

The C.P.R. s.s. Princess Beatrice resumed her service between Vancouver and Prince Rupert, Aug. 16, after having her tail shaft repaired by Yarrows Ltd., Esquimalt. The damage was done during her trip to the north, while near Swanson Bay.

The Norwegian s.s. Bjornstjerne Bjornson, which loaded lumber at Victoria recently, is said to be the largest steel steamship to take cargo in the inner harbor. She is 410 ft. long, and has capacity for about 5,000,000 ft. b.m. About half of her cargo was taken at Victoria, the balance being received at Vancouver, Nanoose and Genoa Bay. She was consigned to New York, and was expected to reach there, via the Panama Canal in 35 days.

The Dominion Government docks at Ogden Point, Victoria, which were built at a cost of about \$2,500,000, were opened for general shipping business, Aug. 1. James McArthur is in charge as Superintendent. A portion of the dock property has been used for some time by the Admiral Line's steamships on the outward trips, between Seattle, Victoria, and the Orient, and some Blue Funnel Line's ships have also made calls there taking outward freight.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities—Canadian Counsel, W. D. Lighthall, K.C., Montreal.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—D. N. Gill, Comptroller, Ottawa Electric Ry., Ottawa, Ont.

Canadian Freight Association (Eastern lines)—G. C. Ransom, Chairman, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western lines)—F. W. Thompson, acting Chairman, 805 Boyd Block, Winnipeg.

Canadian Passenger Association—Eastern Lines, G. H. Webster, 54 Beaver Hall Hill, Montreal; Western Lines, E. J. Stone, 306 Union Station, Winnipeg.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club—W. A. Booth, 53 Rushbrooke St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Canadian Traffic League—R. J. Fitzgerald, 93 Wright Ave., Toronto.

Dominion Marine Association—F. King, K.C., Counsel, Kingston, Ont.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, Des Moines, Iowa.

Niagara Frontier Summer Rate Committee—James Morrison, Canadian National Ry., Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, General Secretary, 263 St. James Street, Montreal;

Western Operating Committee, E. J. Stone, 306 Union Station, Winnipeg.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.

Transportation Club of Toronto—W. J. Hotrum, 595 Runnymede Road, Toronto.

Transportation Club of Vancouver—C. A. Dorfler, 450 Hastings St. West, Vancouver, B.C.

Winnipeg Traffic Club—A. J. Barber, 114 Dominion Bldg., Winnipeg, Man.

Transportation Conventions in 1922.

Sept. 12 to 15.—Traveling Engineers Association, Chicago, Ill.; W. O. Thompson, 1177 East 98th St., Cleveland Ohio.

Sept. 19 to 21.—Roadmasters and Maintenance of Way Association, Cleveland, Ohio; P. J. McAndrews, Chicago and Northwestern Ry., Chicago, Ill.

Sept. 20 to 22.—American Railway Association, Telegraph and Telephone Section, Colorado Springs, Col.; W. A. Fairbanks, 75 Church St., New York.

Oct. 2 to 6.—American Electric Railway Association, Chicago, Ill.; J. W. Welsh, 8 West 40th St., New York.

Oct. 10, 11.—American Association of Passenger Traffic Officers, Louisville, Ky.; W. C. Hope, Central Rd. of New Jersey, 143 Liberty St., New York.

Oct. 17 to 19.—American Railway Bridge and Building Association, Cincinnati, Ohio; C. A. Lichty, 219 North Waller Ave., Chicago, Ill.

Oct. 17 to 20.—American Association of Dining Car Superintendents, San Francisco, Cal.; L. A. Stone, Chicago and Eastern Illinois Ry., Chicago, Ill.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertisin contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Canadian Gold Car Heating & Lighting Co., G. E. A. Letourneau, Manager, died suddenly, at his home in Montreal, Aug. 5.

Standard Underground Cable Co. of Canada, is reported to have received an order from Ottawa Hydro Electric Commission for 23,000 ft. high tension cable, and 16,000 ft. low tension cable, for \$54,500.

International Waterways Navigation Ltd. has been incorporated under the Dominion Companies Act, with \$72,000 authorized capital, and office at Montreal, to build, own and operate ships, and carry on a general transportation, towing, dredging, wrecking, and salvaging business. The incorporators are,—K. Morton, J. B. Walker, J. Pow, F. W. McHattie, and V. Sutcliffe, Montreal.

H.M.C.S. Niobe, which was sold recently by the Dominion Government to a U.S. firm for breaking up, was seized at Halifax by an Admiralty Court marshal on claims from Halifax firms amounting to approximately to \$4,000.

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under
Positions wanted and Positions Vacant, 3c. per word.
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Allow five words where replies are to be sent to a box number. Minimum order—\$1.
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TENDER FOR TIES.

Sealed Tenders addressed to the undersigned and endorsed "Tender for Ties" will be received at the office of the General Tie Agent, Room 231, New Union Station, Toronto, until twelve o'clock noon, Saturday 16th day of September, 1922, for 7,500,000 railway ties to be manufactured from timber cut between October 1st, 1922 and May 1st, 1923 and delivered between December 1st, 1922 and September 30th, 1923, F.O.B. cars Canadian National Lines, in accordance with Tie Specification No. 3856, dated March 18th, 1919.

1,500,000 to be delivered on Canadian National Lines South of the St. Lawrence River.

1,500,000 to be delivered on Canadian National Lines North of the St. Lawrence River, and East of Armstrong and Port Arthur.

2,300,000 to be delivered on Canadian National Lines in Ontario, Manitoba, Saskatchewan and Alberta, West of Armstrong and Port Arthur.

2,100,000 to be delivered on Canadian National Lines in British Columbia.

100,000 to be delivered on Canadian National Lines in Minnesota.

Tender forms and Specifications can be obtained at the office of the General Tie Agent, Toronto.

Tenders will not be considered unless made on forms supplied by the Railway Company.

No tenders for quantities less than 5,000 ties will be considered.

The lowest, or any tender not necessarily accepted.

W. H. GRANT,
General Tie Agent,

Canadian National Railways,
Toronto, August 9, 1922. Toronto.

For Sale

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CANADIAN PACIFIC RAILWAY COMPANY

Dividend Notice

At a meeting of the Board of Directors held today the following dividends were declared:

On the Preference Stock, two per cent. for the half-year ended 30th June last:

On the Common Stock, two and one-half per cent. for the quarter ended 30th June last, being at the rate of seven per cent. per annum and in addition three per cent. per annum from Special Income Account.

Both dividends are payable 30th September next to Shareholders of record at 3 p.m. on 1st September next.

By order of the Board.
ERNEST ALEXANDER,
Secretary.

Montreal, 14th August, 1922.

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THE Canadian Pacific Railway, through its Bureau of Canadian Information, will furnish you with the latest reliable information on every phase of industrial and agricultural development in Canada. In the Reference Libraries maintained at Montreal, Chicago and New York are complete data on natural resources, climate, labor, transportation, business openings, etc., in Canada. Additional data is constantly being added.

No charge or obligation attaches to this service. Business organizations are invited to make use of it.

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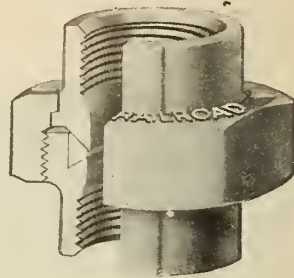
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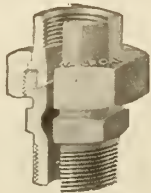
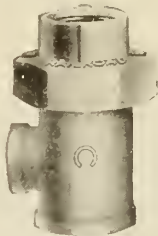
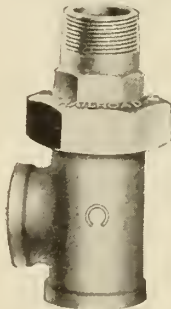
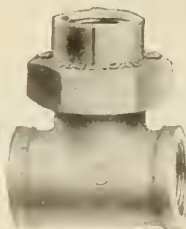
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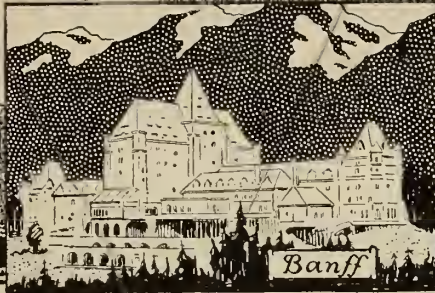
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Private Secretary	Illustrating
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TECHNICAL AND INDUSTRIAL DEPARTMENT

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Mechanical Engineer	Architectural Draftsman
Mechanical Draftsman	Concrete Builder
Machine Shop Practice	Structural Engineer
Railroad Positions	Plumbing and Heating
Gas Engine Operating	Textile Manufacturing
Civil Engineering	Chemistry
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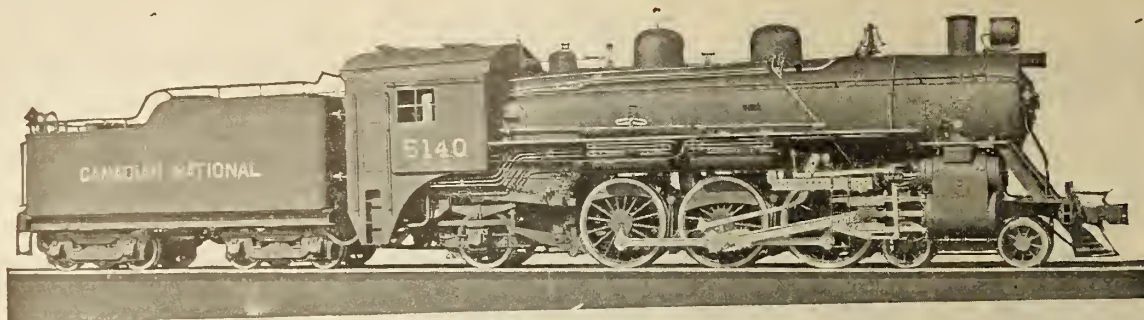


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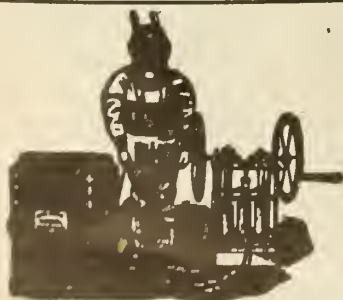
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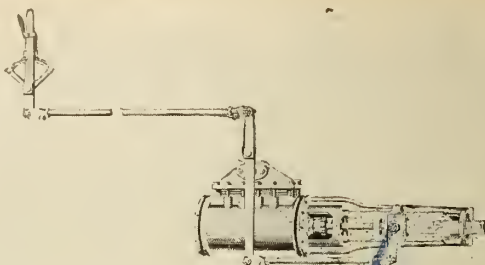
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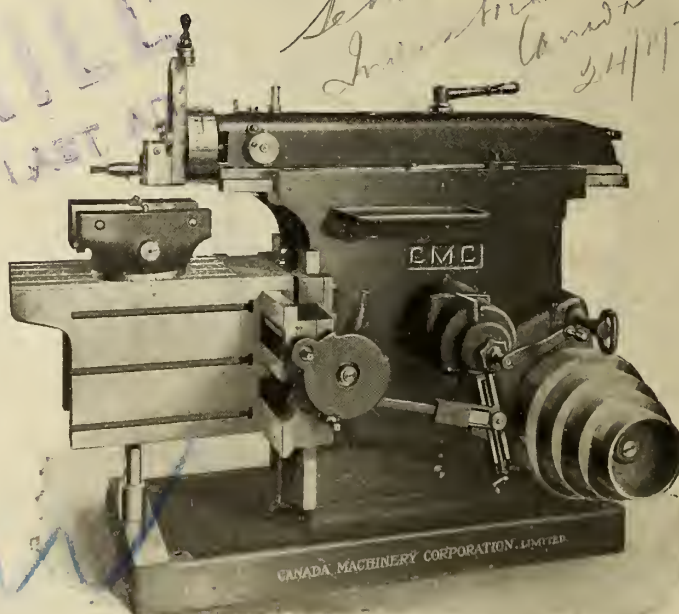
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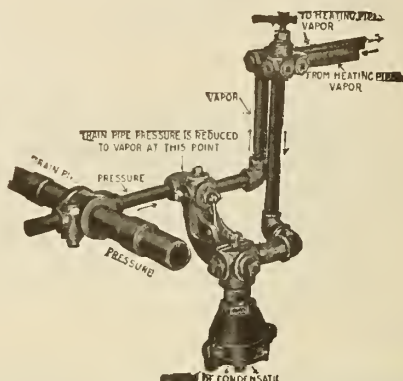
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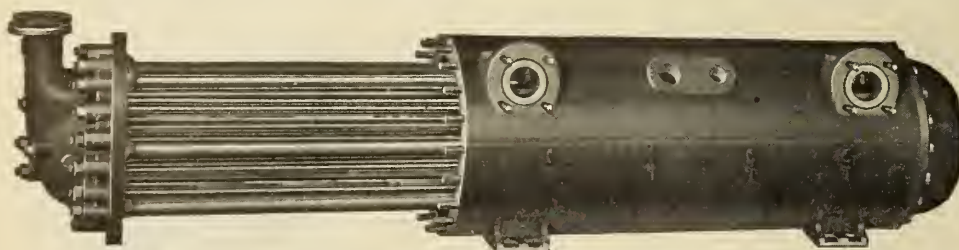
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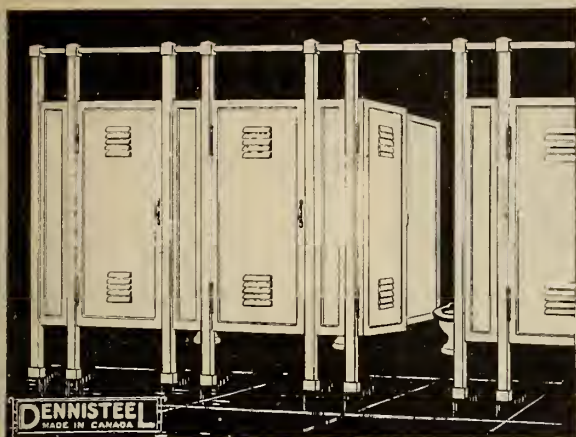
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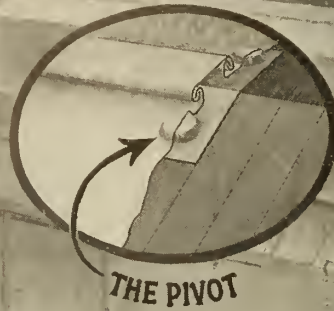
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Number 296.
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TORONTO, CANADA, OCTOBER, 1922

See page 517 for
Subscription Rates

GALENA OILS



*"Galena Quality Is Our Bond and
Your Security!"*

*"More Miles to the Pint—Better
Service to the Mile"*

The tests of actual operating service are the only ones that show clearly and accurately the relative merits of railway lubricants. In every comparative test made with other oils, the always reliable Galena brands have demonstrated their matchless efficiency. In every instance where lubrication costs are figured correctly—on the basis of service—Galena Oils have given indisputable proof of their ultimate economy, through maximum mileage, lower fuel consumption, preservation of bearing surfaces and reducing to a minimum the losses in man hours and train hours that are always evident with faulty lubrication.

There is a reliable and service-tried Galena product for every Steam or Electric Railway requirement. Galena Machinery and Power House lubricants are noted for their efficiency and durability.

Galena-Signal Oil Co. of Canada, Limited
Toronto - - - Montreal

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS



ECONOMY CAST STEEL DRAFT ARMS

Application of Economy Cast Steel Draft Arms will keep cars off repair tracks.

The value of the Economy Cast Steel Draft Arm is emphasized by the fact that there are over 625,000 in service.

Application of Economy Cast Steel Draft Arms increases the revenue.

INTERNATIONAL EQUIPMENT CO. LTD.
MONTREAL, QUEBEC, CANADA.

KENNEDY Propeller Wheels

Sectional or Solid
Iron, Semi Steel or Steel
All Sizes

The Wm. Kennedy & Sons
OWEN SOUND ONTARIO LIMITED

DISTRICT REPRESENTATIVES:

M. B. Saunders, 8 Silver St., Cobalt. Phone Cobalt 153.
L. A. Mitchell, 901 Royal Bank Bldg., Toronto. Phone Adel. 7244.
H. C. Kennedy, 364 University St., Montreal. Phone Uptown 5396.



**CASTINGS
OF EVERY
DESCRIPTION**

The BERTRAM MACHINE TOOLS

Page

No.1. Guillotine Frame Bar Shear

Motor Driven
10 H.P. Motor

*KILL
LAST AD.*

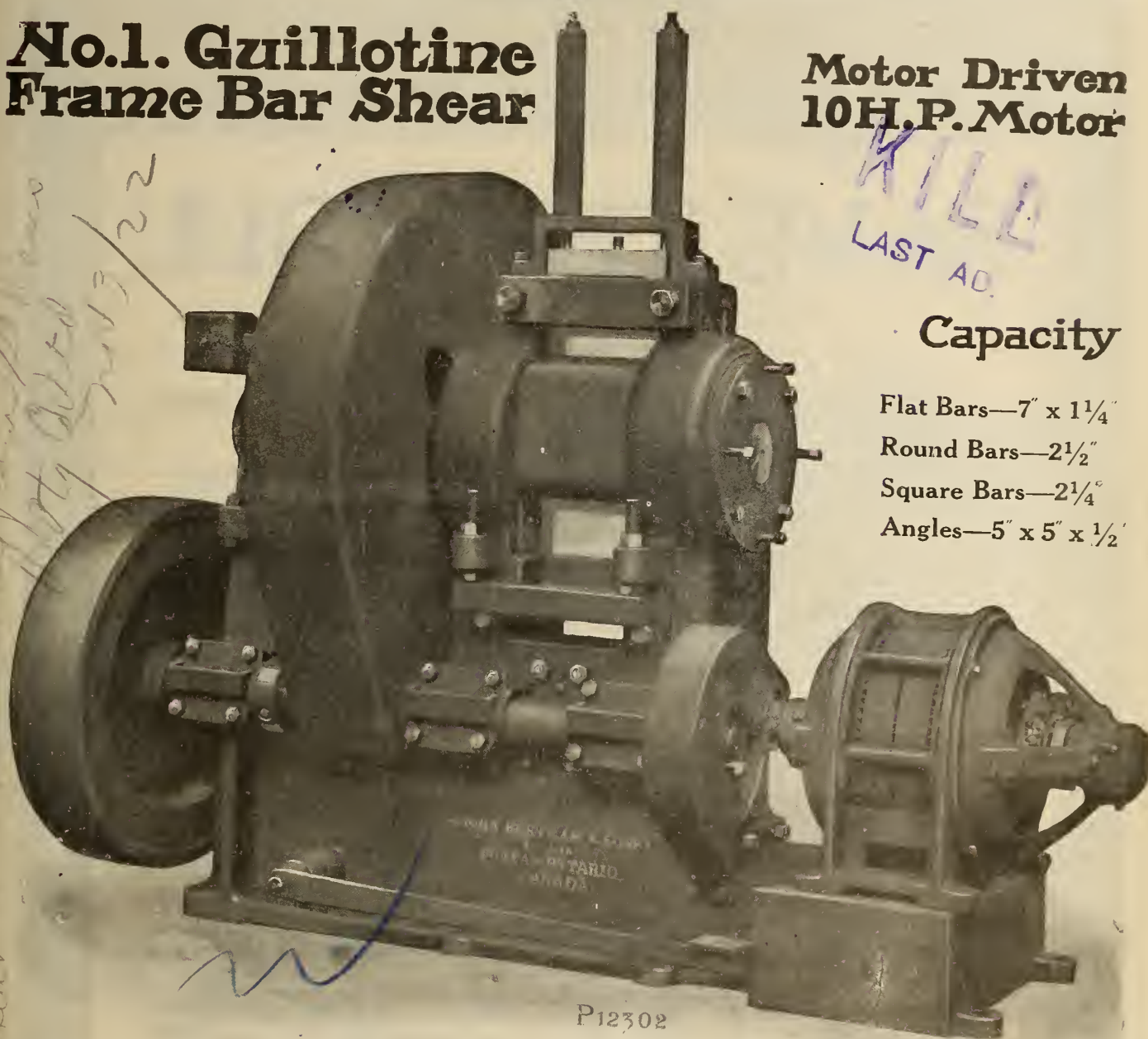
Capacity

Flat Bars—7" x 1 1/4"

Round Bars—2 1/2"

Square Bars—2 1/4"

Angles—5" x 5" x 1/2"



P12302

The John Bertram & Sons Co., Limited

DUNDAS. ONTARIO. CANADA.

MONTREAL
723 Drummond Bldg.

TORONTO
32 Front St. W.

VANCOUVER
609 Bank of Ottawa Bldg.

WALKERVILLE
103 1/2 Sandwich St.

WINNIPEG
1205 McArthur Bldg.

HALIFAX
Roy Bldg.

Scientific*Water Treatment**Dearborn*

REG. U.S. PAT. OFFICE

SAVE THIS TOLL

It is well known that a film of hard scale only 1-16 inch thick increases fuel consumption 15%.

Thus, a boiler that accumulates an eighth inch of scale up to the time of cleaning averages a fuel waste of 15% in continuous operation.

Similar, although not so precisely measured, is the loss through foaming. Dearborn Scientific Water Treatment eliminates these losses.

Send us samples of your water supplies. Let us submit recommendations based on your conditions.

Dearborn Chemical Company

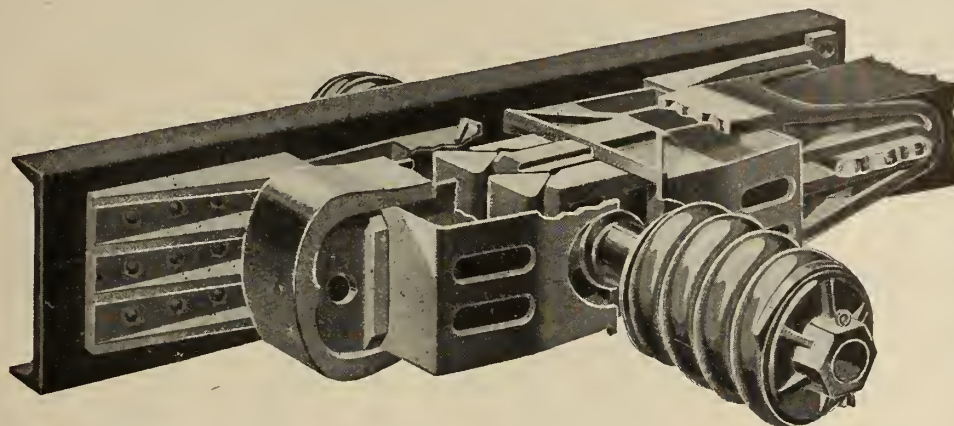
of Canada, Limited

2454-2464 Dundas St. W.

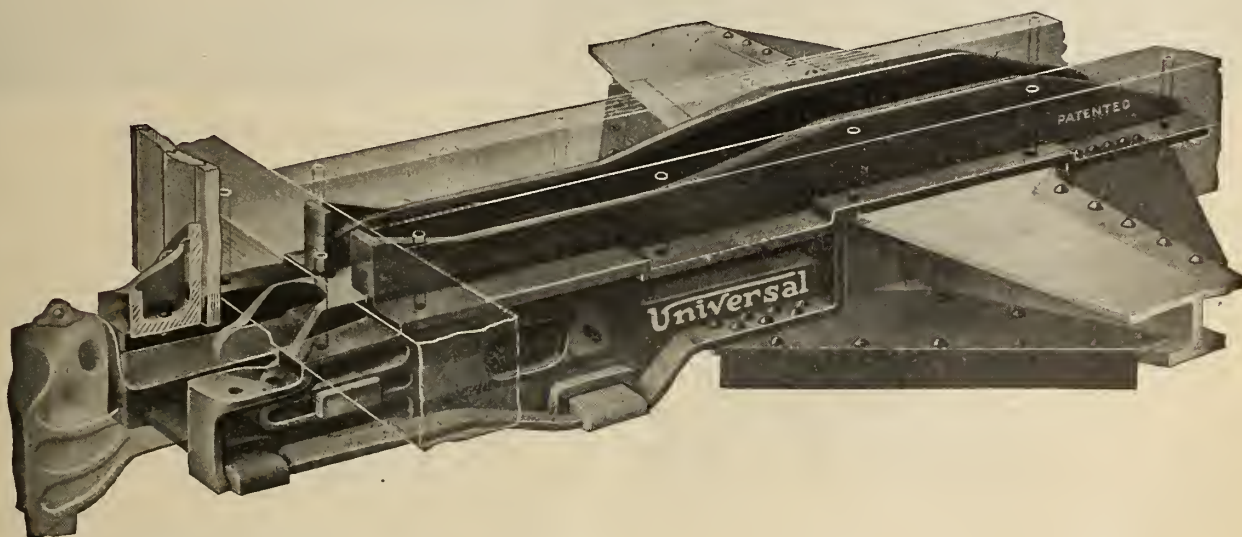
TORONTO, CANADA

Supreme in Service and in Results

CARDWELL FRICTION DRAFT GEAR MADE IN CANADA



Universal ATTACHMENTS MADE IN CANADA



REENFORCING DRAFT ARMS
TANDEM SPRING DRAFT RIGGING
TWIN SPRING DRAFT RIGGING

CAST STEEL YOKES
DRAFT LUGS or PLATES
FRICTIONLESS SIDE BEARINGS

MADE IN CANADA

WEBB. G. KRAUSER

Transportation Building, MONTREAL


Dominion Insulator & Manufacturing Co., Ltd.

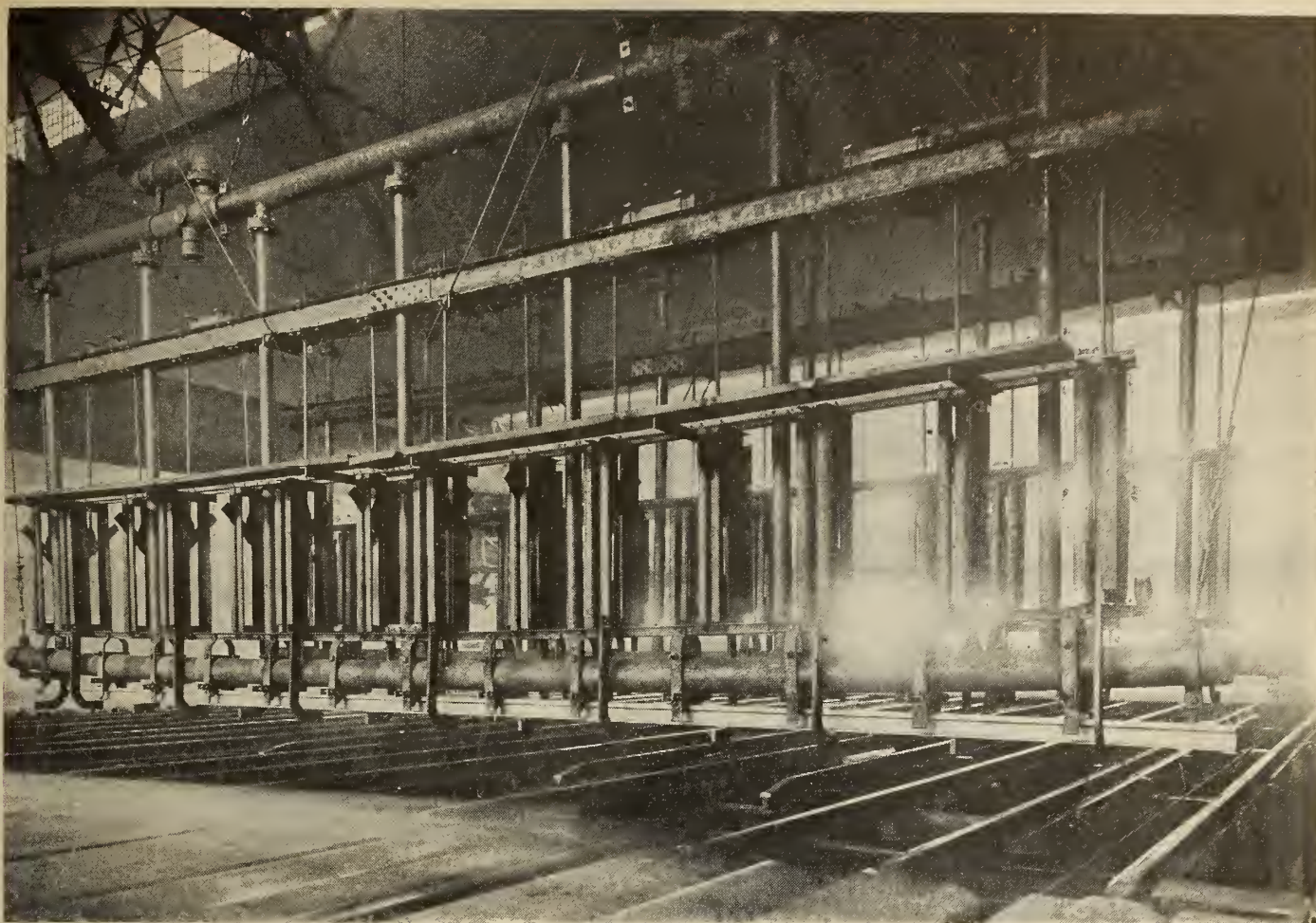
(Division of The Ohio Brass Company)

Announces that it is now constructing a factory at Niagara Falls, Ontario, for the manufacture of the most up-to-date, approved designs of High Tension Porcelain Insulators and other O-B Products, such as Trolley Materials and Rail Bonds for Electric Railways and Mines, Electric Car Equipment and Steam Road Electrification Materials.

The new plant will be of the latest construction and will be equipped with every modern facility for the production of this class of material by the most advanced processes.

The factory will be in production some time before January 1st, 1923.





80 lb. Rail Receiving Sandberg Sorbitic Treatment at the Steelton Plant of the Bethlehem Steel Company

SANDBERG SORBITIC RAILS AND TIRES

Represented in Canada by

G. D. PETERS & CO., LTD.
1001 New Birks Building
MONTREAL

Canada's
Commerce
Carriers

Canadian Government Merchant Marine, Limited



REGULAR FREIGHT SERVICES

From Montreal and Quebec in Summer
From St. John, N.B., and Halifax, N.S.,
in Winter.
To the United Kingdom, Liverpool, London,
Glasgow, Cardiff, Swansea, etc.
To Barbadoes, Trinidad and Demerara.
To Havana, Cuba, and Jamaica.
To South America, Rio de Janeiro, Santos,
Montevideo and Buenos Aires.
To India, Dutch Indies and Straits
Settlements via Mediterranean.
To Australia and New Zealand via Panama Canal.

To St. John's, Newfoundland.

From Vancouver, B.C.

To Sydney and Melbourne, Australia.
To Auckland, Wellington, Dunedin, and
Lyttleton, New Zealand.
To China and Japan.
To India and Straits Settlements.

Pacific Coastal Service.

Sailings every ten days.

From Vancouver and Vancouver Island ports.
To Seattle, San Francisco and Wilmington.

REGULAR FREIGHT AND PASSENGER SERVICE

Every three weeks from Montreal in Summer and Halifax, N.S., in Winter,
To Hamilton, Bermuda, Nassau, Kingston, and Belize.

Superior First Class Accommodation.

Excellent Cuisine.

B. C. KEELEY, General Agent, Vancouver, B.C.

F. G. WOOD, General Ontario Freight Agent, Toronto, Ont.

R. B. TEAKLE, General Manager.

W. A. CUNNINGHAM, General Freight Agent,

230 St. James Street, Montreal, P.Q.



Canadian National Railways



Your Ideal of Service Is Our Everyday Practice

THE service which you would consider ideal is prompt shipments to satisfy steady consumption and ample stock to take care of larger quantities demanded by emergencies.

This is the service Dominion Oxygen Company Limited offers to you for your oxygen and dissolved acetylene supply—plus:

- A contract based on generous terms and friendly relations.
- The latest type of cylinders, safe, light in weight and strong.
- A liberal policy of cylinder loans.
- A desire to meet your requirements.
- Oxygen and dissolved acetylene of a higher standard of purity than is usual for commercial use.

We will appreciate an opportunity of placing our proposition before you and quoting prices, whether for small or large quantities, before you make arrangements for the year's supply.

DOMINION OXYGEN COMPANY, Limited

*Operating the Welding and Cutting Gas Division of
PREST-O-LITE COMPANY OF CANADA, LIMITED*

General Offices: 80 Adelaide St. East, TORONTO.

Hamilton

Merrittton

Welland

Montreal

Oshawa
Windsor


Quebec

Shawinigan Falls
Winnipeg

Toronto

WEIGHTS AT RAIL

LIGHT 2-8-2-WITH CARBON STEEL RECIPROCATING AND ROTATING PARTS.
HEAVY 2-8-2-BUILT WITH HIGH QUALITY STEEL RECIPROCATING AND ROTATING PARTS.



AT 40 MILES PER HOUR.						
2-8-2 LIGHT	51900	63200	56000	63200	63200	20100
2-8-2 HEAVY	57000	63800	62350	63800	63800	24000
AT 45 MILES PER HOUR.						
2-8-2 LIGHT	51900	65300	56250	65300	65300	20100
2-8-2 HEAVY	57000	64900	63070	64900	64900	24000
AT 55 MILES PER HOUR.						
2-8-2 LIGHT	51900	70400	56900	70400	70400	20100
2-8-2 HEAVY	57000	67500	64680	67500	67500	24000

DRIVER WEIGHTS ARE WITH COUNTERBALANCES DOWN.

Those New Locomotives

Are you specifying light reciprocating parts of alloy steel?

At speeds between 40 and 55 miles per hour, a 2-8-2 *heavy* Mikado type locomotive (United States Railway Administration) with *light* alloy steel reciprocating parts would be less destructive to the track than a *light* Mikado (United States Railway Administration) with *heavy*, plain carbon steel reciprocating parts.

With reciprocating parts of Carbon-Vanadium Steel, you can build heavier, greater capacity engines and yet keep within permissible limits of rail stress.

Carbon-Vanadium is a Normalized* Forging Steel. It does not require quenching or tempering. It may be heated for straightening or other repairs without materially affecting its high physical properties. It does not require elaborate treating equipment; merely an annealing furnace and still, open air.

May we discuss with you the reduction of dynamic augment on your new and old locomotives? A request for information places you under no obligation.

*

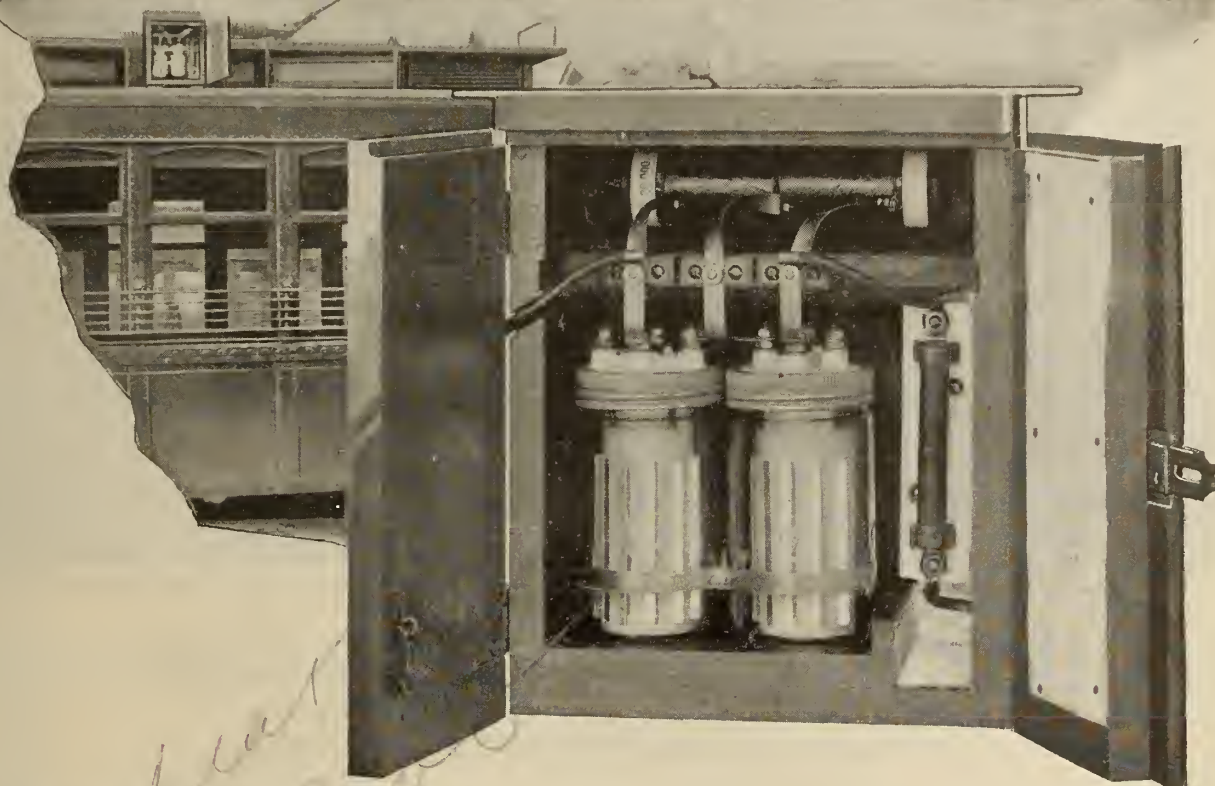
NORMALIZED
*Not quenched or
tempered, heated
and cooled slowly
in still air.*

VANADIUM CORPORATION OF AMERICA

NEW YORK
120 Broadway

DETROIT
849 Book Bldg.

*Do you want to prevent
lightning losses?*



**Protect your service and
cut down repair bills.**

Fifty electric railways having 5,000 cars equipped with C.G.E. D-C aluminum lightning arresters had only forty-three cases of damage from lightning during the past year—an average of less than one a railway and one every hundred cars.

In some cases the damages were slight—controller blow-out coils, brush-holders, etc. In some cases no damages had been suffered in two or three years, or longer.

Study these data and then study your maintenance records. If you don't know what lightning is costing you, you can't tell what these arresters will save you, but one thing is certain: the C.G.E. D-C aluminum arrester will prevent practically all damage to car equipments from lightning.

Canadian General Electric Co., Limited

HEAD OFFICE  TORONTO

Branch Offices: Halifax, Sydney, St. John, Montreal, Quebec, Cobalt, Ottawa, Hamilton, London, Windsor, South Porcupine, Winnipeg, Calgary, Edmonton, Vancouver, Nelson and Victoria.



The Heavy Traffic Car — Front-Entrance Center-Exit

"Pay-As-you-Pass" Method of Fare Collection

Quick passenger interchange is the reason why the Peter Witt Front-Entrance Center-Exit type car appeals to railways having to provide service in the heavy traffic districts. The wide front-entrance and center-exit permit passengers to enter and

leave in double column, and the collection of fares on the "pay - as - you - pass" system, mostly while the car is in motion, eliminates delays and speeds up service. The Peter Witt Car is ideal on lines where quick loading and unloading is of vital importance.

Fifty Cars of this type were recently delivered to the Toronto Transportation Commission.

CANADIAN BRILL COMPANY, LIMITED

PRESTON, ONTARIO

Affiliated in the construction of all types electric railway cars with

The J. G. Brill Company, Philadelphia, U.S.A.
American Car Company, St. Louis.

The G. C. Kuhlman Car Co., Cleveland.
Wason Mfg. Company, Springfield, Mass.



Galena Lubrication

Galena Service provides the surest, safest and most direct means of securing efficient lubrication—an all-important factor in maintaining operating efficiency on railroads.

The entire resources of this organization are devoted to the special study of lubrication and the manufacture of products that will best meet the requirements of railways. Its long and varied experience has reduced this work to a science.

For every kind of rolling equipment used on either Steam or Electric railways, for every class of Shop or Power House machinery requiring lubrication, there is a Galena lubricant built specially for its use that has been tried and tested in practical service.

Galena Oils, being built entirely from highest grade stocks, cost slightly more than ordinary lubricants, but there has never been an instance of where this small difference in first cost has not been saved many times over in the extra service received from them.

*"When Galena Service Goes In—
Lubrication Troubles Go Out!"*



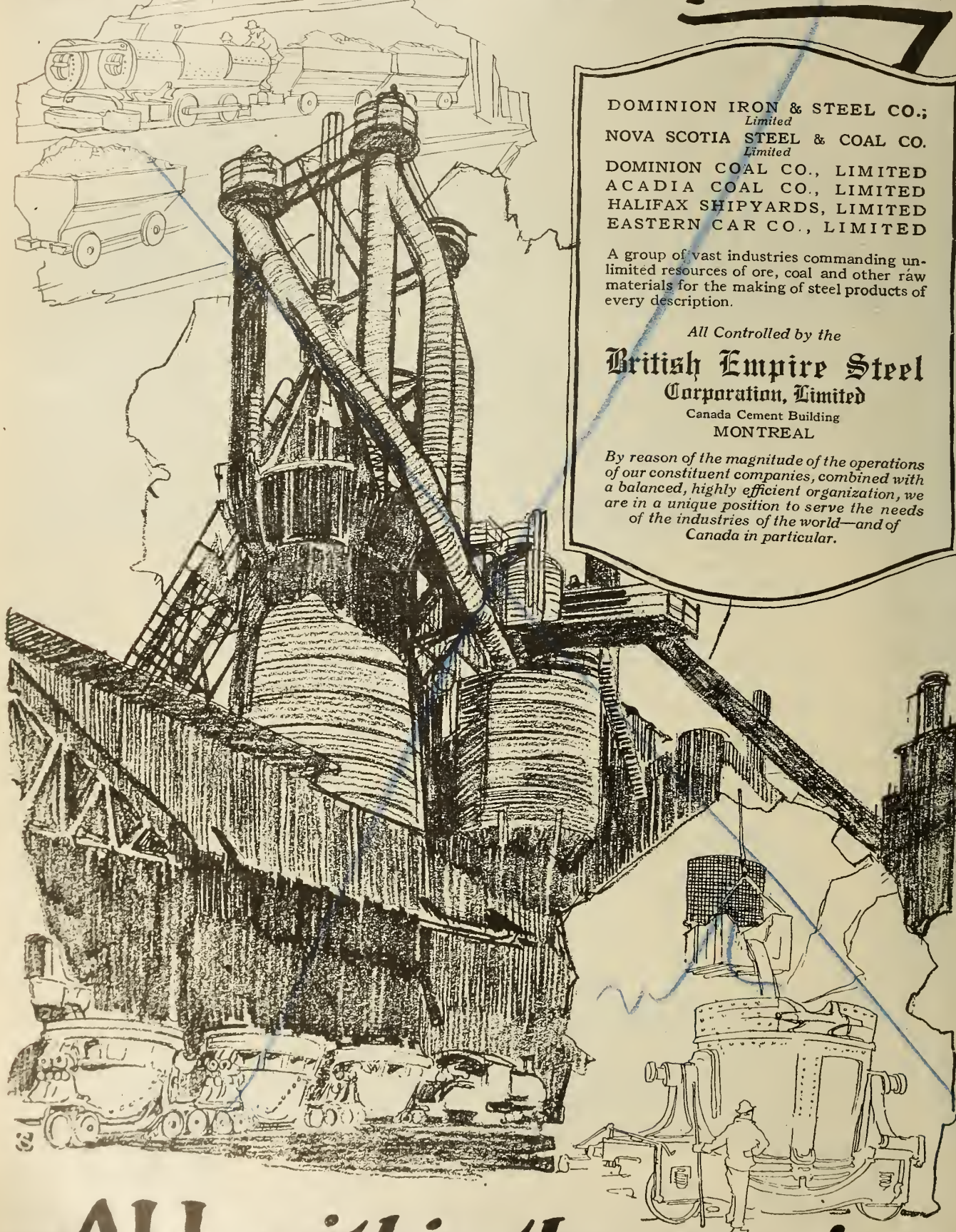
Galena-Signal Oil Company
of Canada, Limited

Toronto

Montreal



from ore to finished product



DOMINION IRON & STEEL CO.,
Limited

NOVA SCOTIA STEEL & COAL CO.
Limited

DOMINION COAL CO., LIMITED

ACADIA COAL CO., LIMITED

HALIFAX SHIPYARDS, LIMITED

EASTERN CAR CO., LIMITED

A group of vast industries commanding unlimited resources of ore, coal and other raw materials for the making of steel products of every description.

All Controlled by the

**British Empire Steel
Corporation, Limited**

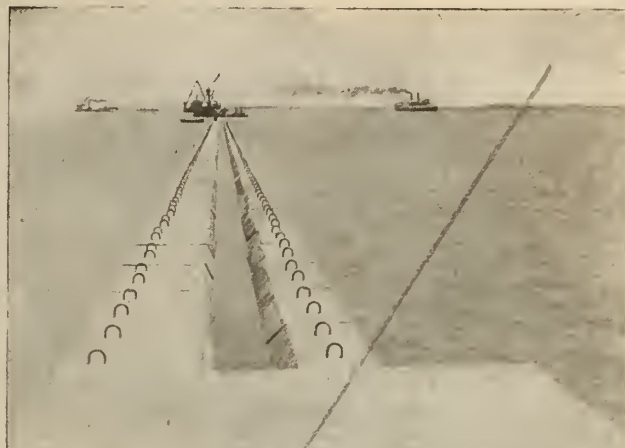
Canada Cement Building
MONTREAL

By reason of the magnitude of the operations of our constituent companies, combined with a balanced, highly efficient organization, we are in a unique position to serve the needs of the industries of the world—and of Canada in particular.

-ALL within the empire



Showing Reinforcing Steel in Harbor Head Walls.



Harbor Head Walls under construction, showing pre-moulded blocks in place.

Concrete Plays Important Part in Toronto Harbour Work

The construction of the retaining walls—for reclaimed areas of the Toronto Harbour Improvement—is one of the most interesting features of this great development work.

For the Harbour Head Walls, from Bathurst Street to Yonge Street, the structure consists of rock-filled crib work.

After the cribs were sunk in position, lined, filled with stone and allowed a reasonable time for settlement, the vertical posts were cut off and capped and the flooring laid to receive the pre-moulded concrete blocks.

The superstructure consists of pre-moulded concrete blocks 8' x 5' x 5' with sides bevelled front to back, thereby making possible a perfect alignment. After being placed and lined, the blocks

are keyed to the plank flooring and also to each other. The concrete mass, as shown in section, is placed on the blocks and tied to the latter by reinforcing steel. Contraction joints are placed every fifty feet.

The modernizing of a water-front is a type of construction work for which Concrete is pre-eminently adapted. Indeed it is almost impossible to conceive a development of the magnitude of Toronto's Harbour improvement on any other plan than that which employs Concrete for the major portion of the work.

Not only is Concrete used for Harbour Head Walls, but also for the Ship Channel Walls, as well as for the huge Bathing Pavilion—the latter a beautiful structure of Monolithic Concrete.

Specify
CANADA CEMENT
Uniformly Reliable

CANADA CEMENT
CONCRETE
FOR PERMANENCE

We maintain a Service Department to co-operate in all lines of work for which Concrete is adapted. Our library is comprehensive and is at your disposal at all times without charge.

CANADA CEMENT COMPANY LIMITED

Canada Cement Company Building, Phillips Square Montreal

Sales Offices at Montreal Toronto Winnipeg Calgary

ARA 1917

"49"



THE map above shows the location of the 49 foundries in the United States and Canada, represented by the Association of Manufacturers of Chilled Car Wheels.

Chicago, 3
St. Louis, 2
Buffalo, 4
Pittsburgh, 2
Cleveland, 2
Amherst, N.S.
Montreal
Mich. City, Ind.
Louisville
Mt. Vernon, Ill.
Ft. Wayne, Ind.
Birmingham
Atlanta
Savannah
Boston
Detroit
St. Paul
Kansas City, Kan.
Denver
Tacoma
Rochester, N. Y.

Sayre, Pa.
Berwick, Pa.
Albany
Toronto
New Glasgow, N.S.
Madison, Ill.
Huntington, W. Va.
Wilmington, Del.
Houston, Tex.
Hannibal, Mo.
Reading, Pa.
Baltimore
Richmond, Va.
Ft. William, Ont.
St. Thomas
Hamilton
Ramapo, N. Y.
Marshall, Tex.
Los Angeles
Council Bluffs

American Railroad Association Standards

650 lb. wheel for 60,000 Capacity Cars
700 lb. wheel for 80,000 Capacity Cars
750 lb. wheel for 100,000 Capacity Cars
850 lb. wheel for 140,000 Capacity Cars

The Standard Wheel for Seventy-One Years.

CHILLED IRON WHEELS

for railway and street car
service. Capacity 20,000 per
day. 25,000,000 in service.

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

1847 McCormick Bldg., Chicago

CHILLED IRON WHEELS



THE UNSEEN POWER

THROUGH the silent darkness of night, *Hipower* plays an inconspicuous but invaluable part in protecting bolted parts of track.

Through its effective performance, high speed passenger and heavy freight trains are carried through in safety.

The basic principle of *Hipower* is a combination of a normal spiral with superimposed curves in the form of elliptic spring portions. Under compression, the *Hipower* affords a seat to the nut at three points with a corresponding bearing on the backing. *Hipower* provides permanent adequate pressures exerted on lines parallel to the axis of the bolt, sufficient to hold the angle bars to the rail, and yet not impede expansion and contraction.

Hipower, a silent but salient factor in track maintenance, gives maximum security to the bolted parts of frogs, crossovers and main line track at minimum cost.

THE NATIONAL LOCK WASHER CO.

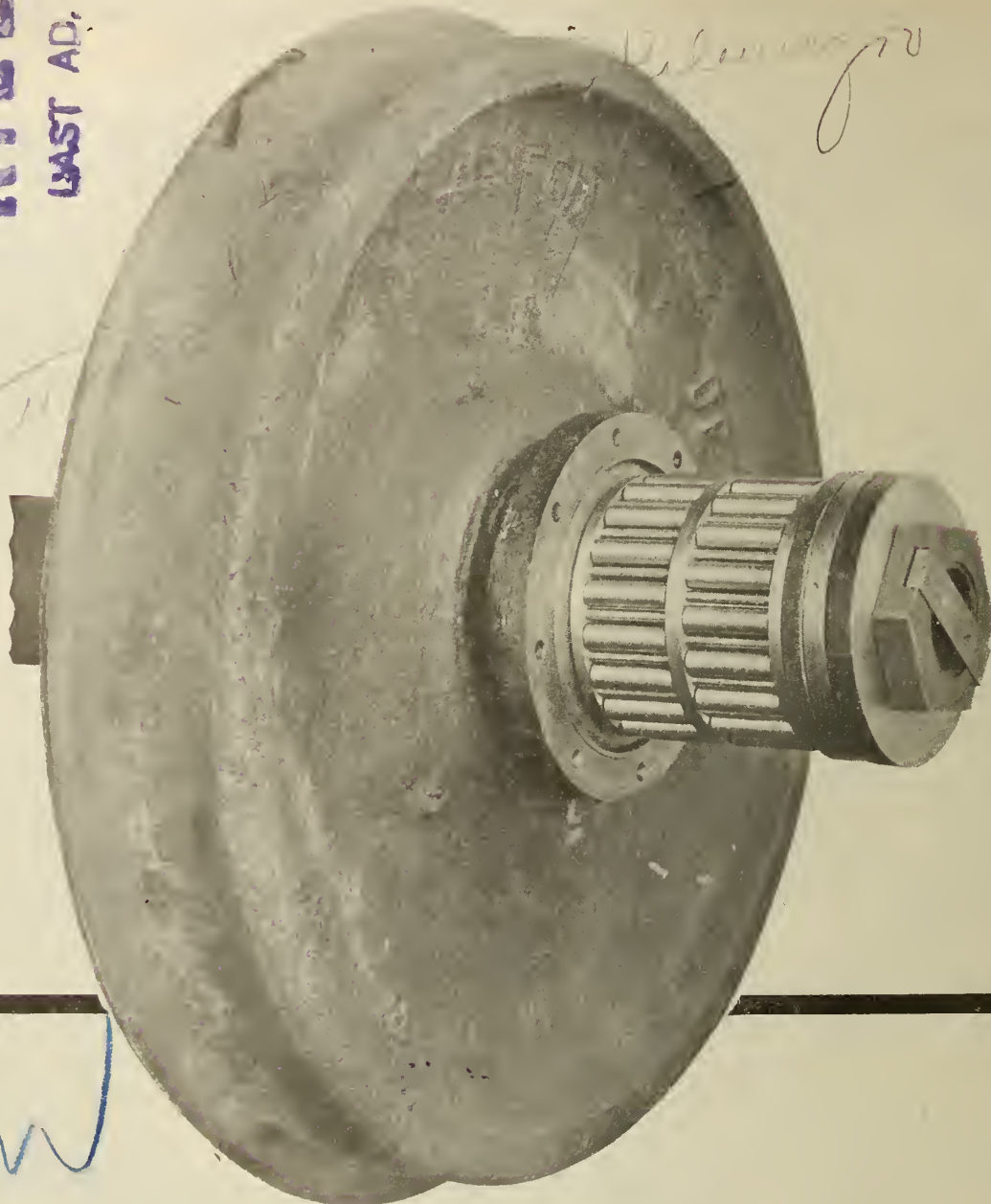
ESTABLISHED 1886
Newark N. J.

New York
Nashville
Richmond

Chicago
San Francisco

Detroit
St. Louis
Denver

KILL
LAST AD.



Save Thousands of Hours of Labor STAFFORD ROLLER BEARINGS

require inspection and lubrication only once in two years.

Compare that with the thousands upon thousands of hours wasted in keeping antiquated friction bearings in passable operating

condition—the inspection at every terminal, the constant stirring up of packing, the incessant addition of oil, the constantly recurring changes of brasses, and the periodic change or renovation of the packing and lubrication.

Stafford Bearings are lubricated and sealed up for a 2-year period of uninterrupted service.

STAFFORD ROLLER BEARING CAR TRUCK CORP'N.
LAWTON, MICH.

List of Supplies purchased by an Electric Railway

Axle Bearings
Armature Bearings.
Augers.
Bar Iron.
Bar Steel.
Bar Copper.
Bolts, Machine.
Bolts, Carriage.
Bolts, Finished.
Brake Shoes.
Coal.
Conductor's Punches.
Coke for Forges.
Copper Bonds.
Cast Iron Castings.
Cotter Pins.
Car Trolley Poles.
Car Wheels.
Car Trucks.
Car Axles.
Corn Brooms.
Crowbars.
Emery Wheels.
Emery Cloth.
Forges.
First Aid Equipment.
Galvanized Pails.
Galvanized Coal Hods.
Galvanized Watering
Cans.
Generators and Parts.
Hard Fibre.
Hammers.
Insulating Papers.
Lead Covered Wire.
Linen and Cotton.
Life Guards.
Leather Belt Cord.
Leather Belting.
Linen and Cotton Hose.
Lamps.
Lamp Sockets.
Magnet Wire.
Malleable Castings.
Metal-working Tools.
Pipe and Fittings.
Paint Shop Equipment.
Paint Brushes.
Paints and Oils.
Printing.
Railway Bolts.
Railway Varnishes.
Railway Insulating
Varnish.
Repair Shop Equip-
ment.
Rubber Packing.



WHAT CANADA'S ELECTRIC RAILWAYS ARE BUYING

One might think, unthinkingly, that when an electric railway line was built and the cars set on its tracks, there was little for the operating company to buy.

Yet here is a list of 100 things or groups of things that operating companies buy—

Then, add to these the still larger list of things that railway contractors and car builders and power house engineers must buy when building and equipping new lines.

And remember, that more miles of new electric railway, more power houses and more cars are being built each year; and that Canada is really only in its infancy in urban and interurban development; with big things to come in the very near future.

And then make note of the fact that

Canadian Railway and Marine World

is the only publication in Canada appealing specifically to both the building and the operating electric railway interests.

CANADIAN RAILWAY AND MARINE WORLD

Toronto Member of Canada
Audit Bureau of Circulations,
Associated Business Papers,
Canadian National Newspapers and Periodicals
Association.
Canadian Press Association.

List of Supplies purchased by an Electric Railway

Railway Springs.
Rails and Fish Plates.
Railway Ties.
Railway Spikes.
Rubber Covered Wire.
Rubber Covered Ropes.
Railway Motors.
Railway Gears.
Railway Pinions.
Railway Motor
Frames.
Railway Gear Cases.
Railway Controllers.
Railway Trolley
Wheels.
Railway Harps, Trol-
ley.
Railway Trolley Bush-
ings.
Railway Commuta-
tors.
Railway Fields.
Railway Armatures.
Railway Brush Hold-
ers.
Railway Trolley Rope.
Railway Car Heaters.
Rattan Seating.
Rattan for Sweeper
Brooms.
Rubber Belting.
Rubber Hose.
Saws.
Screws, Wood.
Screws, Brass.
Screws, Set.
Screws, Machine.
Screws, Cap.
Scythes.
Steel Castings.
Sand Paper.
Spray Cans for Paint.
Street Trolley Poles.
Tamps.
Track Bolts.
Trolley Wire.
Tape.
Trolley Catchers.
Trolley Stands.
Trolley Stand Bases.
Uniform Caps.
Uniform Clothing.
Uniform Buttons.
Wrenches.
Washers, Iron.
Wire Nails.
Weatherproof Wire.



To Get The Best Results

Buy Your **Wire Rope**

FROM ONE OF THE OLDEST MAKERS
IN CANADA

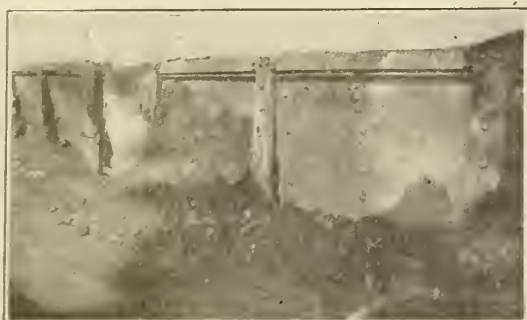
THE DOMINION WIRE ROPE CO., LIMITED

Head Office: MONTREAL

Branches: TORONTO, WINNIPEG

The Improved Hart Convertible Car

Unloads Clean Without Extra Hand Labor



Old Level Floor Car. Note Ballast Left by Plow.

For
Ballasting
Center
Dump
or
Side Dump

For Coal
or General
Service



Improved Car Unloaded by Top Plow. Has no Ballast to be Shovelled out by Hand.

The Car With Gravity Discharge Pockets

—DESIGNED, PATENTED AND BUILT IN CANADA—

The HART-OTIS CAR CO., Limited, MONTREAL



Get ready for the big job ahead.

“MARION” STEAM SHOVELS

“INDUSTRIAL WORKS”

PILE DRIVERS & CRANES

“JORDAN” SPREADERS

“RANSOME” CONCRETE MIXERS

Branch:
108 Mail Building
TORONTO

F. H. Hopkins & Co.
Limited

Head Office:
MONTREAL



Not One Leaking Staybolt In 54 Locomotive Boilers

At a big railroad shop (name on request). Not a single leak was found in approximately 62,400 consecutive holes tapped for staybolts with Maxitaps. This exemplifies what Maxitaps are doing in some of the largest locomotive shops.

Here's what Maxitaps saved in this particular instance. Before Maxitaps were used, there were on an average 20 leaky staybolts per boiler, which cost \$2 per bolt to replace or \$40 per boiler. The saving on the 54 boilers over a period of two months was \$2,160, or \$12,960 saved per year by using

MAXITAPS for STAYBOLTS

Maxitaps are carefully designed and specially tempered to give greatest service for each particular class of work. Our entire organization stands behind every one.

Prove the merits of the Maxitap in your shop by running a test. Write now for particulars and ask our help.



GREENFIELD TAP AND DIE CORPORATION
OF CANADA, LIMITED GALT, ONTARIO

GTD Screw Plates, Taps, Dies, Reamers, Gages,
Pipe Tools, Twist Drills, Milling Cutters.

PEDLAR'S "PERFECT" Culverts

WHENEVER you instal a Pedlar Culvert you can rest assured that it will always be equal to its job. They have the inherent strength to resist the greatest pressures. Being made from the celebrated anti-corrosive **TONCAN** heavily galvanized, they will not rot or rust. Frost and ice will never crack them! All you've got to do to solve the culvert problem, whether on railway or highway, is to figure the capacity required and then send in your order for Pedlar's Culverts. We carry a stock of all sizes at all branch warehouses. Prompt shipment is always assured.

Sizes, 8 to 84 inches. Lengths up to 40 feet, with coupling bands supplied free for longer lengths.

Write for Culvert Booklet R.M.

The PEDLAR PEOPLE Limited

(Established 1861)

Executive Offices: Oshawa, Ont.

Factories: Oshawa, Ont., and Montreal, Que.

Branches: Montreal, Quebec, Ottawa,
Toronto, Hamilton, Winnipeg,
Calgary, Vancouver.





Lamp Failures Cause Wrecks!

Signal and long-time-burning oils must be clean and fresh—or signals will fail. To be absolutely sure of continuous service, store your oils in Bowser tanks. Thus, lamp failures—so dangerous in railroad operation—will be averted.

At signal towers, in storehouses, and along the right of way wherever oils are stored, Bowser equipment has for 36 years been recognized and accepted as the best.

Booklet C-14 is of special interest to signal supervisors and storekeepers—write for it today. It tells how the oil is pumped directly into the lamps by Bowser accurate measuring pumps from Bowser all-metal, oil-tight tanks. Waste or spillage are averted and the fire hazard is reduced to a minimum.

Bowser Equipment is MADE IN CANADA by

S. F. BOWSER & CO., LTD.

Toronto - Canada

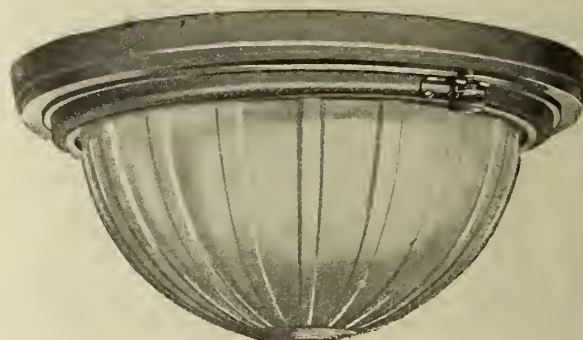
BOWSER
ESTABLISHED 1885
ACCURATE MEASURING PUMPS

BOWSER PRODUCTS

For Handling Gasoline and Oils Wherever Sold or Used

Filling Station Pumps and Tanks for Gasoline.	Carload Oil Storage Tanks.
Portable Tanks for Oil and Gasoline.	Dry Cleaners' Underground Naptha Clarifying Systems.
Storage and Measuring Outfits for Paint Oils, Kerosene and Lubricating Oils.	Richardson - Phenix Oil Circulating and Filtering Systems and Force Feed Lubricators.
Power Pumps.	

Write for Booklets



*A Typical "Safety" Car
Lighting Fixture*

An attractively low price may explain a temporary popularity. But only one thing can keep a product in a position of confidence and establish it there more firmly, year after year. That one thing is a consistent performance of such a character that it satisfies the buyer and strengthens his confidence with the passing of time. Where the day-after-day, month-after-month service is satisfactory and the maintenance costs right, the initial cost is soon forgotten. Safety Car Lighting Equipment—with all that goes with it of experience and skill and service—has earned, and holds, the confidence of railroad men by its record of performance.

"Made in Canada"

**THE
SAFETY
CAR HEATING AND
LIGHTING
COMPANY**

Montreal

New York



The Star Brass Works

Largest Exclusive Trolley Wheel Makers in the World.

Kalamazoo

Michigan



Canadian Representatives:

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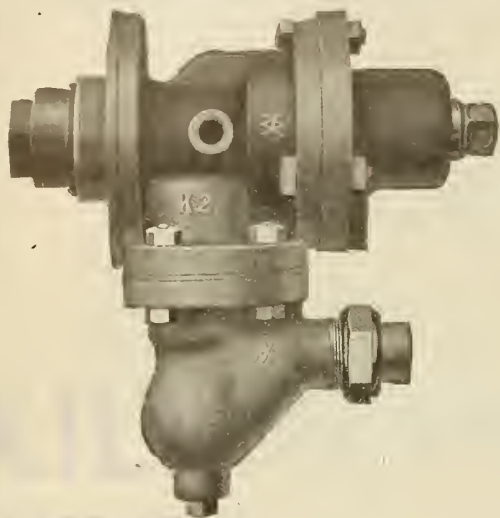
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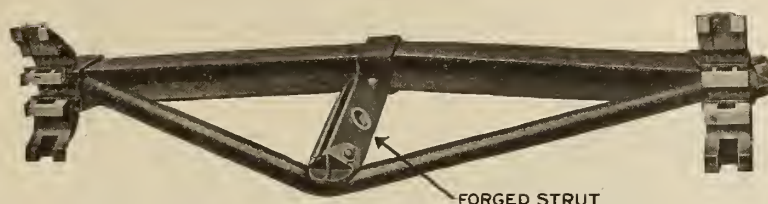
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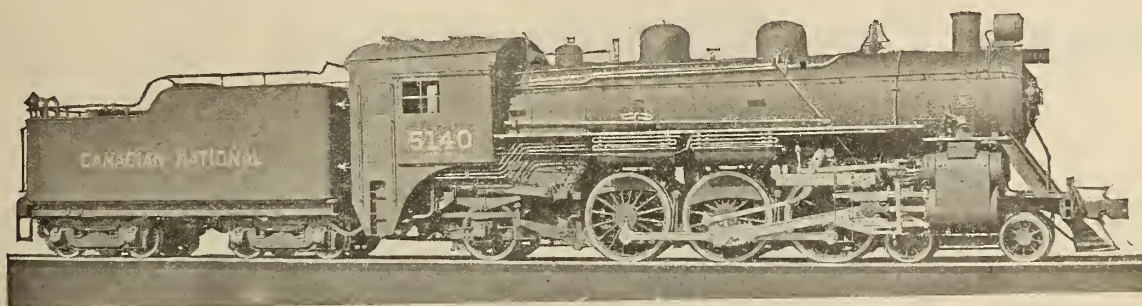
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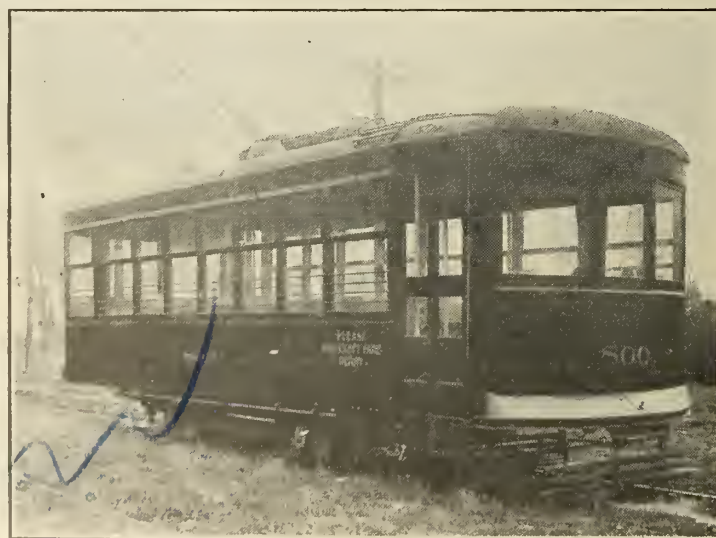
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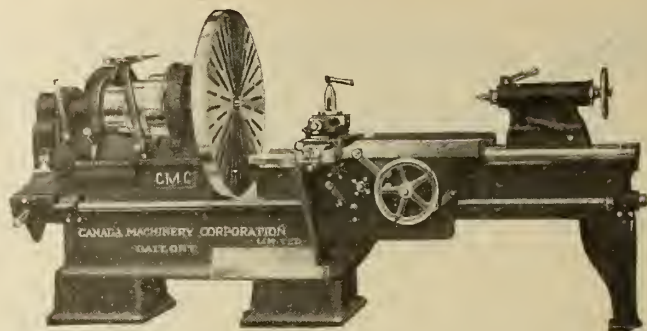
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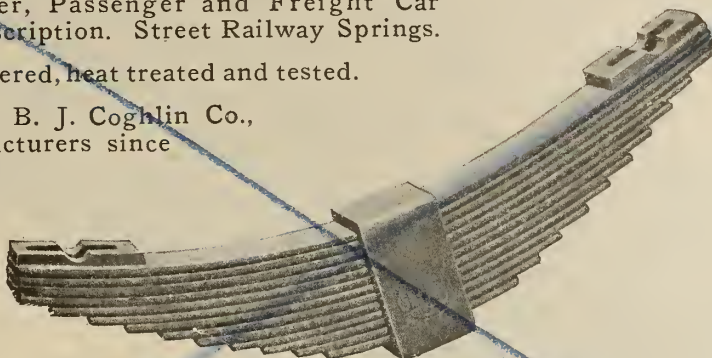
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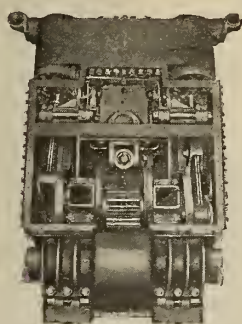
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Franklin Railway Supply Company

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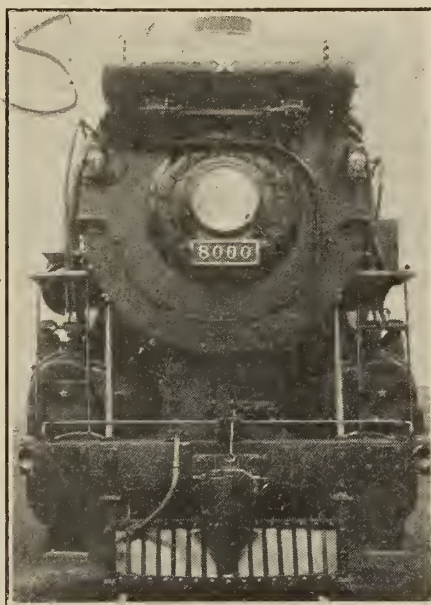
October, 1922

Improved Mikado Locomotive, Michigan Central Railroad.

An important development in locomotive design and construction has taken place recently, as represented by locomotive 8,000, which was placed in freight service a short time ago on the Michigan Central Rd., between Detroit, Mich., and Toledo, Ohio. Side and front-end views are given in the accompanying illustrations. The locomotive was designed and constructed under the personal direction of A. H. Smith, President, New York Central Rd., and built by Lima Locomotive Works, Lima, Ohio. It is claimed for this locomotive that it is representative of the greatest efficiency and economy yet developed in freight motive power, in that it will deliver more power in proportion to its weight than any other locomotive yet built, exert more tractive effort per ton of coal consumed, and prove easier to operate, and more economical to maintain, making for quick turn-arounds, safety, and low proportional maintenance cost. The chief dimensions are as follows:—

Weight of engine.....	334,000 lb.
Weight of tender.....	199,700 lb.
Tractive effort with booster.....	74,500 lb.
Engine wheel base.....	37 ft.
Driving wheel base.....	16 ft. 6 in.
Total wheel base.....	71 ft. 6½ in.
Length, coupler to coupler.....	82 ft.
Engine height from top of rail.....	15 ft. 4½ in.
Engine width at cylinders.....	10 ft. 4 in.
Cylinders, diam. and stroke.....	28 x 30 in.
Steam pressure.....	200 lb. per sq. in.
Driving wheel diam.....	63 in.
Main driving journals.....	11½ x 14 in.
Other driving journals.....	11 x 13 in.
Engine truck wheels journals.....	6½ x 12 in.
Trailer truck wheel journals.....	9 x 14 in.
Valves, kind and size.....	14 in. piston
" greatest travel.....	8¾ in.
" lap.....	1¼ in.
" exhaust clearance.....	1¼ in.
" lead in full gear.....	3/16 in.
Boiler, type.....	Straight top
" diam., outside first ring.....	86 in.
Firebox, length and width.....	114½ x 84¼ in.
Grate area.....	66.4 sq. ft.
Tubes, no. and diam.....	253—¾ in.
" length.....	20 ft.

feature of superheating the steam before it reaches the main throttle, the steam passing through the dome into the dry pipe, thence to the superheater units, the dry pipe being outside the boiler as shown, and connected at the forward end



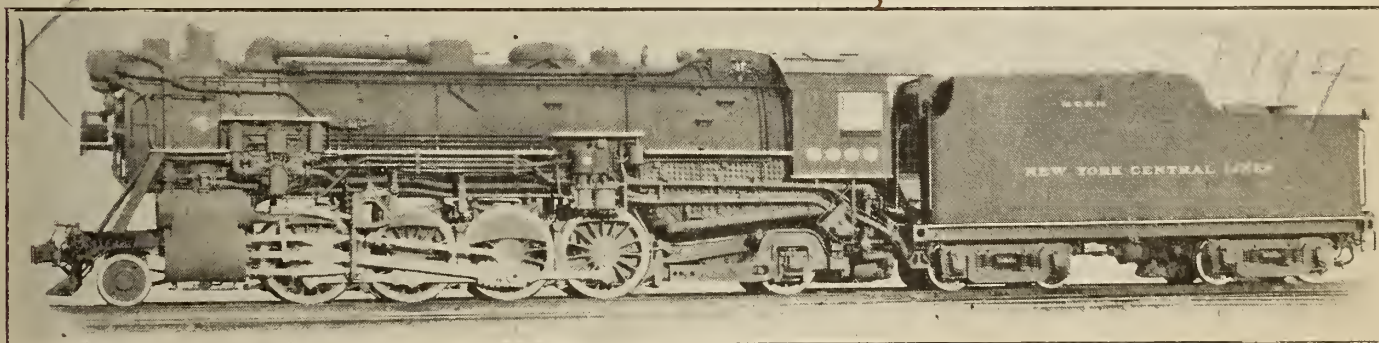
Michigan Central Railroad Mikado Locomotive, showing feed water heater in front of throttle and stack.

direct to the superheater. Also, probably for the first time in the history of locomotive operation on this continent, superheated steam is used for the operation of the auxiliaries, including the elec-

lects any water that may be in the steam, the water being automatically returned to the boiler. This, together with the fact that the steam is taken from the highest point of the boiler, ensures that the steam when it gets behind the pistons is dry and of high superheat. From the superheater steam passages in the header, the superheated steam is conveyed to the throttle, located on top of the smoke box immediately ahead of the stack, so that from throttle valve to cylinders the steam takes a short and direct course. The feed water heater is located in front, above the headlight and is carried on brackets secured to a permanent section of the smoke-box front, so that the main front can be removed without disturbing the heater. The feed water pump is mounted on the left side of the boiler, immediately back of the smoke-box, and a little higher than the air compressor.

The operating devices used by the crew are such that the locomotive may be operated with the minimum of physical labor. The locomotive is equipped with power reverse gear, mechanical stoker, and an automatic grate shaker. The interior arrangement of the cab is such that all valves are situated conveniently to the member of the crew who has to operate them, obviating the necessity of much movement from his position. The locomotive is equipped with a scoop for taking water on the fly, and even the whistle is blown pneumatically, by the simple turning of a valve, and the bell ringer is put to work by pushing a button.

Among other improvements is a double refractory brick arch in the firebox, designed to ensure as complete combustion as can be obtained. A booster application is responsible for 11,000 lb. tractive



Mikado Locomotive 8000, Michigan Central Railroad.

Heating surface, firebox.....	223 sq. ft.
" arch tubes.....	68 sq. ft.
" tubes.....	4,578 sq. ft.
Distribution of weight, in working order:	
on drivers.....	245,500 lb.
on leading truck.....	30,000 lb.
on trailing truck.....	58,500 lb.
Tender, water capacity.....	10,000 gall.
coal.....	16 tons

The new locomotive presents large departures from the familiar features of ordinary designs, and the improvements introduced are fully as notable as the appearance is striking. An important departure from standard practice is the

trical generator, air compressor, feed water pump and booster engine, while the piping is so arranged that saturated steam may also be used. Instead of the usual injector, the feed water for the boiler is taken from the tender by a feed water pump which forces it through an exhaust steam heater, the condensate from the exhaust steam being filtered before return to the tender to get rid of any oil from the cylinders.

Before the steam leaves the dome, it is passed through a separator which col-

lects any water that may be in the steam, the water being automatically returned to the boiler. This, together with the fact that the steam is taken from the highest point of the boiler, ensures that the steam when it gets behind the pistons is dry and of high superheat. From the superheater steam passages in the header, the superheated steam is conveyed to the throttle, located on top of the smoke box immediately ahead of the stack, so that from throttle valve to cylinders the steam takes a short and direct course. The feed water heater is located in front, above the headlight and is carried on brackets secured to a permanent section of the smoke-box front, so that the main front can be removed without disturbing the heater. The feed water pump is mounted on the left side of the boiler, immediately back of the smoke-box, and a little higher than the air compressor.

The locomotive designers were confronted with the problem of obtaining a significant increase in capacity, without exceeding the weight on drivers of the railway's class H 7 E mikado locomotives, these being near to track and bridge capacity. The problem was solved

satisfactorily, as shown by the following comparison:—

	Class H7E	No. 8000
Weight on drivers, lb.	216,000	245,500
Weight, total, lb.	328,000	334,000
Traction effort, with booster, lb.	74,500	
without	59,000	63,500
Cylinder horsepower, maximum	2,624	3,070
Weight per cylinder horsepower	125	109

A primary consideration in the design of the locomotive 8000 was fuel economy. This does not necessarily mean the burning of less fuel than in previous locomotives, but the ability to obtain the maximum drawbar output in relation to fuel consumed. This object was obtained by correct design, in which the area of the steam passages between the superheater header and throttle was increased, and by the inclusion of the Superheater Co's high temperature superheater, designed for a higher degree of superheat than the usual apparatus, and the feedwater heater, double brick arch, mechanical stoker, etc., above noted. One of the locomotive's minor features, but one of considerable importance, is the 12-in. radii in the firebox corners. This facilitates the circulation of water around the firebox, and is also an advantage in cleaning the mudring corners.

The dry pipe's outside location was necessitated by the throttle's location in the smokebox, between the superheater

Class H 7 E					
Speed		Front drivers	Inter- mediate	Main	Back
50	m.p.h.	9,520	11,200	5,680	9,750 lb.
40	m.p.h.	6,100	7,180	3,630	6,240 lb.
30	m.p.h.	3,430	4,040	2,040	3,510 lb.
No. 8000					
50	m.p.h.	5,340	5,340	4,080	5,160 lb.
40	m.p.h.	3,420	3,420	2,610	3,300 lb.
30	m.p.h.	1,920	1,920	1,470	1,860 lb.

Among the specialties on the locomotive are the following: Lima special steel main crank pins and side rods, Franklin spreader and collar, type A-1 radial buffer, unit safety bar, adjustable wedges, grate shaker, sprinkler, type D precision power reverse gear and locomotive booster, Commonwealth engine truck, type B Delta trailing truck with constant resistance centering device, tender frame and 4-wheel tender trucks, American Arch Co. type P arch, Pyle-National type N-2 generator, Superheater Co's feedwater heater and type E superheater, Baker-Pilliod valve gear, McLaughlin flexible joints; Elvin mechanical stoker.

It is said that in preliminary tests and in subsequent daily service the locomotive has more than met the builder's expectations, both in developing high drawbar pull, and in economy of operation. It has demonstrated that it has a remarkable range of service, designed primarily to haul a heavy train in fast freight service, and specially adapted for that work,

In this connection, it is well to emphasize that, despite the large number of economy devices applied, the locomotive is a great deal more than simply an aggregation of various devices making for economy. The whole design is so conceived and executed as to use to the maximum all of the economy and capacity increasing factors. Each departure in design is vitally dependent on each other improvement. Taken together, and they must be considered together, and not each one separately, these factors have produced an operating unit designed to produce maximum power per pound of metal and per pound of fuel. It is not what each element contributes, but rather the resulting locomotive as an operating unit, which is important. It is by forward steps like the one represented by this development that real progress is made in the continual struggle to reduce rail transportation costs.

W. D. Robb's Message to G.T.R. Officers and Employees.

W. D. Robb, Vice President and General Manager, has issued the following circular to officers and employees:—"From the many congratulatory messages received I am led to believe that it



Michigan Central Railroad Locomotives.

No. 8,000, the latest mikado type built, and no. 9,777, formerly 248, which is 40 years old and still in light service around Detroit, Mich.

and cylinders, as stated above, and by the desirability of being able to shut off steam from the throttle without killing the locomotive. The shut-off valve for this purpose is located just outside the dome. In order to reduce the number of joints, the dome and back end of dry pipe are made integral as a steel casting. The main throttle is accessible from the smoke box exterior. The throttle valve is of the double poppet type, top lift, operated by outside rigging. The throttle's location, between the superheater and cylinders, obviates the necessity for the usual dampers and rigging, and causes the locomotive to respond more quickly to the throttle than when the latter is placed in the dome. The locomotive's special features are subjects of patents which are pending.

One of the measures resorted to to keep down weight was the use of hollow axles, and main crank pins, with special quality steel in main and parallel rods. Great care was also exercised in designing the reciprocating parts so that not only was there a saving in the static weights, but it was also possible to reduce the dynamic augment, which is the effect of excess counterbalance on the rail at speed. The following comparison indicates the relative dynamic augment of the railway's class H 7 E mikado and no. 8000, at 30, 40 and 50 m.p.h.:

It has also demonstrated its effectiveness in relatively slow drag freight service, by hauling 10,039 tons in 147 cars, a train 1 1/4 miles long, from Toledo, Ohio, to Detroit, Mich., 47.6 miles, in 3 hr. 31 min. running time. No assistance was required to start or haul this train, and no trouble was experienced in maintaining full boiler pressure when operating to maximum capacity. The evaporation per pound of fuel is phenomenal, as for three of the full tonnage runs between Detroit and Toledo, the total water divided by total fuel averaged 9.7 lb. This locomotive, designed and built to keep heavy trains on their fast freight schedules, has proved itself able to do so economically. Proof of this is found in the fact that the New York Central Lines announced recently that it had placed orders for 150 locomotives of the same type, 75 to be built by Lima Locomotive Works and 75 by American Locomotive Co.

As stated above, the design of this locomotive and its introduction into service is an important development. This is because it represents the largest assembly of proved and practicable economy and efficiency devices in a single power unit yet recorded, and because the design, in which all factors have been given their due consideration, has obtained the desired result, viz., the ability to move freight at minimum cost.

has been a source of satisfaction to the employees of the G.T.R. System that one who has served the company for over 50 years, beginning as an apprentice in the shops, has been appointed to the office of Vice President and General Manager. I recognize that in a very great measure my advancement has been made possible by the efficient and loyal support received from fellow employees and officers, and I gladly embrace this opportunity of thanking them most sincerely for their support. I earnestly solicit, as chief executive officer, the continuance of that whole hearted co-operation in order that the new administration may be a success. From past experience I am confident that this support will be forthcoming. It is evident that the time is not far distant when the G.T.R. will be consolidated with the Canadian National System. I feel sure that, when this takes place, all G.T.R. employees will continue with increased vigor to discharge their duty so that we may carry with us into our larger field of service with the National Railways of Canada, the efficiency and loyalty that have made the G.T.R. an organization of which we may all be justly proud."

The Canadian National Rys. are reported to be operating 18 passenger trains and 12 freight trains daily across the Quebec Bridge.

Birthdays of Transportation Men in October.

Many happy returns of the day to:

A. Aitken, Assistant Superintendent, Toronto Terminals, C.P.R., Toronto, born at Cecewsville, Ont., Oct. 12, 1872.

E. W. Beatty, K.C., President, C.P.R., Montreal, born at Thorold, Ont., Oct. 16, 1877.

L. S. Brown, Assistant General Manager, Eastern Lines, Canadian National Rys., Montreal, born at Nelson, N.B., Oct. 19, 1864.

J. W. Corbett, Purchasing Agent, Canadian Government Merchant Marine Ltd., Montreal, born there, Oct. 4, 1887.

H. H. Couzens, A.M.I.E.E., General Manager, Toronto Transportation Commission, and Vice President, Canadian Electric Railway Association, born at Totnes, Devonshire, Eng., Oct. 16, 1877.

John Deed, City Agent, Freight and Passenger Department, Canadian National Rys., London, Eng., born there, Oct. 12, 1887.

A. F. Dion, Traffic Manager, Quebec Harbor Commission, Quebec, born at L'Islet, Que., Oct. 1, 1871.

H. A. Dixon, Chief Engineer, Western Lines, Canadian National-Grand Trunk Pacific Rys., Winnipeg, born at Sand Hill, Ont. Oct. 7, 1878.

L. V. Druce, Travelling Traffic Representative, Canadian National-Grand Trunk Pacific Rys., Seattle, Wash., born at London, Eng., Oct. 20, 1873.

D. Drummond, Agent, C.P.R. and Canadian Pacific Steamships Ltd., Southampton, Eng., born at Sheddens, Renfrewshire, Scotland, Oct. 12, 1884.

J. H. Edwards, Freight Claims Agent, Canada Steamship Lines, Montreal, born at Birmingham, Eng., Oct. 4, 1890.

A. C. Egan, General Auditor, Canadian Northern Ry. System and Grand Trunk Pacific Ry., Toronto, born at Winnipeg, Oct. 6, 1883.

C. E. Friend, Comptroller, Canadian National Rys., Toronto, born at Brighton, Eng., Oct. 12, 1871.

W. P. Fitzsimmons, Commissioner of Industries, G.T.R., Montreal, born at Detroit, Mich., Oct. 27, 1868.

G. Gordon Gale, Vice President and General Manager, Hull Electric Co., Hull, Que., born at Quebec, Que., Oct. 9, 1882.

C. N. Ham, Secretary, Express Traffic Association of Canada, Montreal, born at Winnipeg, Oct. 21, 1884.

G. Hodge, Assistant General Manager, Eastern Lines, C.P.R., Montreal, born there, Oct. 2, 1874.

J. H. Hughes, Assistant Superintendent, Ottawa Division, Quebec District, C.P.R., Ottawa, Ont., born at Charlottetown, P.E.I., Oct. 7, 1865.

H. Irwin, Consulting Right of Way and Lease Agent, C.P.R., Montreal, born at Newgrove, County Down, Ireland, Oct. 27, 1847.

W. B. Johnson, Master Mechanic, Halifax Division, Maritime District, Canadian National Rys., Truro, N.S., born there, Oct. 8, 1872.

W. B. Lanigan, Freight Traffic Manager, C.P.R., Montreal, born at Three Rivers, Que., Oct. 12, 1861.

O. M. Lavoie, Superintendent, Laurentian Division, Quebec District, C.P.R., Montreal, born at St. Cyril de Wendover, Que., Oct. 16, 1884.

A. E. McMaster, formerly Division Freight Agent, Grand Trunk Pacific Ry., Edmonton, Alta., now Resident Manager, Powell River Co., Powell River, B.C., born at Perth, Ont., Oct. 22, 1885.

C. Malcolm, chief clerk, Auditor of Stores and Mechanical Accounts, Alberta

District, C.P.R., Calgary, Alta., born at Tatamagouche, N.S., Oct. 18, 1881.

W. T. Marlow, General Freight Agent, Ocean Traffic, C.P.R., Montreal, born at Limerick, Ireland, Oct. 25, 1872.

C. R. Moore, General Superintendent of Car Service, G.T.R., Montreal, born at Hamilton, Ont., Oct. 12, 1867.

Hugh Paton, President, Shedden Forwarding Co., Montreal, born at Johnstone, Renfrewshire, Scotland, Oct. 5, 1852.

J. W. Porter, Special Engineer, Western Lines, Canadian National Rys., Winnipeg, Man., born at Aberdeen, Scotland, Oct. 15, 1877.

H. G. Reid, General Master Mechanic, Western Lines, Canadian National Rys., Winnipeg, born at Pembroke, Ont., Oct. 27, 1863.

J. K. Savage, General Superintendent, Quebec District, C.P.R., Montreal, born at Forreton, Ill., Oct. 5, 1876.

The Lord Shaughnessy, K. C. V. O., Chairman, C.P.R., Montreal, born at Milwaukee, Wis., Oct. 6, 1853.

T. Duff Smith, Lake Forwarding Agent, Canadian National Rys., Cleveland, Ohio, born at Barking, Essex, Eng., Oct. 2, 1868.

Lieut.-Col. C. C. Stibbard, D.S.O., Trainmaster, C.P.R., Lethbridge, Alta., born in Sussex, Eng., Oct. 19, 1885.

C. E. Stockdill, Assistant to Vice President, Western Lines, C.P.R., Winnipeg, born at London, Ont., Oct. 25, 1881.

D. A. Storey, ex-Freight Traffic Manager, Canadian Government Railways, Moncton, N.B., now of Montreal, born at Halifax, N.S., Oct. 26, 1853.

Walter S. Thompson, Publicity Agent, G.T.R., Montreal, born at Newcastle-upon-Tyne, Eng., Oct. 22, 1886.

E. N. Todd, General Foreign Freight Agent, C.P.R., Montreal, born at Huntingdon, Que., Oct. 17, 1879.

J. H. Valteau, Secretary-Treasurer, Thousand Islands Ry. and Oshawa Ry., Gananoque, Ont., born at Selby, Ont., Oct. 14, 1889.

J. A. Vallerand, Superintendent and General Freight and Passenger Agent, Roberval-Saguenay Ry., Chicoutimi, Que., born at Quebec, Que., Oct. 21, 1878.

R. Walton, Division Master Mechanic, Montreal Division, Quebec District, C.P.R., Montreal, born at Peterborough, Ont., Oct. 16, 1880.

Eastern Standard Time Ordered for Railways in Detroit.

The Interstate Commerce Commission, by an order dated Oct. 24, 1918, fixed the boundary between the eastern and central standard time zones in such a way that the City of Detroit, Mich., was placed in the central time zone. The standard of time to be observed in that city has been a subject of contention for years. Since May 11, 1915, eastern standard time has been used by the city under a municipal ordinance. Although the Michigan Legislature prescribed central time as standard for the state, the city claimed that this violated a clause in the state constitution, which prescribed a measure of "home rule" for cities, and refused to change its time. On Oct. 27, 1918, the standard time of each zone was retarded one hour as required by act of Congress, but Detroit did not change its time, so that the time on which it was operating corresponded with standard central time. Finally, on May 29, 1922, the city authorities asked the I. C. Com-

mission to amend its order so as to place Detroit in the eastern standard time zone, and clear up all confusion.

At the hearing, in July, the city was represented by C. E. Wilcox, and as the railways serving the city were vitally interested, the Michigan Central Rd. and the New York Central Rd. were represented by J. J. Danhof, Jr., the Pere Marquette Rd. by J. C. Shields, and the Grand Trunk Ry. Western Lines, by W. K. Williams. Mr. Wilcox defined the purpose of the application as being "the removal of the uncertainties and inconvenience to commerce resulting from the observance locally in Detroit of a standard of time different from U.S. standard time, by bringing the latter into harmony with that used locally."

The Commissioners decided to grant the request, and did so by merely changing the boundary between the eastern and central time zones, so as to include Detroit in the former. The boundary in that locality was formerly as follows: Michigan-Ohio.—Beginning on the boundary line between the United States and Canada east of Port Huron, Mich.; thence southerly along the International Boundary Line through the St. Clair River, Lake St. Clair, Detroit River, and Lake Erie to the intersection of the International Boundary Line with the boundary line between the States of Ohio and Michigan.

By the Commission's order, this boundary has been changed, and is now as follows: Michigan-Ohio.—Beginning on the boundary line between the United States and Canada, east of Port Huron, Mich.; thence southerly along the International Boundary Line through the St. Clair River and Lake St. Clair to its intersection with the easterly boundary of the City of Detroit; thence northwesterly, westerly, southerly, and easterly along the boundary of the City of Detroit to its intersection with the International Boundary in the Detroit River; thence southerly along the International Boundary Line in the Detroit River and Lake Erie to its intersection with the boundary line between the States of Ohio and Michigan.

Concerning railway operations, the Commission stated: "All common carriers engaged in interstate or foreign commerce entering Detroit from the north, west, or south, and the Detroit Terminal Rd., may continue to operate within the City of Detroit under U.S. standard central time, even though that portion of their lines within the said city will lie within the standard eastern time zone. But the Commission expects that they will, in their published advertisements, their time cards hereafter issued, bulletin boards in stations, and in other like ways, show the arrival and departure of their trains at Detroit with reference to U.S. standard eastern time."

The above arrangements were made effective Aug. 27, by I.C.C. order 10,122.

Standard Transfer Co., Ltd., has been incorporated under the Dominion Companies Act, with authorized capital of \$10,000 and office at Medicine Hat, Alta., to engage in business as a common carrier, baggage and parcel transfer agent, transporting, forwarding and transmitting by rail, water or vehicle; transporting freight upon land or water; to engage in towing, wrecking or salvaging, and a variety of other businesses connected with the carrying of freight and passengers. The provisional nominal directors include A. and J. Barron, barristers, Calgary, Alta.

Railways Department's Estimates.

The further supplementary estimates for the year ended March 31, 1922, passed at the Dominion Parliament's last session, contained the following items, chargeable to income:—

Governor General's cars, attendance, repairs and alterations, further amount required, \$6,600.

To provide for expenditure for rails, accessories and repairs to equipment to Dec. 31, 1921, Governor General's warrant, Dec. 21, 1921, \$735,000.

The estimates for the year ending March 31, 1923, passed at the Dominion Parliament's last session, contain the following items:—

Canadian Government Railways, chargeable to capital:

Construction and betterments (to be expended under the direction of and upon such terms and conditions as the Governor in council may from time to time determine, \$2,700,000.

To pay claims for right of way, \$30,000.

To provide for the purchase, at prices not exceeding the amounts herein specified, of the following railways (the debt of each railway to the Canadian Government Rys. to be cancelled); interest on the purchase price to be payable at the rate of five per centum per annum from the date of taking possession to the date of transfer of title; (such of the said railways as are within the jurisdiction of the Parliament of Canada are hereby authorized to sell their respective assets and undertakings accordingly):

Moncton and Buctouche Ry., revote, \$70,000.

Caraquet & Gulf Shore Rys., revote, \$50,000.

Interest estimated—from date of taking possession to March 31, 1923, not exceeding (including revote—\$24,000), \$30,000.

For railway equipment and materials, for improvements to existing equipment, and for the purchase of new work equipment for the purposes and upon the same terms (save as herein varied) mentioned in the Statutes of 1918, chap. 38. The assistance herein provided may be by way of advances to the Canadian National Rolling Stock, Ltd., or to any company comprised in the Canadian Northern Ry. System, or the Grand Trunk Pacific Ry. System, or by way of equipment or materials acquired by the Minister, \$2,800,000.

Hudson Bay Ry.: Port Nelson Terminals, \$40,000.

Chargeable to Income.

To supplement pensions allowances payable under the provisions of the Intercolonial and Prince Edward Island Ry. Employees' Provident Fund Act, so as to make the minimum payment, during the current fiscal year, \$30 a month instead of \$20, as fixed by the act, \$50,000.

Arbitrations and awards and cost of litigation, \$2,000.

Board of Railway Commissioners for Canada: maintenance and operation of, \$221,635.

Commissioner of Highways: To provide for the organization and payment of staff of Commissioner of Highways, including A. W. Campbell, C.E., as Chief Commissioner of Highways, at \$5,000 a year, and W. R. Smythe, as Commissioner of Highways at \$4,000 a year, \$71,000.

Governor General's cars, attendance, repairs and alterations, \$10,000.

Amount not exceeding \$42,800,000 to meet expenditures made, or indebtedness

incurred (where amount available from net operating earnings may be insufficient) by or on behalf of the Canadian National Ry. Co., the Canadian Northern Ry. Co., or any company comprised in the Canadian Northern System, or any one or more of them, on any of the following accounts: Operating deficits; acquisition of property, materials and supplies; interest and sinking funds on notes, securities or obligations; principal and interest of maturing or matured loans secured or unsecured; construction and betterments; co-ordination or consolidation of railway lines and facilities, \$42,800,000.

Amount not exceeding \$25,750,000 to meet expenditures made or indebtedness incurred (where amounts available from net operating earnings may be insufficient) by or on behalf of the Grand Trunk Ry. Co. of Canada, or any company comprised in the G.T.R. System or any one or more of them (excluding herefrom however expenditures or indebtedness incurred by or on behalf of the Grand Trunk Pacific Ry. Co., except as specifically provided in item (g) hereof) on any of the following accounts: (a) Operating deficits. (b) Acquisition of property, materials and supplies. (c) Interest and sinking fund on notes, securities or obligations. (d) Principal and interest of maturing or matured loans secured or unsecured. (e) Construction and betterments. (f) Co-ordination or consolidation of railway lines and facilities. (g) Guarantees by the Grand Trunk Ry. Co. of securities of the Grand Trunk Pacific Ry. Co., \$27,750,000.

Amount not exceeding \$15,900,000 to meet expenditure made or indebtedness incurred (where amounts available from net operating earnings may be insufficient) by or on behalf of the Grand Trunk Pacific Ry. Co., or any company comprised in the G.T.P.R. System or any one or more of them (excluding herefrom however guarantees by the Grand Trunk Ry. Co. which are provided for in item (g) of the next preceding item) on any of the following accounts: (a) Operating deficits. (b) Acquisition of property, materials and supplies. (c) Interest and sinking funds on notes, securities or obligations. (d) Principal and interest of maturing or matured loans secured or unsecured. (e) Construction and betterments. (f) Co-ordination or consolidation of railway lines and facilities, \$15,900,000. This was increased by \$800,000 in the supplementary estimates.

Chargeable to Collection of Revenue.

Canadian Government Railways—To ward any deficiency in receipts and revenues necessary to meet working expenditures for the 12 months ended Dec. 31, 1922, the management of the railway being hereby authorized to apply receipts and revenues toward payment of the said working expenditures, \$7,000,000.

Chargeable to Income.

To provide for allowance of full railway pay, including their military pay and field allowance, on and after May 1, 1915, to certain employes of Lake Superior Branch, Transcontinental Ry., who enlisted prior to May 1, 1915 (revote), \$60,000.

Chateau Laurier First Aid Training.—The housekeeper and 10 of the other female staff of the G.T.R.'s Chateau Laurier Hotel, Ottawa, have passed examinations in first aid, conducted by the St. John's Ambulance Association's Canadian Branch.

Radio Experiments on Canadian National Railways' Trains.

The utility of radio for entertainment on passenger trains was demonstrated by the Canadian National Rys. between Montreal and Toronto, via Ottawa, recently. The messages were received in volume sufficient to use a loud "speaker," making it possible for the entire car to hear the performance. An interesting feature of tests on the C.N.R. is that radio functioned perfectly while the train was passing through the 3¼-mile tunnel under Mount Royal. The high tension wires running through the tunnel did not appear to retard the waves of sound. Crossing the Ottawa River by the Hawkesbury bridge, between Montreal and Ottawa, the waves of sound were strong at the entrance of the bridge, weaker towards the centre, and powerful again towards the end.

Toronto was picked up near Trenton, approximately 100 miles away. The messages were heard distinctly by receivers worn over the head, but they did not come with sufficient power for the loud "speaker" to be used farther than 75 miles from Toronto. From that point, musical numbers, sporting events, financial and commercial news, lectures and other matter usually transmitted by radio were heard clearly. The results of the various baseball games were heard when the train was 50 miles from Toronto. On several occasions, the "loud" speaker had to be toned down, as the volume of sound was too great. Rochester, Buffalo, and Schenectady, N.Y., and Pittsburg, Pa., were picked up beyond Port Hope.

In these tests, the Northern Electric Co. and Canadian National Telegraphs have been adapting equipment to meet the difficulties attending the transmission of radio to steel trains in rapid motion. It has been proved that the steel car offers no insurmountable obstacles to radio transmission.

Election of Canadian Officers, B. of L. F. & E.

W. L. Best, Ottawa, was, for the tenth time, elected Chairman of the Brotherhood of Locomotive Firemen and Engineers' Canadian Legislative Board, at the concluding meeting of the series held by the Brotherhood's Canadian officers at Ottawa, recently. At this meeting, as on all previous occasions, Mr. Best was elected unanimously. Jas. Pratt, Toronto, who has been connected with the organization for over 40 years, was re-elected Secretary-Treasurer. The following were elected vice chairmen: British Columbia, T. L. Bloomer, Nelson; Alberta, G. W. Yates, Calgary; Saskatchewan, G. A. Hall, Moose Jaw; Manitoba, F. W. Nicks, Winnipeg; Ontario, H. B. Crawford, Trenton; Quebec, S. Dale, Montreal; New Brunswick, F. W. Henderson, St. John; Nova Scotia, J. R. Stewart, New Glasgow; Prince Edward Island, P. A. Smith, Charlottetown. The board of directors was elected as follows: W. G. Graham, Lindsay, Ont., chairman; E. Hutchinson, Kenora, Ont., secretary; J. A. Killingsworth, St. Thomas, Ont.

The Edmonton, Dunvegan & British Columbia Ry. is reported to have hauled a train of 36 cars of live stock from the Peace River district to Edmonton, Alta., recently, in 30 hours. This is said to be not only the heaviest shipment of cattle from the district, but the fastest run for a freight train over the line.

Railway Exhibits at Canadian National Exhibition.

The larger Canadian railways had most interesting and instructive exhibits at the Canadian National Exhibition, Toronto, Aug. 26 to Sept. 9. In addition to displays by the passenger departments, illustrating points of interest on various routes of travels, the railways had exhibits of the devices and equipment with which modern railroading is carried on, and that the public was interested was evident by the manner in which the exhibits were studied by large numbers.

The Canadian National Rys. had a complete, up-to-date passenger train on a track on the north side of the grounds, consisting of Pacific type locomotive, 5,304; baggage car, 8,631; colonist car, 2,810; first class car, 5,010; tourist sleeping car, 2,241; dining car, 1,248; sleeping car, Chaudiere; compartment observation car, Fort William, and mountain observation car, 15,100. The Canadian Pacific Ry. had on the same track some of its most modern passenger train equipment, including dining car, Wolvesey; tourist sleeping car, 6,204; sleeping car, Nosbonsing; and compartment car, Gleneagle. Attendants in charge of the equipment were on hand to explain the many points of interest.

The 4 self-propelled cars exhibited by the Canadian National Rys. on the grounds attracted a great deal of attention. These cars are described elsewhere in this issue, under "Self-Propelled Cars for Steam Railways."

In the transportation building the C. P.R. showed features of its Atlantic and Pacific steamship service, including a most striking reproduction of a scene at Yokohama, and Tokio Bay, Japan. The land and buildings formed a fitting background for the harbor scene, and miniatures of ships, ranging from C.P.R. trans-Pacific ones down to small tugs, which were propelled across the foreground by an electric motor and chain drive arrangement, made the reproduction very realistic. Numerous pictures of points of interest in Japan and of various aspects of Japanese life, were also shown, all of these being executed in water colors by a Japanese artist. They were brought from Japan by E. R. Bruce, Director of Exhibits, C.P.R. Another notable C.P.R. exhibit was one showing points of interest on the St. Lawrence route, including the Chateau Frontenac, Quebec, as it will appear when the additions now under construction are completed. A large number of hand painted pictures illustrating various points on the route were also shown. Another exhibit was a West Indian scene, realistically shown as one would view it from the stern of the Empress of Britain on one of her cruises. The company also had a large number of colored transparencies, showing points of interest on its land and water routes, and ships belonging to its Atlantic and Pacific fleets. The Natural Resources Department was represented by C. La Due Norwood, Land Agent, Montreal, and booklets dealing with C.P.R. lands in Western Canada were distributed to interested parties.

The Canadian National-Grand Trunk Rys. had three sets of colored transparencies, the first showing cities and other points of interest east of Montreal, the second covering the territory between Montreal and Winnipeg, and the third that west of Winnipeg. A large case of birds and animals common to Northern Ontario, with a chart describing them, was also shown. A model of

the Highland Inn, Algonquin Park, and dancing pavilion, arranged with lights to give a very realistic effect, attracted a great deal of attention, and this was supplemented by a series of transparencies showing interior views. A large map showing the Canadian National-Grand Trunk railway lines, with cities marked by colored lights, showed the system's extent, and arranged horizontally across the map, which covered one side of the large exhibit room, was a model of a transcontinental passenger train, with the wheels made to revolve by a concealed motor and chain drive arrangement. At 15-minute intervals, moving pictures were shown, the subjects being as follows: Eastern Canadian cities; winter life and sports in Algonquin Park and at the Highland Inn; views of resort at Minaki, Ont.; views of Jasper Park, and Pacific Coast; shipment of 315 automobiles in 61 cars from Oshawa, Ont., to St. John, N.B., and loading them on C.G.M.M. s.s. Canadian Conqueror for export. In addition to the foregoing, the Canadian National Rys. showed a large panel with views of railway hotels, C.G.M.M. ships and scenes at ports, a model of the telephone train dispatching system, and automatic telegraphic communication machines in operation. The C.N.R. had also in the transportation building and on its passenger train, a radio station, by means of which concerts could be heard from the Toronto and Port Dalhousie broadcasting stations.

Of great interest to the general public, but more particularly to the mechanically inclined, was the G.T.R. Stratford shops exhibit in the arena, in charge of H. Dower, welding specialist at the shops. The most notable feature of this exhibit was a model of a mikado locomotive back head, full size, showing all equipment and cab fittings in place. The exhibit included also a complete model of the G.T.R. Stratford station, made in the pattern shop, and a quarter-size model of a mikado locomotive, also made in the pattern shop. Other exhibits were working models of locomotive valve gear, full-size locomotive piston and piston valve, complete cross head, main rod and side rod equipment for one side of a locomotive, with all brasses, a complete set of Westinghouse 6 E.T. brake equipment, a Pyle-National electrical generator, type K2, with complete locomotive lighting equipment, a model cross-section of a locomotive boiler, section of a tube sheet showing the tubes welded in, a complete welding outfit, a welded copper washout hose nozzle, various tools made by the tools department, numerous articles making up a brass shop exhibit, and turnings from the wheels turned up in the test of the driving wheel lathe described in Canadian Railway and Marine World for August. An exhibit showing the development of the welder's art was a square section made up of welded metals, these being bronze, cast iron, copper and steel. Other features included the trophies won by the Stratford shops' first-aid team, gauges and other work turned out by apprentices, apprentices' prize drawings, and text-books used in apprentice instruction.

For the three months ended July 1, 13,513 cattle were shipped from Montreal for trans-Atlantic ports, an increase of approximately 33% over the corresponding period of 1921.

Special Instruction E in Railway Working Timetables.

The Board of Railway Commissioners, on Dec. 10, 1920, issued general order 322, requiring the chief Canadian railways to remove from their working time tables special instruction E, providing for train movements at passing tracks, and to operate in accordance with the standard rules as contained in the general train and interlocking rules. The order was made as the result of an application by the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen, and it was provided that the railways' employes should be instructed that the change in operating conditions would take effect on June 1, 1921. The granting of the order had been opposed by the Railway Association of Canada and member railways, and on representations from the Railway Association, general order 340, was issued May 19, 1921, extending the time at which the change in operating methods was to take place until June 15, 1921.

Before the latter date, the Railway Association applied to the Board for an order to bring about changes in the General Train and Interlocking Rules, Nos. 93 and 99 so that operations would continue to be carried on as if special instruction E remained in force. The matter was heard at Ottawa June 15 and 16, 1921, and the Board issued on June 17, 1921, general order 343, further extending the time for the withdrawal of rule E until Sept. 1, 1921, or until further notice.

No further action was taken until March 9, 1922, when railway representatives, with railway train service brotherhoods' representatives met the Board's chief operating officer at Ottawa and discussed the matter. The following draft order was filed with the Chief Operating Officer by the locomotive men's brotherhoods' representatives with a request that it be passed:—

"General order — Board of Railway Commissioners for Canada.

The complaint of the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen against special instruction E in the C.P.R. Co's timetable; and re application of the Railway Association of Canada for certain amendments to the General Train and Interlocking Rules, Nos. 93 and 99 in order to provide for the method of operation now employed by certain of its member railways under so-called special instruction E.

"Upon hearing the matter in Ottawa, June 15 and 16, 1921, the Railway Association of Canada, the Canadian Pacific, Grand Trunk, Toronto, Hamilton and Buffalo, Michigan Central and Canadian National Railways, the Brotherhood of Locomotive Engineers, the Brotherhood of Locomotive Firemen and Enginemen, the Order of Railway Conductors and the Brotherhood of Railroad Trainmen being represented at the hearing, and what was alleged; and upon the report and recommendation of the Chief Operating Officer of the Board, after conference on March 9, 1922, with the representatives of the railways and of the employes concerned, and in pursuance with the powers conferred upon the Board by the Railway Act—it is ordered as follows:

"1. Railway companies subject to the Board's jurisdiction are hereby required to withdraw special instruction E from

their respective working timetables, and hereafter observe the Uniform Code of Operating Rules for Canadian railways, approved by the Board's general order 42, July 12, 1909; the necessary changes and instructions to employees to become effective on May 1, 1922.

"2. The said railway companies shall file with the Board on or before May 1, 1922, a statement showing; (a) The names of its yards, limits of which are indicated by yard limit boards, and the distance that these boards are located from the outer main track switches of such yards; (b) The names and location of stations, junctions, yards, watering and fuel points where station protection signals are erected and operative, and (c) The names of such stations junctions, yards, watering or fueling points, not having station protection signals, but where the said railway companies consider such signals should be erected and maintained.

"3. Before any such company shall proceed to erect any yard limit board upon its right of way, after the date of this order, it must first obtain the Board's approval to the location of such yard limit board.

"4. After August 1, 1922, rule 93 of the approved Uniform Rules for the operation of Canadian railways shall apply only to yards where locations of yard limit boards have been approved by the Board.

"5. The right to use the main track within such yard limit boards, pursuant to rule 93 does not relieve employees from protecting their trains as prescribed by rule 99.

"And it is further ordered that the Railway Association of Canada's application for certain amendments to rules 93 and 99 is hereby dismissed."

The Board had not announced its decision at the time of writing.

The International and Great Northern Ry.—A small railway in the Southern States, was announced to be offered for sale at auction at Houston, Tex., recently, to satisfy bondholders' claims amounting to between \$18,000,000 and \$19,000,000. The railway has been in the receiver's hands for some time. The only interest in this line, beyond its immediate locality, is that prior to 1914, it was the central part of an ambitious project for an international line to extend from the Gulf or Mexico to Winnipeg, northerly, and to connect with lines in Mexico to the south.

North Bay Canadian Pacific Employees' Club, Ltd., has been incorporated under the Ontario Companies Act, with a capital of \$40,000, in \$5 shares, and office at North Bay, Ont., for the furtherance of recreation, sport and social life and to maintain a clubhouse and park there, and for other allied purposes. The provisional directors are: R. Tyner, R. V. Carleton, J. Jarrett, P. King, A. Beattie, W. O. Cudworth, S. Frost, J. E. Hughes, J. P. Leblanc, C. St. Germain, and J. C. O'Neill, all railway employees at North Bay.

Railway Accidents Throughout Canada.—The total number of railway accidents reported to the Board of Railway Commissioners during August, was 213, resulting in 1 passenger, 5 employees and 12 others being killed, and 40 passengers, 152 employees and 29 others being injured. Under "others" are included 4 persons killed and 15 injured in 15 highway crossing accidents. Of these accidents, automobiles were concerned in 6, other vehicles in 4, and pedestrians in 5.

Canadian Pacific and Canadian National Railways' July Earnings and Expenses.

C.P.R. gross earnings for July were \$14,463,835, a decrease from July, 1921, of \$1,309,094. Operating expenses were \$12,501,926, a decrease of \$1,216,687. This left the net earnings for the month \$1,961,909, a decrease from July, 1921, of \$92,407. The July results were a great deal more favorable than those secured for some months past, and, if we confine our enquiry to the immediate past, are distinctly encouraging from several points of view. In the first place, the increased gross earnings reflect a growing traffic, and a substantial improvement in business conditions. The July gross was the best for any of the first seven months of this year, and was but \$1,319,095 less than for July, 1921, a creditable showing when the rate reductions are given due consideration. Gross earnings in July were \$653,387 larger than in June, the next best month in 1922. Another most favorable feature of the July figures is in the road's resumption of its reduction in operating expenses. For the first four months of 1922, operating expenses decreased from those for corresponding months in 1921, but in May they increased over May, 1921, and in June they were greater than in June, 1921. In July, however, operating expenses declined from July, 1921, and this showing is all the more creditable as the 1921 wage reduction took effect on July 16 of that year. Prospects were distinctly discouraging in May and June of this year, when the decline in gross earnings was not accompanied by a corresponding decline in comparative operating expenses, but by an increase, but the July results improved matters considerably. The gross earnings in July being accompanied by this drop in operating expenses, net earnings were only \$92,405 less than in July, 1921. For the first seven months of this year, however, results were considerably behind those of 1921. Gross earnings to the end of July, 1922, were \$9,069,407 less than in the corresponding period of 1921, and operating expenses were but \$5,840,905 less, which reduced net earnings for the period by \$3,228,502. While the gross for the first seven months of 1922 was smaller by the amount stated than for the first seven months of 1921, it is worthy of note that reduced rates have been the cause of this, and also that on only three occasions in the road's history have the gross earnings for the seven months period been larger than in 1922. This was in 1921, 1920 and 1919, when inflation was rampant and prices and rates increased, and it may be stated with assurance that the reduction in gross suffered by the C.P.R. this year is no reflection on its ability to derive gross earnings, but is rather a direct result of the deflation which the country has undergone, translated into terms of reduced railway rates.

The Canadian National Railways' gross earnings in July were \$8,877,776, a decrease from July, 1921, of \$248,593; and operating expenses were \$10,510,778, an increase of \$49,480, which resulted in increasing the operating deficit by \$298,433 to \$1,633,002. It is probable that the work of preparing the road and equipment for the heavy fall traffic contributed materially to operating expenses, as similar work added to C.P.R. expenses in June, but at all events the results secured by the National Railways in July were not by any means as en-

couraging as those secured by the C.P.R.

It is both interesting and instructive to compare the trend of railway earnings in Canada at present with those of several years ago, and it may be said at once that when a comparison with results secured in years gone by is instituted, the July, 1922, results, and those for the first seven months of this year, are by no means encouraging. The C.P.R. results must form the basis of comparison. In the first seven months of 1917, the C.P.R. net earnings were \$24,757,455, and in the first seven months of 1916, they were \$23,618,825. In the first seven months of 1913 they were \$23,231,516, and in the first seven months of 1912 they were \$23,276,171. For the first seven months of 1922 they were but \$11,775,979. The difference is large, and as large a difference is evident on comparing the net for individual months. For July, 1917, the net was \$3,760,007; for July, 1916, \$4,017,091; for July, 1913, \$4,116,793, and for July, 1912, \$4,448,177. The net for July, 1922, was but \$1,961,908. Therefore, while the C.P.R. July results this year were considerably better than those of the months immediately preceding, they were not at all comparable with those of former years. The same applies to the seven months period. Recent Government action in connection with railway rates and wages, resulting in the railways being compelled to operate at greatly reduced rates, while proposed wage reductions hang fire, indicates that the people running the country do not seem to be concerned as to whether railway operation ever gets back on a proper basis or not. If the country is to grow and prosper, its railways will need large amounts of new capital to provide necessary new facilities, and in the long run the capital will be obtained at least cost to the public if the railways are allowed to earn a fair return. We have spoken of the Canadian National Rys. results for July as being unfavorable, but it must be evident to all that if the C.P.R. is so regulated by Government authority that its earnings are so limited in comparison to those of 10 years ago, it is no wonder the Canadian National returns are disappointing, and, on that basis, the chances of the National Railways, with their large new mileage of light traffic density line, for attaining a position wherein they will earn operating expenses, will be indeed limited for some time to come.

American Transit Co.—Canadian Transit Co.—The Michigan Public Utilities Commission is reported to have issued an order suspending the sale of the securities of the American Transit Co., which is financing the construction of the proposed new bridge between Detroit, Mich., and Windsor, Ont. The sale of the securities of the Canadian Transit Co., which is the Canadian end of the project, was the subject of debate in the House of Commons recently.

Grand Trunk Railway Stock Prices.—A London, Eng., press dispatch speaks of a precipitate fall in G.T.R. securities, and says: "G.T.R. ordinary stock, worth 12½ in pre-war days, has dropped to one-half point. G.T.R. first preference is 7, compared with 90½; second preference is 2½, compared with 73½, and third preference is 1½, compared with 30. The fall represents a depreciation of over \$50,000,000 in eight years."

Orders by the Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a complete record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

32,549, 32,550. June 27.—Approving Bell Telephone Co. agreements with Fourth Line of Bathurst Telephone Association, Lanark County, Ont., and Tiny Municipal Telephone System, Simcoe County, Ont.

32,551. June 27.—Authorizing Toronto, Hamilton & Buffalo Ry. to build spur through Barton Lumber & Supply Co's land, Hamilton, Ont.

32,552. June 27.—Ordering that plan showing relocation of interlocker signal at crossing of G.T.R. and Kitchener & Waterloo St. Ry., at King St., Waterloo, be substituted for plan approved by order 32,355, May 2.

32,553. June 29.—Amending order 32,453, May 23, requiring that Canadian National Rys. station building at Ste. Dorothee, Que., be removed to mile 15.21, Cadastral Lot 81, by changing Cadastral Lot 81, to 82.

32,554. June 29.—Authorizing G.T.R. to install automatic bells and wigwag signals in lieu of watchman at crossing near Grimsby Beach station, Ont.

32,555. June 30.—Amending order 32,354, May 3, relieving Canadian Northern Ry. and C.P.R. from maintaining signalman at night and on Sundays to operate crossing near Emerson, Man.

32,556. June 29.—Authorizing Canadian Northern Ry. to build pedestrian subway under its tracks on Edderton Ave., Forty Garry, Man.

32,557. June 30.—Authorizing Interprovincial & James Bay Ry. to cross at grade the Forced Road in Lot 6, Range 5, South, Fabre Tp., Ont.

32,558. June 30.—Approving location of Canadian National Rys. station at Eldersley, Sask.

32,559. June 29.—Authorizing Grand Trunk Pacific Ry. to build spur for Blackstone Collieries, in n.w. ¼ Sec. 16, Tp. 47, Range 19, West 5th Meridian, Alta.

32,560. June 30.—Authorizing C.P.R. to build spur for Arabel Mfg. Co., Brampton, Ont.

32,561. June 30.—Authorizing C.P.R. to rebuild bridge 3.4, Elora Subdivision, Ontario District.

32,562. June 24.—Amending order 9,474, Feb. 4, 1910, to provide that cost of maintaining C.P.R. crossing at Minto St., Carstairs, Alta., be borne and paid by municipality, the C.P.R. being senior at that point.

32,563. June 30.—Declaring that for the present the G.T.R. crossing east of Grasshill, Ont., is protected to Board's satisfaction.

32,564. June 30.—Authorizing Canadian Northern Ry. to divert main track, Kashabowie Subdivision, and use same as eastbound track along south side of its Mount Yard, just west of Fort William, Ont., and to build branch crossing, Vickers St., De Nevan and Riverview Aves., Neebwing Tp., Ont.

32,565. July 4.—Approving Kettle Valley Ry. location from mile 10.28, near Okanagan Falls, to mile 39.33 on International Boundary, Yale District, B.C.

32,566. July 4.—Approving agreement between Bell Telephone Co. and Ste. Sabine Rural Telephone Co., Missisquoi and Iverville Counties, Que.

32,567. July 6.—Authorizing C.P.R. to build spur for Imperial Oil, Ltd., Morden, Man.

32,568. July 6.—Authorizing Starland Municipal District 307, Alta., to divert highway to cross Canadian National Rys., Verreville Branch, between Secs. 27 and 28, Tp. 31, Range 20, West 4th Meridian, Alta.

32,569. July 6.—Authorizing C.P.R. to build spur for Imperial Oil, Ltd., Berthier Parish, Que.

32,570. July 6.—Approving agreement between Bell Telephone Co. and Perth & Christy's Lake Telephone Co., Lanark County, Ont.

32,571. July 4.—Approving location of portion of C.P.R., Rosetown Southeasterly Branch, from mile 0 to 18.66, in Sec. 26, Tp. 27, Range 16, West 3rd Meridian, Sask., and authorizing crossing of highways.

32,572. July 6.—Relieving Canadian Northern Ry. and C.P.R. from maintaining signalman between midnight and 8 a.m. at crossing at Camrose, Alta., so long as present character of movements there exist.

32,573. July 5.—Authorizing Canadian National Rys. to build spur over Sec. 8, Tp. 29, Range 20, West 4th Meridian, Alta., and authorizing North American Collieries, Ltd., to work all minerals lying under railway.

32,574, 32,575. July 5.—Dismissing application of Ford City, Ont., for an order directing G.T.R. to provide highway crossing at intersection of Joseph Janisse Ave. and railway, and authorizing the town to build crossing at intersection of Parent Road and G.T.R.

32,576. July 7.—Relieving Canadian National Rys. from maintaining fences, gates and cattle guards at certain points between miles 199.7 and 269, Prince Albert Subdivision, Saskatoon Division, Sask.

32,577. July 7.—Extending to July 1, 1923, the time within which C.P.R. may build spur for Milverton Furniture Co., Milverton, Ont., authorized by order 30,379, Nov. 29, 1920.

32,578. July 7.—Approving location and details

of Canadian National Rys. proposed station at Red Deer, Alta.

32,579. July 6.—Ordering Canadian National Rys. to appoint station agent at Makaroff, Man., by Sept. 15.

32,580. July 7.—Relieving G.T.R. from maintaining fences, gates and cattle guards on certain portions of its line along the St. Francis River, on District 2, Portland Division, Que.

32,581. July 8.—Ordering Canadian National Rys. to erect 3rd class station at Deepdale, Man., by Oct. 31.

32,582. July 10.—Authorizing Michigan Central Rd. to divert its line through Queen Victoria Park, Niagara Falls, Ont.

32,583. July 8.—Authorizing British Columbia Public Works Department to build highway crossing over C.P.R. at mile 75 west of Revelstoke, B.C.

32,584. July 7.—Relieving G.T.R. from maintaining fences and cattle guards on its District 3, Montreal Division, between miles 137 and 128, Nelson Tp., Que.

32,585. July 10.—Authorizing Canadian National Rys. to use bridge over the Rouge River, at mile 3.3, China Clay spur, Arundel Tp., Que.

32,586. July 10.—Amending order 32,443, authorizing G.T.R. to enter Mrs. Hanley's lands near Cainsville, Ont., to remove obstructions to view.

32,587. July 8.—Ordering G.T.R. to stop train 53 on flag, westbound, at Moose Creek, Ont.

32,588. July 10.—Ordering Canadian National Rys. to appoint station agent at Pathlow, Sask., by Aug. 15.

32,589. July 8.—Approving agreement between Bell Telephone Co. and Farmers Telephone Co., Chateauguay, Huntingdon, Beauharnois and St. Johns Counties, Que.

32,590. July 10.—Authorizing Canadian Northern Ontario Ry. to cross highway in Mara Ballast Pit, Mara Tp., Ont.

32,591. July 8.—Authorizing C.P.R. to build spur for B. H. Hagborg, Winnipeg.

32,592. July 11.—Approving Canadian National Rys. standard specifications for steel railway bridges (fixed spans).

32,593. July 10.—Approving plan and specifications showing work to be done on Bornais Drain under Michigan Central Rd., in Lot 21, Con. 4, Tilbury North Tp., Ont.

32,594. July 8.—Ordering Canadian National Rys. to erect 4th class station at Demaine, Sask., by Oct. 1.

32,595. July 11.—Ordering Canadian National Rys. forthwith to install permanent 4 deg. curve, just west of Lachevrotier station, Que.

32,596. July 12.—Relieving Canadian National Rys. from fencing from mile 134 to 145; 146 to 152 and 154 to 173.6, Brazeau Subdivision, Edmonton Division, Alta.

32,597. July 8.—Authorizing G.T.R. to build extension of siding for Western Fair Association, London, Ont.

32,598. July 12.—Authorizing G.T.R. to build spur and two spurs therefrom for Ontario Stone Corporation, near Uthoff station, Ont.

32,599. July 12.—Relieving G.T.R. from lighting interlocker at crossing of Louisa St., Kitchener, Ont., provided interlocker is not in use between sunset and sunrise.

32,600. July 12.—Authorizing C.P.R. to build spur for Bishopric & Lent Co., in Sec. 21, Tp. 12, Range 28, West 2nd Meridian, Sask.

32,601. July 13.—Authorizing British Columbia Public Works Department to build highway crossing over C.P.R. at mile 10, south of Revelstoke.

32,602. July 12.—Declaring that for the present, G.T.R. crossing near milepost 173, just west of Arnprior, Ont., is protected to Board's satisfaction.

32,603. July 12.—Approving clearances at G.T.R. spur for London Shipping Containers, London, Ont.

32,604. July 12.—Authorizing British Columbia Public Works Department to build highway crossing over C.P.R. at mile 9, south of Revelstoke.

32,605, 32,606. July 12, 13.—Authorizing G.T.R. to build spurs for Imperial Oil, Ltd., at Port Credit, Ont., and for British American Oil Co., Toronto.

32,607. July 13.—Approving Canadian Northern Pacific Ry. revised location through fractional Sections 8.18 and 19, Tp. 17, Range 10, West 6th Meridian, and Okanagan Indian Reserve 1, mile 57.25 to 62.41 from Kamloops Jct., B.C.

32,608. July 13.—Authorizing Campbellford, Lake Ontario & Western Ry. (C.P.R.) to close down interlocker at crossing over G.T.R. at Whitby, Ont., between 10 p.m. and 6 a.m. daily, so long as present character of movements exists.

32,609. July 12.—Amending order 10,613, May 12, 1910, authorizing Grand Trunk Pacific Branch Lines Co. to cross C.P.R. at Alix, Alta., by providing that watchmen be appointed and maintained by G.T.P.B.L. Co.

32,610. July 12.—Relieving C.P.R. and Grand Trunk Pacific Branch Lines Co. from maintaining signalman between midnight and 8 a.m. daily, at crossing at Alix, Alta., so long as present character of movements exists.

32,611. July 12.—Amending order 31,967, Jan. 4, authorizing G.T.R. and Toronto, Hamilton & Buffalo Ry. jointly to build 9 spurs for National Steel Car Corporation, Hamilton, Ont.

32,612. July 13.—Authorizing City of Port Arthur, Ont., to make temporary crossing over C.P.R. spur serving grain elevators at the northerly end of city.

32,613. July 15.—Approving standard freight tariffs of maximum mileage tolls of C.P.R., Esquimalt & Nanaimo Ry. and Kettle Valley Ry.

32,614. July 17.—Ordering Canadian National Rys. to build farm crossing on E. B. Merriman's property, Crosby, Ont.

32,615. July 17.—Approving agreement between Bell Telephone Co. and North Easthope Municipal Telephone System, Perth County, Ont.

32,616. July 17.—Relieving C.P.R. and G.T.R. from maintaining signalman at crossing at Tillsonburg, Ont., between 10 p.m. and 6 a.m. daily, and 6 a.m. and 10 p.m. Sundays.

32,617. July 17.—Approving G.T.R. plan showing station to be built at Napanee, Ont.

32,618. July 17.—Relieving C.P.R. and G.T.R. from maintaining signalman at crossing at mile 15.2, Port Burwell Subdivision, Tillsonburg, Ont., between 10 p.m. and 6 a.m. daily, and 6 a.m. and 10 p.m., Sundays.

32,619 to 32,622. July 18.—Authorizing Canadian Northern Ry. to rebuild bridges over Beaver Creek, Tudor Tp., Ont.; over Moira River (Bannockburn), mile 46.3 from Trenton, Ont.; over Moira River at Malone, Ont., mile 36.6 from Trenton; and over Long Lake Creek, mile 4.3 from Trenton, Ont.

32,623. July 19.—Extending to Aug. 1, time within which C.P.R. may build spur for St. Maurice Paper Co., Cape de la Madeleine, Que.

32,624. July 19.—Authorizing Canadian Northern Ry. to rebuild bridge over Cold Creek, mile 7.7 from Trenton, Ont.

32,625. July 20.—Authorizing British Columbia Public Works Department to build highway across C.P.R. at mile 90 west of Revelstoke, main line.

32,626. July 20.—Extending to Nov. 13, time within which G.T.R. may complete spur for Hepworth Mfg. Co., Keppel Tp., Ont., as authorized by order 30,344, Nov. 13, 1920.

32,627. July 19.—Approving agreement between Bell Telephone Co. and Goderich Municipal Telephone System, Huron County, Ont.

32,628. July 20.—Amending order 25,980, March 30, 1917, to provide that interchange tracks which C.P.R. built at Belleville, Ont., be maintained by it.

32,629. July 20.—Approving standard mileage freight tariffs of Canadian National, Grand Trunk Pacific, Edmonton, Dunvegan & British Columbia and Canada Central Rys.

32,630. July 20.—Approving agreement between Bell Telephone Co. and Everett Telephone Co., Simcoe and Dufferin Counties, Ont.

32,631. July 20.—Authorizing G.T.R. to build spur for Imperial Oil, Ltd., Simcoe, Ont.

32,632. July 20.—Approving Eastern Telephone & Telegraph Co.'s bylaw, authorizing its Managing Director to prepare and issue tariffs of tolls and rates.

32,633. July 20.—Approving Eastern Telephone & Telegraph Co.'s tariff of exchange rentals and charges for service, C.R.C. 1.

32,634. July 21.—Approving agreement between Bell Telephone Co. and Balaclava Telephone Co., Grey County, Ont.

32,635. July 24.—Approving standard mileage freight tariffs of Great Northern Ry.

32,636. July 21.—Ordering Canadian National Rys. to complete fencing in Hebertville Parish, Que., between miles 195 and 197, by Sept. 1.

32,637. July 27.—Ordering G.T.R. to file tariffs showing rate of 90c a ton on high calcium limestone from Beachville to Niagara Falls, Ont., effective in 10 days.

32,638. July 24.—Authorizing C.P.R. to rebuild bridge 31.26, Waltham Subdivision, Que.

32,639. July 24.—Extending to Jan. 31, 1923, time within which Esquimalt & Nanaimo Ry. may complete spur for Dominion Public Works Department on Vancouver Island, B.C., authorized by order 32,068, Jan. 30.

32,640. July 24.—Authorizing C.P.R. to build track at grade across St. Patrick St., LaSalle, connecting the LaSalle loop spur with Lachine Canal, south bank branch, LaSalle, Que.

32,641 to 32,644. July 24.—Approving Bell Telephone Co. agreements with Welford Rural Telephone Co., Grenville & Lanark Counties, Ont.; Horton & McNabb Telephone Association, Renfrew County, Ont.; Drummond Center Telephone Co., Lanark County, Ont.; and Madawaska Telephone Association, Renfrew County, Ont.

32,645. July 24.—Declaring that for the present, Michigan Central Rd. crossing near Oil City station, Ont., is protected to Board's satisfaction.

32,646. July 24.—Relieving Canadian National Rys. from fencing certain sections of its Saguenay Division, Que., between miles 44.25 and 111.5.

32,647. July 24.—Declaring that for the present, G.T.R. crossing a mile east of Scarboro Jct., Ont., is protected to Board's satisfaction.

32,648. July 24.—Ordering Canadian National Rys. to enlarge station at Wayne, Alta., by providing ladies' and general waiting rooms, and heated room for perishable articles.

32,649. July 24.—Relieving Kettle Valley Ry. from fencing its Pentiction South Line, on the east side, from mile 13.05 to 16.1, B.C.

32,650. July 24.—Approving certain tariffs of C.P.R., Esquimalt & Nanaimo and Kettle Valley Rys., filed in re freight tolls, 1922.

32,651. July 21.—Approving Bell Telephone Co. agreement with Addison Rural Independent Telephone Co., Leeds County, Ont.

32,652. July 21.—Dismissing application of Ex-

press Traffic Association for approval of Supplement B to Express Classification for Canada No. 5, restricting empties which may be returned at half out-going rate to egg cases, cream cans, ice cream tubs, meat, bread and cake hampers (not baskets) and standard poultry coops.

32,653, July 25.—Authorizing C.P.R. to build 4 spurs for St. Lawrence Paper Mills, Three Rivers, Que.

32,654, July 27.—Dismissing application of W. R. Spooner, Montreal, for revision of Express Classification so as to permit delivery of fish to several different persons although billed to one consignee.

32,655, July 26.—Ordering Canadian National Rys. to appoint station agent at Scollard, Alta., by Sept. 1.

32,656, July 26.—Ordering Grand Trunk Pacific Ry. to install one-open stock yard at Tatsfield, Sask., by Nov. 1.

32,657, July 24.—Suspending until Aug. 15, provisions of clause 8 of general order 362 (Prevention of Fires) in so far as they apply to Canadian National Rys. operating through non-forested territory.

32,658, 32,659, July 26.—Authorizing Michigan Central Rd. to enter Mrs. E. Prest's lands to remove trees obstructing the view at crossing four miles west of Welland, Ont. and G. Whittle's land to remove trees obstructing view at crossing 1½ miles north of Leamington, Ont.

32,660, July 28.—Approving Bell Telephone Co. agreement with McNab Telephone Co., Renfrew and Lanark counties, Ont.

32,661, July 26.—Ordering Canadian Northern Ry. to repair highway crossings between Secs. 21 and 20, Tp. 2, Range 7 East and Secs. 1 and 2 Tp. 2, Range 9, east principal meridian at Sundown, Manitoba.

32,662, July 28.—Approving location and details of Canadian National Rys. proposed standard B station at Desbiens, Que.

32,663, July 25.—Authorizing Esquimalt & Nanaimo Ry. to build temporary deviation of main line at east of Johnson St. Subway, Victoria, B.C.

32,664, July 25.—Rescinding order 29,816, June 29, 1920, authorizing C.P.R. to build spur for Rock Creek Lumber Co., in Lot 4588, Group 1, East Kootenay District, B.C.

32,665, July 26.—Authorizing Alberta Public Works Department to build highway crossing over C.P.R. north of Sec. 35, Tp. 43, Range 25, west 4th meridian.

32,666, July 31.—Authorizing C.P.R. to open for traffic branch line from mile 42.82 Adirondack Subdivision, LaSalle, Que.

32,667, July 27.—Authorizing Saskatchewan Public Highways Department, to build crossing over Canadian National Rys. on surveyed road between Secs. 16 and 21, Tp. 26, Range 29, west 3rd meridian, Sask.

32,668, July 25.—Declaring that for the present, G.T.R. crossing near St. Madeline, Que. is protected to Board's satisfaction.

32,669, July 26.—Requiring Grand Trunk Pacific Ry. to increase width of grade at crossing between mile 666 and Wainwright station, Alta.

32,670, July 26.—Authorizing Toronto, Hamilton & Buffalo Ry. to build 2 branches for Ritchie Cut Stone Co., Hamilton, Ont.

32,671, July 26.—Authorizing Michigan Central Rd. to build sewer under its tracks at Niagara Falls, Ont.

32,672, July 29.—Authorizing C.P.R. to divert road allowances on south and east boundaries of Lot 9, Con. 3, and north and northwest boundaries of Lot 8, Con. 2, Dorion Tp., Ont.

32,673, July 29.—Authorizing C.P.R. to rebuild bridge 37.1 over Gordon Creek, Timiskaming Subdivision, Que.

32,674, July 26.—Ordering Grand Trunk Pacific Ry. to divert east and west road allowance to north and south road allowance about a mile north of Bircham, Alta.

32,675, 32,676, July 35.—Authorizing C.P.R. to build 2 spurs at mile 17.3, and one spur on Lot 15, Con. 3, Toronto Tp., mile 15, Galt Subdivision, for Ontario Public Highways Department.

32,677, July 27.—Approving clearances at C. P. R. bridges 99.9 and 102.96 Winchester subdivision, Ont.

32,678, July 29.—Authorizing Michigan Central Rd. to build bridge over Niagara River, just below Niagara Falls, Ont.

32,679, July 26.—Declaring that for the present the Canadian National Rys. crossing near Acheson, Alta., is protected to Board's satisfaction.

32,680, July 29.—Authorizing G.T.R. to build spur for Caledon Brick Co., Davenport, Ont.

32,681, July 25.—Authorizing Pere Marquette Rd. to install wigwag signal in addition to automatic bell at Seminole St. crossing, Walkerville, Ont.

32,682, July 29.—Authorizing G.T.R. to build spur for Marlatt & Armstrong Co., Oakville Wire Bound Box & Basket Co., and other industries at Oakville, Ont.

32,683, July 30.—Relieving Canadian National Rys. from maintaining fences, gates and cattle guards in certain sections between mile 23 and 38.0, Montfort Subdivision, Montreal Division, Que.

32,684, July 24.—Ordering Lake Erie & Northern Ry. to build interchange track with G.T.R. at Simcoe, Ont.

32,685, July 31.—Amending order 11,076, June 23, 1910, to provide for a G.T.R. mixed train ser-

vice, daily, except Sunday, between Doucet Landing and Victoriaville, Que.

32,686, Aug. 1.—Approving C.P.R. proposed location of standard A-3 station at Niverville, Man.

32,687, Aug. 2.—Extending to Sept. 15, time within which the G.T.R. may complete overhead bridge at St. Paul St., St. Catharines, Ont.

32,688, Aug. 3.—Authorizing Canadian Northern Ry. to use bridge over the Riviere a Pierre at mileage 60.2 from Quebec, Que., Batiscan Subdivision.

32,689 to 32,692, Aug. 3.—Authorizing Canadian Northern Ry. to use bridges over St. Charles River, at mile 0.5, over Batiscan River Falls, 110 miles from Quebec, and over Miquiqui River, 75 miles from Quebec, Batiscan Subdivision, Que.

32,693, Aug. 3.—Authorizing C.P.R. to build spur for Ontario Fertilizer Co., York Tp., Ont.

32,694, Aug. 3.—Authorizing Canadian Northern Ry. to use bridge over Riviere a Pierre, 59.5 miles from Quebec, Batiscan Subdivision, Que.

32,695, Aug. 3.—Approving proposed location of Canadian Northern Ry. 3rd class station at Blackfoot, Alta.

32,696, Aug. 1.—Authorizing Montreal & Southern Counties Ry. and G.T.R. so long as present character of movements exist, over crossing at Windmill Point, Montreal, to close down half-interlocking plant there, between 1 a.m. and 5 p.m. daily. See order 32,732.

32,697, Aug. 3.—Suspending until further order order 28,891, Oct. 10, 1919, requiring restoration of G.T.R. passenger trains known as the "Scoot", between Richmond and Coaticook, Que.

32,698 to 32,699, Aug. 4.—Authorizing Canadian National Rys. to use bridges over Cedar Lake Outlet, mile 134 from Quebec, and over Belle River, mile 191.0 Jonquiere Subdivision, Que.

32,700, Aug. 4.—Authorizing Canadian Northern Quebec Ry. to use bridge over Metabetchouan River, mile 181.0 from Quebec.

32,701, Aug. 4.—Authorizing Canadian Northern Ry. to use bridge over Joseph Louis River, mile 142.4 from Quebec.

32,702, Aug. 4.—Approving proposed revision of Canadian National Rys. spur to waterfront, Parry Sound, Ont.

32,703 to 32,705, Aug. 4.—Authorizing Canadian Northern Ry. to use bridges over Chicoutimi River, mile 226.0 from Quebec; over Iroquois River, mile 22.7 from Chambord Jct., and over Riviere a l'Ours, mile 27.2 from Chambord Jct., Que.

32,706, Aug. 4.—Authorizing Ottawa Improvement Commission to build highway crossing over Ottawa Electric Ry. in Lot 33, Con. 1, Ottawa Front, Nepean Tp., Ont.

32,707, Aug. 4.—Ordering Canadian National Rys. to have a number of highway crossings in Edenwold rural municipality 158, Sask., made to conform to Board's standard regulations affecting highway crossings as amended May 4, 1910.

32,708, July 27.—Approving agreement between Bell Telephone Co. and Little Britain Telephone Co., Victoria County, Ont.

32,709, Aug. 4.—Authorizing Canadian Northern Ry. to use bridge over Eusebe Boivin River, Demeules Tp., mile 30.2 from Chambord Jct., Roberval Subdivision, Que.

32,710, Aug. 5.—Authorizing Edmonton, Dunvegan & British Columbia Ry. to build spur for Excelsior Lumber Co., at mile 74.1, in ¼ Sec. 15, Tp. 63, Range 27, west 4th meridian, Alta.

32,711, 32,712, Aug. 2, July 27.—Approving Bell Telephone Co. agreement with Harrietsville Telephone Association, Middlesex and Elgin Counties, Ont., and Farrelton Rural Telephone Co., Ottawa County, Que.

32,713, Aug. 8.—Approving New York Central Rd. standard mileage freight tariffs C.R.C., N.Y.C. 2,643 and 2,644, effective Sept. 6.

32,714, Aug. 4.—Approving bylaw 14 of Town of Monterwest, Que., prohibiting use of steam whistles on locomotives when passing through town limits.

32,715, Aug. 5.—Approving location and details of Grand Trunk Pacific Ry. class A-1 station at Endako, B.C.

32,716, 32,717, Aug. 9.—Authorizing Canadian National Rys. to rebuild bridges over Bouchers Creek, Emo, Ont., and over Everett's Creek, mile 252, Fort Frances Subdivision, Ont.

32,718, 32,719, Aug. 9.—Authorizing Halifax & Southwestern Ry. to use bridges over Arzyle River, mile 229.6, and over Big Brook, mile 221.3, Liverpool Subdivision, N.S.

32,720, Aug. 9.—Authorizing Canadian National Rys. to rebuild bridge over Pine River, near Pine-wood, Ont.

32,721, Aug. 9.—Authorizing Halifax & Southwestern Ry. to use bridge over Riders Brook, mile 227.7, Liverpool Subdivision, N.S.

32,722, Aug. 9.—Approving location of Canadian Northern Ontario Ry. shelter and platform at Wharf Road, mile 46.2, Pembroke Subdivision, Que.

32,723 to 32,728, Aug. 9.—Authorizing Halifax & Southwestern Ry. to use bridges over Pleasant River, mile 12.5, Caledonia Subdivision; over Tusket River, mile 238.1, and over Aracadia Stream, mile 242.8, Liverpool Subdivision; over La Have River, mile 18.2, Port Wade Subdivision; over Pubnico River, mile 220, and over East Pubnico River, mile 217.8, Liverpool Subdivision, N.S.

32,729, Aug. 10.—Authorizing G.T.R. to build spur for new asphalt plant at Hamilton, Ont.

32,730, Aug. 8.—Approving agreement between Bell Telephone Co. and Mallorytown Telephone Co., Leeds County, Ont.

32,731, Aug. 10.—Extending to Nov. 22, time within which Canadian National Rys. may build station at Vilna, Alta.

32,732, Aug. 9.—Amending order 32,696, authorizing Montreal & Southern Counties Ry. to close interlocking plant at Windmill Point, Montreal, between 1 a.m. and 5 p.m. daily, by making order read "between 1 a.m. and 5 a.m."

32,733, 32,734, Aug. 9.—Authorizing Halifax & Southwestern Ry. to use Feindels Bridge, mile 18.0, Port Wade Subdivision, and bridge over Salmon River, mile 239.7, Liverpool Subdivision, N.S.

32,735, July 21.—Authorizing Halifax & Southwestern Ry. to divert its line 1,020 ft. near mileage 52.9, Middleton Subdivision, and to connect with Dominion Atlantic Ry. near Port George Road, Middleton, N.S.

32,736, Aug. 5.—Approving agreement between Bell Telephone Co. and East Wakefield Telephone Co., Ottawa County, Que.

32,737, Aug. 10.—Ordering Pere Marquette Rd. to keep all standing cars 50 ft. back from the street line on both sides of the crossing at Edna St., Walkerville, Ont.

32,738 to 32,740, Aug. 9.—Approving Bell Telephone Co. agreements with Wilmot Municipal Telephone System, Perth County, Ont.; Ryde Municipal Telephone System, Muskoka District, Ont., and Wroxeter Rural Telephone Co., Huron County, Ont.

32,741, 32,742, Aug. 10.—Declaring that for the present, the G.T.R. crossings known as Grand Range Crossing, 2 miles west of St. Hyacinthe, Que., and at Stottsville, Que., are protected to Board's satisfaction.

32,743, Aug. 9.—Authorizing G.T.R. to build spur for Milnes Coal Co., at Davenport station, Toronto.

32,744, Aug. 10.—Authorizing Ontario Public Highways Department to rebuild bridge carrying Dundas St. over C.P.R. at Waterdown station, Ont.

32,745, Aug. 10.—Authorizing C.P.R. to build two additional tracks at grade across public road at mile 108.6, Winchester Subdivision, on Lot 11, Con. 4, Oxford Tp., Ont.

32,746, Aug. 1.—Authorizing Ontario Hydro Electric Power Commission to erect double trolley 600 volt overhead system over Windsor, Essex & Lake Shore Rapid Ry. at corner of Howard Ave. and Erie St., Windsor, Ont.

32,747, 32,748, Aug. 11.—Authorizing G.T.R. to build spurs for Kilmer & Barber, York station, Toronto, and for Scotia Junction Trading Co., Scotia Jct., Ont.

32,749, Aug. 11.—Authorizing Montreal & Southern Counties Ry. to build spur from Central Vermont Ry., near South Kensington, Que., to a point in St. Hubert Parish, Que.

32,750, 32,751, Aug. 11.—Authorizing C.P.R. to rebuild bridge over the Eagle River, mile 19.0, Shuswap Subdivision, B.C., and bridge 42.3 over North River, St. Agathe Subdivision, Que.

32,752, Aug. 11.—Authorizing Canadian Northern Ry. to use bridge across Riviere des Meres, mile 7.0, Batiscan Subdivision, Que.

32,753, Aug. 11.—Declaring that for the present the Napierville Jct. Ry. crossing of King Edward Highway, about 1½ miles north of Lacolle station, Que., is protected to Board's satisfaction.

32,754, Aug. 11.—Authorizing Canadian Northern Ry. to use bridge over St. Charles River, mile 9 from Quebec, Que.

32,755, Aug. 12.—Authorizing C.P.R. to operate passenger car propelled by gasoline on its LaSalle Loop Subdivision, LaSalle, Que., the Board reserving right to make any changes in any such car as may seem necessary for public safety, and convenience of public or the company's employees.

32,756, 32,757, Aug. 11.—Authorizing C.P.R. to use Canadian Northern Ry. spurs into Thunder Bay Terminal Elevator Co.'s, and Parrish & Heimbecker's premises, Port Arthur, Ont.

32,758, Aug. 12.—Authorizing Qu'Appelle, Long Lake & Saskatchewan Ry. to divert road allowance between Secs. 2 and 3, Tp. 20, Range 23, West 2nd Meridian, at mile 31, on Craik Subdivision, Sask.

32,759, Aug. 16.—Suspending clause 8 of general order 362, effective until Sept. 1, in so far as it applies to portions of Canadian National Rys. Western Lines operating through non-forested territory.

32,760, Aug. 14.—Authorizing Grand Trunk Pacific Branch Lines Co. to build Y at Mirror, Alta.

32,761, Aug. 11.—Approving agreement between Bell Telephone Co. and Parkhill-Arkona Telephones, Ltd., Lambton and Middlesex Counties, Ont.

32,762, Aug. 12.—Authorizing G.T.R. to build siding for Christie Products, Lindsay, Ont.

32,763, Aug. 16.—Authorizing Canadian National Rys., pending further order, to remove regular station agent at Crooked River, Sask.

32,764, Aug. 16.—Amending order 32,663, July 25, re Esquimalt & Nanaimo Ry. deviation, Victoria, B.C.

32,765, Aug. 17.—Authorizing C.P.R. to build siding for City of Toronto, on Lot 8, between Princess and Sherbourne Sts.

32,766, Aug. 17.—Relieving the G.T.R. from providing further protection at Standhope crossing, near Norton Mills, Que.

32,767, Aug. 14.—Authorizing Kettle Valley Ry. to carry freight over its line from Penetion, B.C., to International boundary, between mile 1.62 and 3.99.

Steam Railway Operating Revenues, Expenses and Other Statistics for June.

The following comparative table for June, 1922 and 1921, has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics, Transportation Branch. The figures in the column headed "All railways" include all steam railways with an annual operating revenue of \$500,000 and over. There is a slight increase in the number of roads included under this heading, so that the data for 1922 and 1921 is not directly comparable with previous reports.

As the Canadian Government, Canadian Northern and Grand Trunk Pacific Railways are under one management, and operated as one system, the monthly operating reports for 1922 contain a consolidated report for these railways, under the heading "Canadian National Rys.," which includes the old Canadian Government Rys., viz., Intercolonial, Prince Edward Island, National Trans-

continental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.; the lines operated as the Canadian Northern Ry. System, prior to its acquisition by the Dominion Government; and the Grand Trunk Pacific Ry.

The column headed "Canadian Pacific" includes also the Montreal and Atlantic and Esquimalt and Nanaimo Rys.

The column headed "Grand Trunk" includes all the G.T.R. Co. of Canada lines, including 36.16 miles in the U.S.A., viz.: Champlain & St. Lawrence Ry., 1.21 miles; United States & Canada Ry., 22.18 miles; Vermont & Provincial Line Ry., 9.77 miles, and Black Rock terminal. It does not include other lines in New England, or lines west of the Detroit and St. Clair rivers.

Items 1 to 6 in the table include rail

lines revenues only. Previous to this year they included water lines. Operating income items have been added. Freight and passenger train miles contain a proportion of mixed train miles, divided on the basis of freight and passenger car miles in mixed train service. In former years the total of mixed train miles were added to both freight and passenger train miles when computing averages. Total train miles include freight; passenger, with their proportions of mixed train miles; special train and non-revenue train miles. The average freight revenue per freight train mile includes only rail line revenue. Average passenger train revenue per passenger train mile includes revenue from passenger, mail, express, excess baggage, parlor cars, etc., whereas previous reports gave an average per train mile of passenger receipts only. The number of employees is also a new feature of this year's reports.

	All railways.		Canadian National		Canadian Pacific		Grand Trunk	
	1922	1921	1922	1921	1922	1921	1922	1921
Operating Revenues								
Freight	\$22,235,518	\$21,569,884	\$5,804,819	\$5,609,318	\$8,550,984	\$8,503,488	\$4,763,540	\$4,297,871
Passenger	7,185,777	8,112,843	1,534,911	1,689,604	3,415,162	3,928,013	1,224,106	1,447,172
Mail	619,761	679,458	178,204	193,397	299,808	302,731	95,000	133,682
Express	1,105,236	1,587,908	290,191	306,298	489,309	608,398	226,000	600,000
Other freight train.....	5,271	5,020		3,675	4,528	927		
Other passenger train.....	663,117	680,546	186,686	205,215	415,505	404,836	21,750	43,189
Water line	297,734	364,035			242,524	290,946		
All other	1,240,776	1,380,209	240,729	279,459	681,592	770,068	173,250	169,132
Total railway operating revenues.....	33,353,193	34,379,905	8,235,603	8,286,969	14,099,416	14,809,411	6,503,656	6,691,048
Operating expenses								
Maintenance of way and structures.....	\$7,924,884	\$7,558,806	\$3,124,780	\$3,036,125	\$2,868,614	\$2,371,878	\$1,189,311	\$1,082,307
Maintenance of equipment.....	6,749,728	7,271,859	2,355,886	2,458,191	2,131,043	2,205,413	1,286,867	1,746,345
Traffic	1,086,555	977,210	258,017	194,385	618,690	552,030	127,717	147,820
Transportation	13,727,415	15,333,119	4,097,994	4,915,502	5,467,633	5,919,939	2,617,349	2,695,227
Miscellaneous operation	499,044	518,547	152,451	171,415	260,118	248,150	41,471	40,989
General	974,706	945,830	284,193	215,601	293,560	310,548	255,635	265,590
Transportation for investment	73,241	109,316	73,733	108,995			Dr. 771	Dr. 261
Total railway operating expenses.....	30,889,093	32,496,056	10,199,592	10,882,226	11,689,660	11,607,961	5,519,124	5,979,020
Operating income								
Net operating revenue.....	\$2,464,100	\$1,883,848	Dr. \$1,963,988	Dr. \$2,595,256	\$2,409,755	\$3,201,449	\$984,521	\$712,028
Railway tax accruals.....	578,260	578,579	139,825	175,850	Dr. 252,524	Dr. 227,492	110,850	106,669
Uncollectible revenues	8,600	1,738		7			8,285	1,495
Hire of equipment.....	Cr. 294,103	Cr. 141,685	Cr. 102,510	Cr. 129,838	Cr. 225,105	Cr. 139,643	Cr. 211,953	Cr. 118,668
Joint facilities rents.....	Dr. 203,934	Dr. 110,851	Dr. 152,769	Dr. 4,835	Cr. 24,337	Cr. 17,705	Cr. 50,014	Cr. 12,916
Operating income	1,967,407	1,334,364	Dr. 2,154,074	Dr. 2,646,112	2,406,674	3,131,305	1,127,354	735,448
Operating statistics								
Average miles of road operated.....	38,805	38,585	17,212.00	17,111.07	13,877.2	13,785.8	3,612	3,612
Tons carried (revenue freight).....	7,306	6,983	1,530	1,273	2,047	1,963	1,963	1,692
Tons carried one mile (revenue freight).....	1,743,831	1,549,754	495,877	451,698	650,993	605,365	399,966	283,629
Tons carried (all freight).....	8,430	9,066	1,883	1,817	2,506	2,579	2,183	1,908
Tons carried one mile (all freight).....	1,953,603	1,839,444	582,143	582,277	745,279	736,842	422,309	309,761
Revenue passengers carried.....	3,669	3,823	900	952	1,353	1,419	907	920
Revenue passengers carried one mile.....	256,981	256,277	56,920	58,595	126,865	124,893	41,617	42,683
*Freight train miles	3,936	3,774	1,280	1,310	1,385	1,332	782	723
*Passenger train miles.....	4,003	3,939	1,083	1,071	1,830	1,786	666	667
Total train miles (revenue and non-revenue).....	8,429	8,016	2,722	2,570	3,348	3,204	1,448	1,395
Freight car miles—loaded.....	86,852	79,457	25,245	24,878	32,675	30,276	17,415	14,212
Freight car miles—empty.....	41,998	37,430	15,403	10,724	12,902	12,571	7,748	8,096
Passenger train car miles.....	28,140	27,299	8,025	7,571	13,193	12,906	3,885	3,918
Total amount of pay roll.....	\$18,952,924	\$20,099,688	\$6,796,834	\$6,924,940	\$7,163,688	\$7,401,746	\$3,415,065	\$3,800,715
Averages per mile of road operated								
Number of employees.....	162,620	155,036	60,290	56,172	62,306	57,426	27,959	27,983
Operating revenue	\$859.51	\$891.01	\$478.48	\$484.30	\$1,016.01	\$1,074.25	\$1,800.57	\$1,852.45
Operating expenses	\$796.01	\$842.19	\$592.58	\$635.97	\$842.36	\$842.02	\$1,527.99	\$1,655.32
Tons moved one mile (revenue).....	44,938	40,165	28,810	26,398	46,911	43,912	110,733	79,908
Tons moved one mile (all freight).....	50,344	47,673	33,822	34,029	53,705	53,449	116,918	85,759
*Averages per freight train mile								
Freight revenue	\$5.68	\$5.72	\$4.53	\$4.28	\$6.18	\$6.38	\$6.09	\$5.94
Tons of freight (revenue).....	445.3	410.6	387.3	344.7	470.0	454.3	511.2	398.9
Tons of freight (all freight).....	498.9	487.3	454.6	444.4	538.1	553.0	539.8	428.1
Loaded freight cars.....	22.2	21.1	19.7	19.0	33.6	22.7	22.3	19.6
Empty freight cars.....	10.7	9.9	12.0	8.2	9.3	9.4	9.9	11.2
*Averages per passenger train mile								
Passenger train revenue.....	\$2.39	\$2.81	\$2.02	\$2.23	\$2.52	\$2.94	\$2.35	\$3.33
Passengers carried	64.2	65.1	52.5	54.7	69.3	69.9	62.4	63.9
Passenger cars	7.0	6.9	7.4	7.1	7.2	7.2	5.8	5.9
Average operating expenses per train mile.....	\$3.66	\$4.05	\$3.75	\$4.23	\$3.49	\$3.63	\$3.81	\$4.28
Average length of haul (revenue freight) miles....	238.7	221.9	324.1	354.6	318.0	308.3	203.7	170.5
Average passenger journey—miles.....	70.0	67.0	63.2	61.5	93.7	88.0	45.8	46.4
Average tons per loaded freight car.....	22.5	23.2	23.1	22.4	22.8	24.3	24.2	21.8
Average freight receipts per revenue ton mile.....	1.275c	1.392c	1.171c	1.242c	1.314c	1.405c	1.191c	1.459c
Average passenger receipts per passenger per mile	2.796c	3.166c	2.697c	2.883c	2.601c	3.145c	2.941c	3.391c
Ratio of pay roll to operating revenues.....	56.8%	58.5%	82.5%	83.6%	50.8%	50.0%	52.5%	56.8%
Ratio of pay roll to operating expenses.....	61.4%	61.9%	66.6%	63.6%	61.3%	63.8%	61.9%	63.6%
Ratio of operating expenses to revenues.....	92.61%	94.52%	123.85%	131.32%	82.91%	78.38%	84.86%	89.36%

*Contains a proportion of mixed train miles.

The Railways' Operating Results for June.

Canadian railways' operating revenues for June decreased from those of May by \$449,058, and from those of June 1921, by \$1,026,711, or 3%. The increase in freight revenue over June 1921, was \$665,634, or 3.1% but this was more than offset by the decrease in passenger revenue, \$927,066, or 11.4%, which combined with decreases in revenue received for auxiliary services to produce the total decrease noted above. In order to earn the additional 3.1% freight revenue, the railways had to render over 114,000,000 more ton miles of freight service than in June 1921, and although passenger revenues decreased 11.4%, 927,066 more passenger miles were recorded in June 1922, than in June 1921. The reason is to be found in a comparison of the average receipt per passenger mile and per revenue ton mile, the decrease in each revenue unit being large in June 1922, as compared with June 1921.

The most outstanding feature of the June report is the fact that the railways provided the public with a great deal more transportation service than in June 1921, but got paid much less for doing it, and at the same time were able to reduce operating expenses to such a degree that they were able to assume the cost of moving the additional traffic and still show a more favorable operating ratio than in June 1921. Examination of the classified operating expenses shows that while maintenance of way and maintenance of equipment were, judging by costs, kept above the 1921 standards, transportation expenses were decreased materially. The decrease in transportation expenses for the railways as a whole was \$1,605,704, and it may be said with assurance, in view of the increased traffic handled, that this decrease in transportation expenses is indicative of the efficiency with which the properties are operated. In this connection, it is evident that the reduction in operating expenses was secured at the proper points. A reduction in maintenance of way, or maintenance of equipment expense, is altogether too liable to represent the withholding of an expenditure that should have been made, rather than the securing of a true economy, but a reduction in transportation expense may generally be taken to mean that true economy in operation has been secured.

Since about the same amounts were spent on maintenance of way, and maintenance of equipment, in June 1922, as in June 1921, it is evident, on taking into consideration the wage reduction which took effect July 16, 1921, that more actual maintenance work was done on the properties and their equipment than in June 1921. While the decrease in transportation costs was, of course, primarily due to wage reduction, it is also evident, on examining the operating statistics, that efficient operation played no small part in securing this decrease. Both freight and passenger train mileage, while showing increases, did not increase disproportionately to the additional business handled, and the increase in the average number of tons of revenue freight per freight train mile is notable. While the average number of tons per loaded freight car decreased from 23.2 to 22.5, producing a tendency for lighter train loading, this was overcome by the increased number of loaded cars per train, with the result above noted.

To the casual observer, a decrease in the average receipt per revenue ton mile

of from 1.392c to 1.275c may seem trivial, but when it is considered that the number of ton miles handled in a short time by the railways quickly reaches the billion mark, the decrease in gross revenue suffered may be realized. A still better realization of the decrease in revenue caused by this small unit reduction may be had when it is observed that, despite the fact that the railways transported 34.7 more tons of revenue freight in each freight train operated in June 1922, than in June 1921, the revenue per freight train mile was 4c. less than in June 1921. In the same way, the reduction in the average rate per passenger mile of from 3.166 to 2.796c. does not seem great, but, as we have pointed out, it was great enough to bring about an 11.4% decrease in gross passenger revenue, despite the fact that passenger traffic increased.

The figures showing the averages per mile of road operated, express better than any others, perhaps, the change which has taken place in the railway industry as between June 1922, and 1921. It is evident, from inspection of these, that while greater traffic was handled, it was done at less cost to the railways and at less cost to the public. The reductions in wages and other expenses, and the reductions in rates, which took place in the one year interval, are shown in their true perspective by the figures presented. From the public viewpoint, the June results are gratifying, because they are representative of greater service at less cost; from the railway viewpoint, while the operating ratio secured is not what may be described as one representative of financially successful operation, some gratification may be derived from the fact that an improvement over June 1921 was secured.

Examining the results secured by the individual roads, it may be noted that Canadian National Rys. freight traffic showed a sharp decline from that of May, with freight revenue decreased 23%. Passenger traffic and revenue increased to offset this in a degree, but total revenue decreased 15%. Operating expenses increased, causing the operating deficit to increase to \$1,963,988, and the operating ratio to 123.85. This, however, was an improvement over June 1921, when the deficit was \$2,595,256, and the operating ratio 131.32. Compared with June 1921, freight traffic increased 44,179,105 ton miles, or 9.8%, but the revenue was only 3.5% greater. Passenger traffic decreased 2.9%, with a decrease in passenger revenue of 9.2%. Freight train loading increased from 444.4 to 454.6 net tons, but average car loading decreased by 0.3 ton.

C.P.R. freight revenue showed little change from June 1921, although revenue ton mileage increased 7.5%. Passenger miles decreased 4.6% and passenger revenue 13%. Total revenue decreased 4.8%, and operating revenues increased 0.7%, increasing the operating ratio from 78.28 to 82.91. Both train loading and car loading decreased, compared with June 1921 and with May. Compared with May the decrease of 8% in freight revenues was more than offset by the increase in passenger revenue, while the expenses increased about 1.4%.

The G.T.R. increased its freight revenues, \$465,668, or 10.8% over June 1921, but the decrease in passenger revenue caused total revenue to decrease 2.8%. However, operating expenses were reduced 7.7%, giving an operating ratio

of 84.86, compared with 89.36 for June 1921. Train loading showed a marked improvement, averaging 111.7 net tons per train more than in June 1921, and car loading also increased 2.4 tons a car.

For the first six months of 1922 gross operating revenues for the railways as a whole were \$187,831,184, compared with \$206,595,357 for the first six months of 1921. Operating expenses were \$177,540,752, compared with \$204,074,084. Freight traffic increased 4.8% over the same period of 1921, but freight traffic revenue decreased by 5.6%. Passenger traffic decreased 13.6% and passenger traffic revenue decreased 20.5%. The total pay roll was reduced 12.7%, and the average number of employees was 3% smaller than in the first half of 1921. While freight traffic increased 4.8%, freight train mileage decreased 2.7%, due to heavier train loading, though average car loading decreased one ton per car. The average receipt per revenue ton mile for the first six months of 1922 was 1.144c, compared with 1.270c for the first six months of 1921, and the average receipt per passenger mile was 2.918c., compared with 3.172c. for the first half of 1921. The operating ratio was 94.52, compared with 98.74 for the first half of 1921.

From this short summary for the first half of the year, it is at once evident that what applied to June, as compared with June 1921, applies equally to the first half year as compared with the first half of 1921, viz., that the railways provided more transportation service in the first six months of 1922 than in the same period of 1921, and were paid less for doing it, but at the same time were able to reduce operating expenses to such a degree that a more favorable operating ratio was the result. Relatively, as compared with 1921, the operating ratio of 94.52 is favorable; absolutely, it is not. In 1921 the railways were but a short distance ahead of the ever pursuing public demand for low rates; the distance was increased by a small amount in the first six months of 1922, but the point worthy of note is that the distance is not sufficiently great. An operating ratio of 94.52 means that too much of the country's bill for railway operation has to be paid from the proceeds from taxation, which is not good, in the final analysis, for either the railways or the country. The demand for low rates for the present, with no thought of the future, is representative of a natural human tendency, however, and judging from the great agitation for rate reductions in the early part of this year, the railways may be complimented for being able to show a lower operating ratio in the first half of 1922 than in the first half of 1921.

Railway Wages and Cost of Living.—The United States Chamber of Commerce, Transportation and Communication Department, Railroad Bureau, has issued the following to its members: "Figures given by the Railroad Labor Board in its three recent decisions show that, applying the wages fixed by these decisions to the present cost of living, the purchasing power of the hourly wage of the respective classes named has increased over the purchasing power of the hourly wage of Dec., 1917 (prior to Federal control), as follows: Machinists, 18.8%; carmen, 45.7%; maintenance of way, 44.5%; clerks, 44.7% common labor around stations, 51.5%."

Switching Locomotives, Grand Trunk Railway.

The G.T.R. has built recently, at its Montreal shops, ten 6-wheel switching locomotives, an illustration of one of which is given herewith. These locomotives, and five transfer locomotives which will be built in the near future at the Montreal shops, were described in Canadian Railway and Marine World for May, pg. 230. The switching locomotives' specifications are as follows:

Gauge	4 ft. 8½ in.
Fuel	Bituminous coal
Tractive power	34,381 lb.
Weight in working order.....	174,000 lb.
Weight on drivers.....	174,000 lb.
Weight of engine and tender in working order	304,000 lb.
Wheel base, driving.....	11 ft. 6 in.
Wheel base, total.....	11 ft. 6 in.
Wheel base, engine and tender.....	45 ft. 9½ in.
Length, overall	62 ft. 6½ in.
Weight on drivers÷tractive effort.....	5.06
Total weight÷tractive effort.....	5.06
Heating surface÷grate area.....	38.4
Cylinders, diam. and stroke.....	22 x 26 in.
Valves	Piston 14 in.
Driving wheels, diam. over tires.....	56 in.
Driving wheels, thickness of tires.....	3½ in.
Driving journals, main, diam. and length	9½ x 12 in.
Driving journals, others, diam. and length	9½ x 12 in.
Boiler, style.....	Extended wagon top
Boiler, working pressure.....	180 lb.
Boiler, outside diam. of first ring.....	5 ft. 8 9/16 in.
Boiler, firebox, length and width.....	96½ x 75¼ in.
Boiler, firebox plates, thickness	½ in. tube, ¾ in. crown, sides and back
Boiler, firebox, water spaces	Front, 5½ in.; sides and back, 4½ in.
Boiler, tubes, number.....	178



Switching Locomotive, Grand Trunk Ry.

Boiler, tubes, outside diam.....	2 in.
Boiler, flues, number.....	28
Boiler, flues, outside diam.....	5¾ in.
Boiler, tubes and flues, length 12 ft. 4 in. over sheet	
Boiler, heating surface, tubes and flues	1,777 sq. ft.
Boiler, heating surface, firebox and arch tubes	168 sq. ft.
Boiler, heating surface, total.....	1,945 sq. ft.
Grate area	50.62 sq. ft.
Tender, tank	Water bottom
Tender, frame	Built up type
Tender, weight	130,000 lb.
Tender, wheels, diam.....	33 in.
Tender, wheels, material.....	Cast iron
Tender, journals, diam. and length.....	5½ x 10 in.
Tender, water capacity.....	6,000 gals.
Tender, coal capacity.....	9 tons

These locomotives, designated class F13, are thoroughly modern in design, are equipped with many economy devices, and having a tractive effort of 34,000 lb., are efficient power units for switching service. A number of existing G.T.R. standards were embodied in the design and construction. The frames are of cast steel, 4 in. wide, and provided with heavy cast steel deck castings and cast steel bumpers at the front. Cross ties of ample section are employed, and the back ends of frames are fitted with cast steel foot plates.

The boiler courses are fitted with sextuple riveted joints, and the firebox is equipped with two special blow-off cocks applied to the throat sheet. The locomotives are superheated and equipped with brick arch, the arch bricks being supported on four 3-in. tubes. Boiler accessories include air-operated firebox door, double turret valves, inspirators of modern type, and a five-feed lubricator.

Smoke boxes are equipped with A.R.M.M. front ends.

The cylinder castings have been designed with steam and exhaust passages of ample area and with easy bends. Cylinder and steam chest bushings, and packing rings in the pistons and piston valves, are of Hunt-Spiller gun iron. Baker valve gear is applied, controlled by power reverse gear, greatly facilitating handling in switching service.

Driving wheel centers are of cast steel, with all tires flanged 3½ in. thick and shrunk on. Franklin adjustable driving box wedges are applied. The cab is large and spaced well back, providing ample deck space for the fireman, and special attention has been given to placing all cab fittings, such as brake valves, throttle lever, reverse lever, valves, etc., within easy reach of the crew, with all gauges in a convenient position for easy reading.

The tender is carried on two 4-wheel trucks of the equalizer design, with pedestals, and McCord boxes for 5½ x 10 in. journals. The tender wheels are cast iron, 33 in. diam., with inside hung brake beams. The tender frame is of channel steel, fitted with heavy cast steel bumpers at front and back ends, and stub casting for use with M.C.B. coupler. Equipment includes the radial buffer. The tender tank is of the water bottom type,

with capacity of 6,000 U.S. gall., and the coal capacity is 9 tons. The coal is carried in a special hopper, located so that both locomotive man and fireman have an unobstructed view to the rear over the top of the tank.

As stated above, it is expected that construction of the 5 transfer locomotives, or 8-wheel switchers, which were ordered at the same time as the 6-wheel switchers, will be proceeded with in the near future.

New Railway for London, England.

A press report says that important proposals are being formulated for the construction of an east to west railway, 20 miles long, in the London area. The object is to give direct connection between the Great Northern, Great Eastern and Great Central Railway systems, as well as between them and that of the Great Western. It is proposed to connect the joint railway of the Great Western and Great Central companies near Denham, with the Great Northern main line near at the adjoining Palace Gates terminus. Trains could then proceed from the north to the south of England, and vice versa, and there would be direct communication between the northern and northwestern suburbs.

Machine Tools Order.—The Canadian National Rys. management approved recently a list of machine tools for the St. Malo, Que., shops.

Grain in Store at Elevators.

The Dominion Bureau of Statistics, Internal Trade Branch, reports that for the week ended Sept. 8, the quantity of grain in store in the different elevators showed a net increase of 3,123,256 bush. The bulk of this was in wheat, which showed an increase of 2,848,264 bush., barley 360,256, and rye 845,167. There were decreases in oats, of 924,180 bush., and flax, of 6,251.

The western country elevators showed increases in wheat 1,315,401 bush., barley 97,023, and rye 197,396, while there were decreases in oats 168,189 bush., and flax 5,295. The total quantity in store was 7,729,812 bush., compared with 6,293,476 at the same period in 1921. The total receipts of all grains were 4,488,193 bush., and the shipments were 3,049,411. Interior terminal elevators showed small decreases in wheat 29,409 bush., oats 8,143, and barley 306, a total of 37,858.

Public and private terminal elevators at Fort William and Port Arthur, showed increases, wheat 994,633 bush., barley 142,897, flax 2,044, and rye 370,345. The only decrease was in oats, of 230,821 bush. The net increase for all grains was 1,279,098 bush. Receipts were 5,185,371 bush., and shipments, by ship, were 3,363,010, and by rail, 205,449.

Winnipeg private terminal elevators showed increases, wheat 5,747 bush. and barley 387, and there was a decrease in oats of 6,467 bush., a net decrease of all grains of 333 bush.

Public elevators in the east showed increases, wheat 187,664 bush., barley 115,898 bush., and rye 252,426 bush., and there were decreases in oats 428,976 bush., and flax 3,000. The total receipts of all grains were 2,399,108 bush., and the shipments were, by ship 545,877, and by rail 932,055.

The quantity of U.S. grain in store at eastern public elevators was 6,419,550 bush., compared with 11,947,309 at the same period in 1921. The bulk of the former amount consisted of, wheat 2,819,141 bush., corn 1,920,722, and rye 1,419,678.

U.S. lake ports, Buffalo and Duluth, showed an increased storage of Canadian grains, wheat 215,057 bush., and barley 930.

At the U.S. Atlantic seaboard ports there was a net increase in all grains of 106,014 bush.

Unemployment and the Canadian National Railways.

The following resolution was adopted at the conference between Dominion and provincial representatives in Ottawa, recently: "Whereas, in departments of Government, both federal and local, there are avenues open for employment, and whereas, the Canadian National Rys. Board is the manager and operator of the Canadian National Rys. and the Canadian Government System; and, whereas, there are boards administering—under legislative authority—special departments of public works in the various provinces; and whereas, there are recurring periods of unemployment, therefore, this conference recommends that the respective governments, the National Railways Board and the boards administering the special departments of public works in the various provinces should regulate and carry on their public work and railway operation so as to distribute the work in such a manner as to relieve unemployment to the greatest possible extent."

Mainly About Railway People Throughout Canada.

Richard Bladworth Angus, one of the C.P.R. directors, died at his country home Senneville, near Montreal, Sept. 17. He was born at Bathgate, Linlithgowshire, Scotland, May 28, 1831, and was for some years in the Manchester and Liverpool Bank, in England. He came to Canada in 1857, and entered the Bank of Montreal's service, and subsequently served as agent at Chicago and New York. In 1863 he was appointed Local Manager at Montreal, and in 1869 General Manager there, retiring from its service in 1879. He was afterwards elected a director of the Bank, and in July 1910, President. In 1879 he took part in the management of the St. Paul, Minneapolis and Manitoba Ry., with the late Lord Mount Stephen and the late Lord Strathcona, and was a member of the syndicate which, in 1881, undertook the construction of the C.P.R., and was the last of the original directors of that company. He was associated with a number of industrial and financial companies, and with numerous charitable organizations. On Sept. 19, the day of his funeral all work on the C.P.R. was suspended and all trains stopped for 2 minutes, commencing at 1.45 p.m.

A. B. Atwater, Assistant to President, G.T.R., Detroit, Mich., after 48 years with the company, has asked to be relieved from active service, and will be placed on the pension fund, Oct. 1. The directors have placed on the company's records, their appreciation of his long and faithful service. He was born at Sheffield, Ohio, in Nov. 1845, and entered railway service in 1864, as telegraph operator, Cleveland and Erie Ry. He was, from Oct. 1865 to June 1885, in engineering service, Jamestown Division, same road; Resident Engineer of Construction, Canada Southern Ry.; Assistant Engineer, Port Dover and Lake Huron Ry.; Chief Engineer, Stratford and Huron Ry.; Superintendent, Port Dover and Lake Huron Ry.; General Superintendent, Georgian Bay and Lake Huron Division, G.T.R., and Chief Engineer, Chicago and Grand Trunk Ry.; June 1885 to July 1898, Superintendent, G.T.R. lines, west of Detroit, Mich.; July 1898 to July 1902, Assistant General Superintendent, Michigan Central Rd., Detroit, Mich.; July 1902 to Sept. 30, 1922, Assistant to President, G.T.R. lines, west of Detroit and St. Clair Rivers, Detroit, Mich. He will continue to live in Detroit, spending the winters either in California or abroad.

E. W. Beatty, K.C., President, C.P.R., left Montreal Sept. 11, by special train, to inspect the line to the Pacific coast. He was accompanied by Sir Augustus Nanton, another of the directors, and Brigadier-General Nanton, London, Eng., as far as Winnipeg, and by A. D. MacTier, Vice President, Eastern Lines, as far as Fort William; D. C. Coleman, Vice President Western Lines, accompanying him over them. The special was routed via Toronto and Fort William, the first stop-over being at Winnipeg. Leaving Winnipeg Sept. 17, Vancouver was reached Sept. 25, and Mr. Beatty went on to Victoria. He will make several stops on his return journey and is expected back in Montreal early in October.

F. P. Brady, Assistant to the Executive, Canadian National Rys., with office at Toronto, has been at his house in Winnipeg for several weeks, owing to serious illness.

H. W. Brodie, who has been appointed

Assistant Passenger Traffic Manager, C.P.R., Montreal, was born at Fredericton, N.B., June 8, 1874, and entered railway service, Jan. 1, 1895, since when he has been, to July 1895, junior clerk and stenographer C.P.R. Passenger Department, St. John, N.B.; July to Aug. 1895, in similar capacity at Boston, Mass.; Aug. to Feb. 1898, stenographer to Assistant General Passenger Agent, C.P.R., Toronto; Feb. 1898 to Oct. 1899, chief clerk in same office; Oct. 1899 to Feb. 1903, chief clerk to General Passenger Agent Western Lines, C.P.R., Winnipeg; Feb., 1903 to Oct. 26, 1910, Assistant General Passenger Agent, Western Lines C.P.R., Winnipeg; Oct. 26, 1910 to Sept. 1, 1922, General Passenger Agent, lines west of Revelstoke, B.C., C.P.R., Vancouver.

Adam Brown for many years M.P. for Hamilton, Ont., and afterwards postmaster there, from which position he retired on reaching 90 years of age, and



W. B. Howard,
Assistant General Passenger Agent, Eastern
Lines, C.P.R.

who is the father of Sir George McLaren Brown, European General Manager, C.P.R., London, England, has been elected a member of the Canadian Chamber of Commerce, London, of which, Sir George is President.

B. D. Caldwell, President, Wells Fargo & Co., and Chairman of the Board, American Railway Express Co., while on his way home from a fishing trip in Canada, on Sept. 24, died in a sleeping car state-room shortly before reaching Burlington, Vermont.

Allan Cameron, appointed recently as Oriental Manager, Canadian Pacific Ry. and Canadian Pacific Steamships Ltd., Hong Kong, China, sailed from Victoria, B.C., on the C.P.R. s.s. Empress of Russia, to take of his new duties. In referring to his appointment in our last issue, he was incorrectly mentioned as Oriental Manager, Canadian Pacific Steamship Lines.

James Clark, Locomotive Foreman, Canadian National Rys., Parent, Que., was killed by the explosion of a kalsomine tank there, Sept. 15. He was for about 20 years Master Mechanic, Quebec and Lake St. John Ry.

James T. Clark, President, Chicago, St. Paul, Minneapolis and Omaha Ry., died suddenly at St. Paul, Minn., Sept. 8. He was born at Auburn, N.Y., Nov. 20, 1852, and entered railway service in 1870 as a messenger boy on the Illinois Central Rd.

W. C. Clark, at one time Auditor of Freight Accounts, G.T.R., now of Delhi, Ont., but who retired on pension in 1909, and is now aged 80, was married Sept. 12, to Mrs. Davis, who is about the same age.

Normand R. DesBrisay, who has been appointed Assistant General Passenger Agent, C.P.R., Winnipeg, was born at Minneapolis, Minn., May 18, 1888, and entered C.P.R. service, June 14, 1904, since when he has been, to May 31, 1905, clerk in District Passenger Agent's office, St. John, N.B.; June 1, 1905 to June 7, 1907, ticket clerk, City Ticket Office, St. John, N.B.; June 14, 1907 to Dec. 5, 1908, ticket clerk, s.s. Empress of Ireland; Dec. 5, 1908 to May 24, 1909, exchange ticket clerk, Halifax, N.S.; May 27, to Nov. 19, 1909, exchange ticket clerk, Quebec; Nov. 19, 1909, to May 4, 1910, exchange ticket clerk, Halifax, N.S.; May 5, to July 15, 1910, exchange agent, Quebec; July 15, 1910, to Nov. 1912, Travelling Passenger Agent, St. John, N.B.; he resigned that position to enter private business for a short time, resumed his duties in the early part of 1913, and continued as Travelling Passenger Agent, St. John, N.B., until July 1914; July 1914 to Sept. 1916, General Travelling Passenger Agent, Montreal, and later Chief Clerk, Passenger Department, New York; Sept. 1916 to Sept. 1, 1922, District Passenger Agent, St. John, N.B.

W. Fitzpatrick, Chief Dispatcher, Reid Newfoundland Co., St. John's, Nfld., resumed his duties Sept. 11, after a short holiday.

H. G. Foreman is Treasurer, Canadian Northern Ry. System and Grand Trunk Pacific Ry., not Assistant Treasurer, as stated under "Birthdays of Transportation Men in September," in Canadian Railway and Marine World, for September.

W. Fulton, who has been appointed District Passenger Agent, Ontario District, C.P.R., Toronto, was born at Ballinderry, County Antrim, Ireland, Nov. 13, 1870, and entered C.P.R. service in Jan. 1891, since when he has been, to Jan. 1895, ticket clerk, Toronto; Jan. 1895 to June 1900, ticket agent, and telegraph and Dominion Express Co. agent, Galt, Ont.; June 1900 to Apr. 1915, city passenger agent, London, Ont.; Apr. 1915 to Oct. 1, 1922, Assistant District Passenger Agent, Ontario District, Toronto.

Hon. G. P. Graham, Minister of Militia & Defence, is also acting as Minister of Railways and Canals, during the absence of Hon. W. C. Kennedy, who underwent an operation in the Royal Victoria Hospital, Montreal, Aug. 25, and a second operation Sept. 20.

Lieut.-Col. F. B. Hawkes, O.B.E., District Traffic Superintendent, Northwestern Ry. of India, and one of the trustees for the administration of the port of

Karachi, India, visited Canada during September, and investigated the port handling facilities at Montreal with regard to grain elevators, etc., no facilities of this kind being utilized in India, although the port of Karachi handles some 37,000,000 bush. of grain annually.

William Horder, who has been appointed Assistant District Passenger Agent, Ontario District, C.P.R., Toronto, was born at Montreal, Nov. 10, 1882, and entered C.P.R. service, June 1, 1900, since when he has been, to Nov. 1, 1912, clerk; Nov. 1, 1912 to Dec. 1, 1913, excursion clerk; Dec. 1, 1913 to Sept. 12, 1922, chief clerk, Passenger Department, all at Montreal.

William Brunswick Howard, who has been appointed Assistant General Passenger Agent, Eastern Lines, C.P.R., Montreal, was born at Chatham, N.B., Sept. 15, 1877, and entered C.P.R. service in Aug. 1897, since when he has been, to Aug. 1899, junior clerk, District Passenger Agent's office, St. John, N.B.; Aug. 1899 to Feb. 1902, Travelling Passenger Agent, Maritime Provinces, St. John, N.B.; Feb. 1902 to June 1906, chief clerk, Passenger Department, St. John, N.B.; June 1906 to Feb. 1916, District Passenger Agent, St. John, N.B.; Feb. 1, 1916 to Sept. 12, 1922, District Passenger Agent, Toronto.

Hon. W. C. Kennedy, Minister of Railways and Canals, who was operated on at the Royal Victoria Hospital, Montreal, August 26, for gall stones, had to have a second operation there on Sept. 20. The latest reports say that his condition is not satisfactory, and that, at the best, it will probably be some time before he can resume his official duties.

A. E. Killam, for several years Inspector of Bridges and Buildings, Intercolonial Ry., Moncton, N.B., and who was vice President of the American Railway Bridge and Building Association for 1911-12 and President for 1912-13, died at Moncton, N.B., recently, aged 88.

R. S. Logan, Vice President, Land, Tax and Claims Department, G.T.R., Montreal, after 27 years service with the company, has asked to be relieved from active service, and will be placed on the superannuation fund, Oct. 1. The directors have placed on the company's records, their appreciation of his long and faithful service. He was born at St. Louis, Mo., Feb. 13, 1864, and entered railway service in 1885, since when he has been, to Dec. 1, 1890, clerk in General Manager's office, Wabash, St. Louis and Pacific Ry.; Dec. 1, 1890, to July 1, 1896, secretary to General Manager, Wabash Rd.; July 1, 1896, to Jan. 1, 1901, secretary to General Manager, G.T.R.; Jan. 1, to Mar. 15, 1901, Assistant to General Manager, G.T.R.; Mar. 15, 1901, to Mar. 17, 1902, Vice President and General Manager, Central Vermont Ry.; Mar. 17, 1902, to Jan. 7, 1910, Assistant to Second Vice President and General Manager, G.T.R.; Jan. 7, 1910, to Oct. 2, 1911, Assistant to the President, G.T.R. and G.T.P.R., and from Oct. 2, 1911, to Sept. 30, 1922, Vice President, Land, Tax and Claims Department, G.T.R., Montreal. He will continue to live in Montreal and will carry on business in real estate, with office in the Transportation Building.

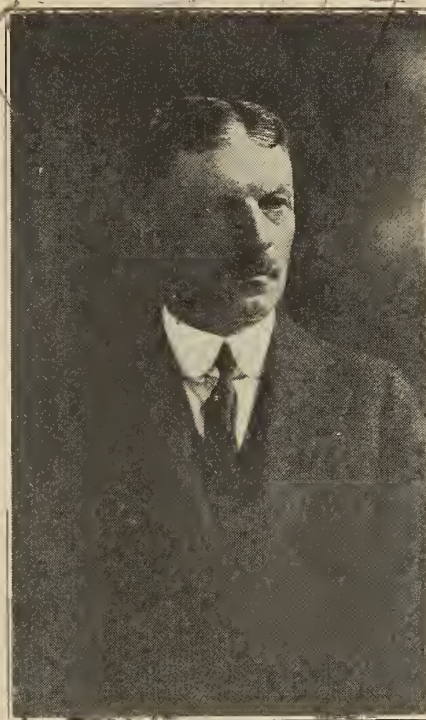
Sir William Mackenzie, ex-President, Canadian Northern Ry., sailed from Quebec, Sept. 12, on the s.s. Empress of Britain, for England.

R. C. Morgan, General Manager Reid Newfoundland Co., St. John's, Nfld., whose portrait appears in this issue, was born at Missisquoi Bay, Que., Nov. 12,

1864, and entered transportation service in 1884, since when he has been as follows:—1884 to 1895, stenographer and clerk, Northern Pacific Ry., St. Paul, Minn., 1895 to 1900, clerk in President's office, Great Northern Rd., St. Paul, Minn., 1900 to 1901 Assistant Superintendent, Great Northern Ry., Larimore, N.D., 1901 to 1904, Superintendent El Paso & Southwestern Rd., Bisbee, Ariz., 1904 to 1905, Assistant Superintendent, Great Northern Ry., Everett, Wash., 1905 to 1911, Superintendent, Great Northern Ry., Spokane, Wash., 1912 to Feb. 1917, Superintendent C.P.R., Fort William, Ont., Feb. 1917 to date, Superintendent Winnipeg Terminals, C.P.R., from which position he has been on leave of absence since Aug. 21, 1921.

H. Morris, Roadmaster, Pere Marquette Rd., Walkerville, Ont., who died there, Sept. 15, aged 65, had been in the service for over 30 years.

H. J. Russell, Assistant to General Manager, Reid Newfoundland Co., St. John's Nfld., visited Montreal, in September.



R. C. Morgan,
General Manager, Reid Newfoundland Co.

W. J. K. Skillicorn, Rates Assistant to General Manager, South African Railways and Harbors, Johannesburg, visited Canada during September, to examine the system of grain handling at Montreal and other ports.

William H. Snell, who has been appointed General Passenger Agent, Western Lines, east of Revelstoke, B.C., C.P.R., Winnipeg, was born at Palmyra, Neb., May 23, 1872, and entered railway service in July, 1890, and served in the Treasurer's Department, C.P.R., Montreal, until 1896, when he resigned on his appointment as Travelling Agent, Atlantic Advertising Co., Boston, Mass. He re-entered C.P.R. service Feb. 1, 1902, since when he has been, to Feb. 1, 1904, chief clerk, Boston, Mass.; Feb. 1, 1904 to July 17, 1910, Travelling Passenger Agent, Boston, Mass.; July 17, 1910 to March 1, 1912, Eastern Passenger Agent, New York, N.Y.; March 1, 1912 to April 1, 1915, General Agent, Passenger Department, New York, N.Y.; April 1, 1915, to Sept., 1922, General Passenger Agent,

Eastern Lines, Montreal.

C. W. Spencer, who died at Winnipeg, Sept. 13, aged 84, was engaged on the construction of the first 100 miles of the C.P.R. west of Port Arthur, Ont. He lived in Winnipeg since 1882, and was, for several years a foreman of road construction for the city.

Hon. J. A. Stewart M.P. for Lanark, Ont., who was Minister of Railways and Canals in the Meighen Government, has been in the Royal Victoria Hospital, Montreal, for several weeks, suffering from pernicious anaemia, and was reported on Sept. 25 to be in a very critical condition.

Walter S. Thompson, who has been appointed Publicity Agent, G.T.R., Montreal, was born at Newcastle-upon-Tyne, England, Oct. 22, 1886, and educated at Rutherford College there. He began newspaper work on the St. James Gazette, London, Eng., and served subsequently on the Evening Standard, Daily Express and Observer, in London, and from 1909 to 1911 was in newspaper work in Australia and New Zealand. In 1912 he was city editor of the Daily Witness and Daily Telegraph, Montreal; 1913 to 1914, city editor, Montreal Herald, and on March 29, 1914, was appointed editor of Press Bureau, General Advertising Department, G.T.R., Montreal, which position he held at the time of his present appointment.

W. N. Tilley, K.C., one of the C.P.R. directors, returned to Toronto early in September, from England, where he went to represent the Dominion Government, on the G.T.R. shareholders' appeal to the Imperial Privy Council, against the arbitrators decision that certain G.T.R. stocks had no value.

George Arthur Walton who has been appointed General Passenger Agent, Eastern Lines, C.P.R., Montreal, was born there, July 17, 1881, and entered C.P.R. service in Sept. 1901, since when he has been, to June 1903, rate clerk, Passenger Department, Winnipeg; June 1903 to Jan. 31, 1906, chief clerk, same department, Winnipeg; Feb. 1906 to Sept. 30, 1907, station ticket agent, Winnipeg; Nov. 1, 1907 to March 31, 1910, District Passenger Agent, Brandon, Man.; April 1, 1910 to Aug. 31, 1911, General Agent, Passenger Department, Spokane, Wash.; Sept. 1, 1911 to Dec. 31, 1915, General Agent, Passenger Department, Chicago, Ill.; Jan. 1, 1916 to Sept. 11, 1922, General Passenger Agent, Western Lines, Winnipeg.

Maintenance of Way Workers' Families.—The Association of Railway Executives, New York, has issued the following: "Representatives of maintenance of way employees, in seeking, before the U.S. Railroad Labor Board, an increase of wages to a minimum of 48c an hour in all localities, based part of their argument on the supposition that 5 persons (a man, his wife, and 3 dependent children) is the 'normal' family in the United States. J. G. Waller, representing eastern railways, in examining this argument before the Labor Board, said in part: 'The census of 1920 shows that for each family there are 1.36 male workers, or a total of 33,059,793, compared with the 24,351,678 families. Why should each of these male workers receive wages based upon a family of 5 when for each average family there is more than one male worker, an average excess of 0.36 male workers per family? If each individual worker is supposed to support a 'normal' family of five, 1.35 workers per family would be supporting 6.8 persons per family, and not a so-called normal family of 5.'

Rates of Pay and Regulations for Transportation of Mails by Steam Railways.

The following report was adopted and passed as order in council 1896, by the Dominion Government on Sept. 13:—The committee of the Privy Council, on the recommendation of the Postmaster General, advise that on and from June, 1, 1922, all railways in Canada, operated by steam, shall be paid at the following rates for the transportation of mails, and furnishing the necessary car space for the purpose.

1. For a full postal car, which shall not be less than 60 ft. in length, unless otherwise agreed to by the Postmaster General, equipped for the sorting and handling of mails, including parcels, and the transportation and accommodation of post office officials on duty, the rate of payment shall be 35c. a car mile. Pending the building of standard 60 ft. railway post office cars which the railways will place on their regular through passenger trains at some future date, all railway post office cars less than 60 ft., used exclusively for post office business, with a mail clerk in charge, irrespective of length, will be paid for by the Post Office Department at the rate of 35c. a car mile when such cars meet the requirements of the Department, but no additional payment will be made for overflow mail from undersized postal cars until the total space occupied shall exceed the space that would be provided by a 60 ft. car. If postal cars of greater length than 60 ft. are furnished by the railway, the Department will pay only the rate of 35c. a car mile. The railway may provide the car with a substantial partition, cutting off 60 ft. equipped, according to the standard car plan for mail. In the event of the remaining space, or part of it, being needed for storage space for the mail, the Department will pay additional for this on the basis of the storage space rates hereafter mentioned.

2. Full storage cars carrying mail matter exclusively, with or without a mail clerk in charge, will be paid for at the rate of 36c. a car mile for 60 ft. cars. When such cars are less than 60 ft. in length payment will be made pro rata.

3. For a half car, or section of a car, which shall not be less than 30 ft. in length by the full width of the car, completely equipped in the same manner as a full postal car and the transportation of post office officials on duty, the rate shall be 20c. a car mile. If the space provided is less than 30 ft. in length and the full width of the car, payment will be made at the rate of seven-tenths of a cent per linear foot. When the mail space is reduced by a side passage, payment will be made on the basis of 20c. for 270 square ft. of floor area.

4. Closed pouch mails, storage or overflow mails carried in baggage cars in charge of baggageman and without a mail clerk in charge, will be paid for at the following rates:—For each mile of service by a 3 ft. unit space, 4c.; for each mile of service by a 7 ft. unit space, 6.5c.; for each mile of service by a 15 ft. unit space, 13c.; for each mile of service by a 30 ft. unit space, 20c. All mail service in baggage cars shall be authorized according to the above described units.

5. The foregoing rates shall apply to railway post office cars or cars transporting mail matter in whole or in part, attached to regular trains, or on special trains not ordered by the Post Office Department. The railways shall not be required to haul more than one mail car

on any special train run by them, unless they find it practicable to do so without interfering with the schedule speed of such train.

6. For special trains ordered by the Post Office Department, the railways shall be compensated at the rate of \$2.70 a train mile. When one or more cars for the conveyance of passengers, baggage or express, are attached to such trains by the railway company, the compensation paid by the Post Office Department shall be at the rate of \$2.15 a train mile.

7. All railway companies shall provide, without extra charge to the Post Office Department, for the care and storage of mails and railway clerks' equipment at stations, including junction and transfer points, when such mails and equipment have to be held for transfer, dispatch or delivery. The work of transferring mails between trains, when such trains use the same station, shall be performed by the railway companies, except at points where the Department has already provided transfer agents or employees of the Department not under contract, the delivering carrier to be held responsible for the transfer.

8. Authorized service is service authorized by formal orders issued by the Post Office Dept., previous to its being performed. All authorization for full postal cars and apartment railway post office cars shall be in both directions and shall begin and may be discontinued in accordance with the needs of the service.

9. Regular baggage car authorizations, not including overflow mail, shall be based upon the maximum requirements, and such authorizations shall correspond with the routes as laid down in the schedule of mail trains as published by the Post Office Department from time to time. Wherever a regular authorization is exceeded on 50% or more trips during 30 consecutive days, the appropriate higher unit shall be authorized. This will not apply to the month of December. Conversely, when it is found that the regular authorization exceeds the requirements of any baggage car service, the authorization may be changed to a lower unit.

10. In baggage car service the space required for the mails will be determined by the number of sacks as follows:—In determining the number of linear feet both sides of the car needed for carrying the mails in closed pouch or storage units of 3 ft., 7 ft., 15 ft and 30 ft. respectively in baggage cars, a test shall be made by representatives of the Post Office Department and representatives of the railways to establish the number of sacks of mail which shall be considered as equivalent to one linear foot both sides of car. Pending such test 18 sacks shall be taken as equivalent to one linear foot both sides of car.

11. All units of overflow space needed to supplement regular authorization shall be of 3, 7, 15 or 30 ft., without duplication or grouping, and such units shall be discontinued, increased or decreased at any point where a fluctuation in the volume of mail carried requires a change from one unit to another.

12. When on account of a delayed train, or connection, a special or extra train is made up to go out either on the time of the regular train or after the arrival of the delayed connection, and the mails carried on such special or extra train are those which would have been

carried on the regular train if it had been run according to schedule, the transportation of the mail on the special or extra train will be considered as part of the service required of the regular train, and no additional pay will be allowed for either train unless the quantity of mail carried in both trains is in excess of that which could have been carried in the space regularly authorized.

13. Where, on account of delayed connection, the mail due to go out on one train falls back upon a following train on the same line, the transportation of such mail on the second train will be considered as part of the service required of the first train and no additional pay will be allowed for either train unless the quantity of mail carried in both trains is in excess of that which could have been carried in the space regularly authorized.

14. At stations where mail trains do not stop regularly, the railway company shall erect and maintain at its own expense, a mail catching device approved by the Postmaster General and the Board of Railway Commissioners for the exchange of mails. When the Post Office Department orders an exchange of mails at a point other than a railway station, a mail catching device of the same description as that authorized for use at railway stations shall be erected and maintained by the railway company concerned, but the cost of erection and maintenance shall be borne by the Post Office Department. Locomotive engineers shall give notice to railway mail clerks by means of a whistle that they are approaching a mail catching post, and for this purpose the regular station or crossing signal, as the case may be, will govern. When catch posts are erected at points not a highway crossing, the crossing signal will be given.

15. The Post Office Dept. may dispatch as mails in the regular authorized mail space either in postal, baggage or storage cars, articles of post office equipment and supplies.

16. At all transfer points where mail transfer agents are employed, the Post Office Dept. will provide the necessary equipment for handling mails, such as trucks, but at all other stations where mail is to be transferred by the railways they shall provide such equipment.

17. At large mail centers, when it is necessary, that postal cars or storage cars shall be loaded before the departure of the train the railways shall place such cars on tracks that will make it reasonably convenient for loading and unloading.

18. Should any dispute arise as to the interpretation or operation of any of these regulations, such disputes shall be referred to a committee to consist of one representative of the Post Office Dept., one of the Railways and Canals Department, and one of each railway that may be concerned in the dispute, with power in said committee to add to their number as occasion may require. The committee shall approach such dispute in a spirit of conciliation with a view to reasonable adjustment. Should the committee fail to agree upon such adjustment the committee shall present the opposing views to the Postmaster General and the Minister of Railways and Canals, whose decision shall be final. The committee may make rules for the conduct of its affairs.

19. The equipment and accommodation furnished by postal cars shall include

light, heat and an adequate supply of drinking water, mattresses, cooking apparatus satisfactory to the Postmaster General, stamp pads, brooms and other articles required according to specifications.

20. New postal cars and cars that may hereafter be equipped for the railway postal service shall be constructed and arranged in accordance with plans approved by the Postmaster General.

21. When it becomes necessary, owing to a wreck or washout, to transfer mails from one train or car to another, the railway shall see that the mails and railway mail clerks are promptly transferred and every possible convenience furnished the clerks for working the mails.

22. The Postmaster General reserves the right to demand such reports regarding railway mail service from the railway companies as may be required from time to time.

23. Payments for transportation of the mails shall be made quarterly after the service has been performed.

The U.S. Secretary of Commerce on Railway Efficiency.

The United States Secretary of Commerce, Hon. Herbert Hoover, made a statement before the Interstate Commission recently, in which he said, in part:—"A great deal has been said about the inefficiency of our railway system. I do not sympathize with these statements. Comparison with foreign railways, of the fundamental criteria of per ton mile costs, train loading and so forth, in the light of our cost of living, will demonstrate that our railways are of higher standards, better in methods than others and are growing in efficiency. The consolidation of our railways into larger systems has been contemplated in our legislatures for some years past as a gain in efficiency. Its value cannot be overestimated—it is not a panacea for all trouble. It does give hope, however, of economies in further efficiency from more complete utilization of rolling stocks and terminals, some small degree of saving in overhead, saving in current inventories, but probably its greatest saving would be decreased cost of proper finance, increased financial stability and fuller independence from the supply companies.

"It is probably unnecessary to refer to the question of government ownership. No one with a week's observation of government railways abroad, or with government operation of industry in the United States, will contend that our railways could ever be operated as intelligently or as efficiently by the government as through the initiative of private individuals. Moreover, the welfare of its multitude of workers will be far worse under government operation. We are struggling with the great problem of maintaining public control of monopoly, at the same time maintaining the initiative of private enterprise. I believe that we are steadily progressing to solution. Great social and economic problems find their solution slowly and by a process of trial and error. We have tried unregulated monopoly, and have tried government operation, and found the error in them. We still have much to solve if we are to maintain our transportation. Much of this solution depends upon the successful initiative of the railways themselves and much of the shaping of these matter lies fortunately in your hands."

Signals for Railway Grade Crossings.

The Board of Railway Commissioners passed general order 369, Aug. 10, as follows: Re application of Railway Association of Canada, under the Railway Act, 1919, sec. 287, for an amendment to rule 33 of General Train and Interlocking Rules, approved by order 7,563, July 12, 1909, so as to provide for the use of red signals by highway crossing watchmen as a warning to highway travel that trains are approaching: Upon hearing the application at Ottawa, June 21, 1922, the Railway Association of Canada, the Grand Trunk, Canadian Pacific, Toronto, Hamilton & Buffalo, Pere Marquette and Canadian National Railways, the Michigan Central and New York Central Railroads, the Brotherhood of Locomotive Engineers, the Brotherhood of Locomotive Firemen and Enginemen, the Order of Railway Conductors and the G.T.R. trainmen being represented, and what was alleged; and upon the report and recommendation of the Board's Chief Operating Officer, the Board orders that rule 33 of the General Train and Interlocking Rules be struck out, and the following substituted therefor, viz.:

"33. Watchmen stationed at public road crossings must, by day, display a metal disc (16 in. in diameter, white background, with the word 'Stop' in large black letters, and a black border); and, by night, a red light, to warn pedestrians and persons in vehicles that a train is approaching. Where gates are provided, a red light, hooded so as to show to the highway only, must be displayed by night."

2. That general orders 247 and 257, dated Aug. 6, 1918, and Dec. 6, 1918, made herein, be rescinded.

General order 247 required watchmen at all grade crossings protected during the day to have a metal disc, 16 in. in diameter, with a short handle, having a white background, with the word "Stop" in large black letters, and a black border, and rule 33 providing that watchmen stationed at public crossings must use a green signal to prevent persons and vehicles from crossing the track when trains were approaching, was amended to conform with the new rule.

General order 257 cancelled rule 33 and provided a new rule as follows: "33. Watchmen stationed at public road crossings must, by day, display a standard metal disc, and, by night, a green light, to warn pedestrians and persons in vehicles that a train is approaching. Red signals must be used by them only when necessary to stop trains."

The Board passed general order 370, Sept. 6, as follows: Re general order 368, Aug. 10, 1922, amending General Train and Interlocking Rules by striking out rule 33 thereof and substituting therefor the rule set forth in the order. Whereas it appears that the said rules do not apply to certain railway companies incorporated elsewhere than in Canada, owning, controlling, operating or running trains, or rolling stock, upon or over lines of railway in Canada, either owned, controlled, leased, or operated by such companies, and that said companies had been operating under their own rules; and whereas it is deemed desirable in the interest of uniformity in the operation of railways in Canada that rule 33 prescribed by general order 369 should have general application, the Board therefore orders that every railway company incorporated elsewhere than in

Canada, and owning, controlling, operating or running trains or rolling stock upon or over any line or lease of railway in Canada, either owned, controlled, or operated by such company or companies adopt and put into effect forthwith in connection with the operation of their trains in Canada the following rule, viz.: "Watchmen stationed at public road crossings must, by day, display a metal disc (16 in. in diameter, white background, with the word 'Stop' in large black letters, and a black border); and, by night, a red light, to warn pedestrians and persons in vehicles that a train is approaching. Where gates are provided, a red light, hooded so as to show to the highway only, must be displayed by night."

Freight Car Location on Canadian Railways.

The Railway Association of Canada has issued a report on the location of freight cars on Sept. 1, based on returns from the following railways: Algoma Central & Hudson Bay; Canadian National, including Grand Trunk Pacific; Canadian Pacific; Central Vermont, in Canada; Dominion Atlantic; Edmonton, Dunvegan & British Columbia; Grand Trunk; Kettle Valley; Michigan Central, in Canada; Napierville Jct.; Pere Marquette, in Canada; Quebec Central; Quebec, Montreal & Southern; Timiskaming & Northern Ontario; Temiscouata; Toronto, Hamilton & Buffalo; Wabash, in Canada, as follows: Cars owned by reporting railways, 221,890; home cars on Canadian foreign lines, 16,969; home cars on U.S. lines, 42,481; home cars on home roads, 162,440; Canadian owned foreign cars on home lines, 14,521; U.S. owned foreign cars on home lines, 21,027; total cars on lines, 197,988; per cent on line to total owned, 89.2; deficiency on line to total owned, 23,902; home cars in bad order, 14,563; foreign cars in bad order, 347; per cent in bad order, 7.5; privately owned U.S. cars on lines, 1,904; privately owned Canadian cars on lines, 1,295.

The Steel Wage Increase and Its Relation to Railway Wages.

In rehearings before the United States Railroad Labor Board affecting wages of maintenance of way employees, effective July 1, counsel for the employees laid great stress upon the recent increase of 20% in wages granted by the United States Steel Corporation. John G. Walber, representing eastern railways, in this connection, said in part: "The hourly rate of pay by the Steel Corporation in 1915 was 20c. This rose to 50.6c in Feb., 1920. The hourly rate, including the present increase by the steel corporation, will be 36c, which shows that the present rates of this corporation are 80% over 1915. In the eastern territory the average hourly rate on the railways in 1915 was 16.6c an hour, and the average hourly rate of the maintenance of way employees under the decision effective July 1, last, is 37.1c compared to the Steel Corporation's rate of 36c, so that the average hourly rates of the railways in the eastern territory is 123.5% greater than in 1915 as compared with 80% for the Steel Corporation." Mr. Walber pointed out that the Steel Corporation's prices have increased 17% since Feb. 1, while freight rates on the railways were decreased 10% by the Interstate Commerce Commission.

Motor Car, Hand Car, Velocipede and Push Car Operating Rules.

The Railway Association of Canada has issued the following circular: The following regulations to govern the use and operation of motor cars, hand cars, velocipedes, and push cars, have been prepared by the Railway Association at the Board of Railway Commissioners for Canada's suggestion, to assist in the establishment and observance of safe practices in the handling of the vehicles above mentioned. It is recommended that member railways adopt these rules as standard on their respective lines:—

1. No motor car, hand car, or similar vehicle is to be operated on the railway without permission of the proper authority. Each vehicle of this character must be placed under the control of one individual, who will be responsible for its operation.

2. No person or persons, except employees in the discharge of their duty, shall be allowed to ride on such cars on the tracks of the railway unless holding special permission from the proper authority.

3. The person in charge of the operation of car must, when practicable, inform himself of the movement of trains.

4. Immediately after starting, brakes must be tested, to ensure that they are in proper working condition.

5. All cars not in actual use must be lifted off track, or otherwise placed clear of passing trains. They must not be left on or near road crossings. When unattended, they must be locked and the key retained by the person authorized to use the car.

6. When approaching railway, street, and highway crossings and switches, cars must be under full control, and prepared to stop immediately. Cars must not be run over crossings protected by gates, until the gates are down, or over crossings protected by flagmen, until given "Proceed" signal by flagman.

7. Cars loaded with rails, frogs, ties, or similar material, must not go on main track without protection, as set forth in the company's rules.

8. Rails, frogs, or similar material must not be carried on motor or hand cars, except in cases of emergency. Water kegs, track jacks, and other tools likely to derail car if they were to fall off, must not be carried on or near front of car.

9. Motor, hand, or push cars must not be attached to a train.

10. Cars must not be run after sunset, or during foggy or stormy weather, except in cases of actual necessity. In such cases, and also in passing through dark tunnels, on single track, a red light must be displayed to the front and to the rear, and on double track a white light to the front and a red light to the rear. During fogs and storms, flagmen should be sent out in each direction, and the car run no faster than flagman can walk.

11. Cars must not be run closer than 500 ft. behind moving trains; the space between two motor cars, a hand or velocipede car and a motor car, must not be less than 500 ft.; the space between two hand cars must not be less than 300 ft. The car in advance should signal the following car before stopping.

12. Motor, hand, and velocipede cars must be run with great caution around obscure curves and approaching tunnels, and must be stopped frequently, so that approaching trains may be heard.

13. Hand cars, unloaded push cars, and velocipedes must be lifted from one track

to another, instead of turning switches. When necessary to use switches, they are to be turned only under supervision of the foreman, who will be held responsible for seeing that they are left properly set and locked.

14. In all cases a lookout must be kept in each direction, whether on single or double track.

15. Cars must be operated with care in passing trains receiving or discharging passengers at stations, and must not run between such trains and the station.

16. Hand or push cars must not be pushed ahead of motor car.

17. Employees must not get on or off motor cars when in motion, except when necessary in starting. The use of seats on hand cars is forbidden.

18. Employees in charge of the operation of motor cars must not permit occupants to sit in insecure or careless positions.

19. Motor cars must not be inspected with matches or torches.

Rules 3, 7, 10 and 12 do not apply to motor cars operated by train order.

Change in Maintenance of Way Flagging Rules for Impassable Track.

The Board of Railway Commissioners issued general order 368, June 29, providing for a change in regulation 9 of the rules in connection with flagging trains on account of impassable track. These rules were consolidated by general order 248, Aug. 12, 1918, which was published in full in Canadian Railway and Marine World for Oct., 1918, pg. 433. By general order 280, Dec. 23, 1920, pg. 113, a change was made in regulation 9. General order 368, passed recently, rescinded general order 280 and general order 248 is amended by a further change in regulation 9.

The original regulation 9, as given in general order 248, was as follows: "That the Brennan signal device, as approved by the Board, or a signal of an equally serviceable type, attached to the base of the rail, to be approved by the Board, be used to display the signals directed under rules 3 (b) and 6 (yellow signal) of this order, and rule 35 (yellow signal) of the Uniform Code of Operating Rules."

By general order 280, this regulation became as follows: "That a signal of a serviceable type, to be approved by the Board, be used to display the signals directed to be provided under rules 3 (b) and 6 (yellow signal) of this order and rule 35 (yellow signal) of the Uniform Code of Operating Rules."

General order 368, revising regulation 9 to date, is as follows: "Upon reading the reports of its Chief Operating Officer, the Board orders that: 1. General order 280, Dec. 23, 1919, be rescinded. 2. General order 248, Aug. 19, 1918, be amended by striking out regulation 9, on page 2 of the order, and substituting therefor the following, namely, viz.: "9. That a signal of a serviceable type, consisting of a bunting flag, 22 x 28 in., five feet above rail level, supported by any satisfactory device which will securely maintain such flag in proper position, be used to display the signals directed to be provided under rules 3 (b) and 6 (yellow signal) of this order, and rule 35 (yellow signal) of the Uniform Code of Operating Rules."

Railway Earnings.

Canadian National Railways.

Following are total operating revenues, total operating expenses, and net operating revenues or deficits, for the Canadian Northern Ry. System, Grand Trunk Pacific Ry., and Canadian Government Rys., the last including the Intercolonial Ry., Prince Edward Island Ry. and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government:—

	Revenue	Expenses	Net deficits	1921
Jan.	\$8,210,401	\$10,433,564	\$2,223,163	\$2,863,958
Feb.	7,650,743	10,026,572	2,375,829	2,986,998
March	9,418,100	10,397,547	979,447	2,532,959
April	7,804,222	9,153,733	1,349,516	2,636,639
May	9,678,965	9,726,020	47,055	2,554,540
June	8,235,603	10,199,592	1,963,989	2,595,257
July	8,877,776	10,510,778	1,633,002	1,334,569

\$59,875,810 \$70,447,811 \$10,572,001 \$17,504,020
Decr. \$ 6,620,400 \$13,552,419 \$ 6,932,019

Approximate earnings for August, \$9,407,184, and for two weeks ended Sept. 14, \$4,903,119, against \$12,736,662 and \$5,376,858 for same periods, 1921.

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1922, compared with those for 1921. The discrepancies between these figures and those issued by the Dominion Bureau of Statistics are owing to the fact that the Bureau is, at its request, furnished with figures by the C.P.R., including the Esquimaux & Nanaimo Ry., and the Montreal & Atlantic Ry. earnings, as well as the C.P.R. ones. The figures supplied the Bureau are exclusive of certain income items which are included in figures supplied Canadian Railway and Marine World:—

	Gross	Expenses	Net	Decreases
Jan.	\$11,337,975	\$10,854,498	\$483,477	\$157,948
Feb.	11,303,693	10,649,205	654,488	153,904
March	13,847,627	11,427,120	2,420,507	30,402
April	12,331,371	10,782,598	1,548,773	1,097,359
May	13,664,246	11,819,732	2,344,514	949,038
June	13,810,443	11,448,134	2,362,313	742,445
July	14,463,835	12,501,927	1,961,908	92,408

\$90,759,194 \$78,983,214 \$11,775,980 \$3,228,502
Decr. \$ 9,069,407 \$ 5,840,905 \$ 3,228,502

Approximate earnings for August, \$15,493,000, and for two weeks ended Sept. 14, \$7,229,000, against \$20,998,000 and \$8,285,000 for same periods, 1921.

Grand Trunk Railway.

Following are total operating revenues, total operating expenses and net operating revenues, or deficits for 1922:—

	Gross	Expenses	Net revenue	1921
Jan.	\$5,354,317	\$4,984,953	\$369,364	\$701,166
Feb.	5,667,487	4,700,985	966,502	31,374
March	6,118,314	5,153,028	965,286	577,680
April	4,901,367	4,596,666	304,701	382,272
May	5,800,329	5,189,756	610,572	324,185
June	6,503,646	5,519,124	984,523	712,028

\$34,345,460 \$30,144,514 \$4,200,948 \$1,326,734
Incr. \$2,874,214
Decr. \$2,000,150 \$4,874,364

*Deficit.

Approximate gross earnings for July \$9,820,641; August \$10,035,145, and for two weeks ended Sept. 14, \$4,278,684, against \$8,472,261, \$10,231,232, and \$4,733,096 for same periods respectively, in 1921.

C.P.R. Crossing Accident.—Two boys were killed and 4 persons were injured at the C.P.R. crossing of St. Florent St., Hull, Que., recently, when a motor truck and a C.P.R. train collided. The coroner's jury found that the accident was caused by the negligence of the driver of the truck exceeding the speed limits at the crossing, and "also by reason of negligence on the part of the C.P.R. in that it did not give sufficient protection to Hull citizens at this crossing." The jury also strongly recommend to the Board of Railway Commissioners that railway companies be compelled to place gates at all level crossings.

Grenville Crushed Rock Co., which is located between Merrickville and Kemptonville, Ont., is supplying large quantities of crushed stone for the C.P.R. and is said to have still in sight two or three years' supply of rock. It has discarded its old steam plant and is now taking 400 h.p. from the Hydro-Electric Power Commission of Ontario.

The Bad Order Car Situation.

The Railway Association of Canada reports the total number of freight cars on Canadian lines, for the period ended Sept. 1, as 197,988. The allowance for bad order cars on the A.R.A. basis, which assumes a total of 7% of the cars in bad order, was 13,859, and the actual number of cars in bad order was 14,910, an excess of 1,051 on the 7% basis. The figures 14,910 represent 7.5% of the cars in bad order. There were 15,871 surplus cars in good order, making the total not in use 30,781, or a total of 16,922 idle cars, on the basis of 7% of the cars being normally in bad order.

The American Railway Association's Car Service Division reports that the total number of freight cars on line on class 1 roads in the U.S. on Aug. 15 was 2,257,391. Of these, 335,575 were in bad order, these figures representing 14.8%, compared with 15.3%, Aug. 1. Out of 1,032,868 box cars, 154,981, or 15%, were in bad order; out of 57,658 refrigerator cars, 8,624, or 15%; out of 949,731 gondolas, 145,011, or 13.2%; out of 80,787 stock cars, 10,648, or 13.2%; and out of 94,677 flat cars, 12,670, or 13.4%, were in bad order.

From the figures showing the Canadian bad order car situation, it is evident that the railways have their rolling stock in good condition to meet the demands occasioned by the heavy autumn traffic, and from the U.S. figures it appears that to Aug. 15 the shopmen's strike has occasioned no deterioration of freight equipment, as about 15% of the U.S. freight cars have been in bad order for the past two years.

Canadian National Railways' Locomotive Terminal Construction at Moncton.

Canadian Railway and Marine World for Dec., 1921, contained a very complete description of the new yards and locomotive terminal built at Moncton, N.B., by the Canadian National Rys., together with illustrations showing the terminal location with relation to lines radiating from Moncton, the terminal layout, and details of the principal buildings. S. B. Wass, Terminal Engineer, who was in charge of the construction at Moncton, and who is now in charge of the Mount terminal yard work near Fort William, Ont., read a paper on the Moncton work before the Engineering Institute of Canada's Winnipeg branch, recently, in which he gave the following summary of material used in the work and material handled: Excavation by steam shovel, 158,000 cu. yd.; trenching for sewers, 4,960 cu. yd.; trenching for water pipes, 3,690 cu. yd.; foundation excavation for buildings, ashpits, tanks, etc., 12,670 cu. yd.; concrete poured, 5,315 cu. yd.; brick laid, 1,190,400; British Columbia timber, 392,000 ft. b.m.; other timber and lumber, 1,025,000 ft. b.m.; steel water tank, 150,000 gall.; structural steel, 57 tons; reinforcing rods, 31 tons; reinforcing rails, 13 tons; sewer pipes, 3,683 ft.; cast iron water pipes, 5,460 ft.; hot air pipes, 2,350 ft.; wrought iron piping, 11,600 ft.; stand pipes, 4; fire hydrants, 5; permanent tracks, 7.03 miles; permanent switches, 43; ballast and cinders, 40,000 cu. yd.; roof area, 1,073 squares; glass area (approx. 10,000 lights), 8,300 sq. ft.

Mr. Wass' description of how the turntable was transferred from the old to the new locomotive house is also of interest. He said: "The table was put out

of service at the old house at 8 a.m., and was raised out of the pit, without moving deck or rails, by a 75-ton wrecking crane, by a rather unique method. The crane lifted one end of the table, blocking was placed under the center, the table was then tilted over the blocking, and the opposite end blocked up. By repeating this several times, the table was raised high enough to permit car trucks, with specially constructed bolsters, to be pushed under it. The table was transferred to the new site by 4 p.m., where it remained till the following morning. During the night the crane was taken away on other service, and it returned at 11 a.m. By reversing the tilting process, the table was lowered into the new pit, and at 4.30 p.m. the first locomotive went into the new house."

Radiotelegraph Receiving Equipment on Trains.

A live stock and demonstration train, which the C.P.R. has been operating in the prairie provinces, in conjunction with Dominion and provincial governments, was equipped with a radiotelegraph receiving apparatus, by which market reports, sports results, music, etc., were received by those attached to



the train during the tour. The equipment was installed by D. E. Bankart, radio editor and operator, Winnipeg Tribune. The C.P.R. had made two supports, 3 ft. high, the width of the upper part of a car roof, as shown in the accompanying illustration. In these were set 4 porcelain insulators on bolts, and aerial wires were strung taut, and the 4 loose ends carried to a high tension wall insulator on the roof, from which was taken a red cable over the roof to the nearest window above where it entered the carriage, passing down the wall to the instrument, which included a magnavox. The ground was obtained by taking a lead to the steam heating pipes which passed right round the car. A copper end was soldered to the wire, to make a good connection, and was bolted to the cleaned pipe. This made a good counterpoise, and proved quite sufficient. It was found that it made no difference to receiving messages, whether the train was being switched, with the consequent bumps, or was stationary.

Canadian National Telegraphs have

also been experimenting with radiotelegraphic communication with high speed trains in motion, and an address by D. B. Hanna, President Canadian National Rys., through Toronto Star's broadcasting station, was received on the C.N.R. express between Toronto and Ottawa recently.

Newfoundland Railway and Other Development Plans.

The Great Lakes, Newfoundland & Atlantic Co. is reported to have been formed at St. John's, Nfld., with authorized capital of \$10,000,000, to acquire the franchises, property, and assets of the Newfoundland Railway and Train Ferry Syndicate, and to carry out that company's undertaking. The incorporators of the company are: J. O. O'Neill Conroy, W. J. Wallace and John Fenelon. H. B. Thompson, who represented the original company in Newfoundland, is stated to be connected with the new one. The Newfoundland Railway & Train Ferry Syndicate was incorporated in London, Eng., in 1914, to build railways in Newfoundland, and operate train ferries to connect them with Louisburg, N.S., and Gaspé, Que. The railways which it was proposed should be built were to be from Rantem Bay, Trinity, to Little Southern Harbour, Placentia Bay, in connection with the proposed ferry to Louisburg; and from South West Arm, Green Bay, and from White Bay, to Humbermouth, Bay of Islands, in connection with the proposed ferry to Gaspé. The then Newfoundland Government granted the company a number of concessions conditional upon the carrying out of the plans. However, the war came on and the big project, like many others, fell into the background. It is now being brought forward again, at a time when the Reid Newfoundland Co. is endeavoring to do something definite in the way of developing its great Humber River Valley concession. (May, 1914, pg., 214.)

In connection with the project for the development of the Humber River Valley concession, in which Sir W. G. Armstrong Whitworth & Co. are interested, H. R. Reid, President, C. O'Neill Conroy, General Counsel, J. P. Powell, and J. N. Forbes, directors, Reid Newfoundland Co., went to England recently. The Premier of Newfoundland, Sir Richard Squires, also went to London at about the same time. It is stated that the object of their visit was to endeavor to secure a guarantee of principal and interest of the company's bonds by the Imperial Government. The financial end of the negotiations is being carried on in England by the Newfoundland Banking & Trust Corporation. The matter came before the Imperial House of Commons in the form of a question, and Hilton Young, on behalf of the Government, is reported to have stated that an application had been made to the Trade Facilities Act advisory committee for a guarantee in respect of £2,000,000, being part of a loan of \$18,000,000 for the enterprise. The Government did not propose to interfere in any way with the committee's consideration of the application. It is reported in Newfoundland that the arrangements between the company and the Government are practically completed, except upon two points, viz.: whether the contract is to be submitted to the country for approval before being finally signed, and a proposal by the Premier, that the contract shall be widened, so as to include the operation of the Newfoundland Ry.

Panama Locomotives on G.T.R. Western Lines.

In answer to an enquiry by a correspondent, it was stated in Canadian Railway and Marine World for April, pg. 175, that the 12 Panama locomotives on the G.T.R., Western Lines, were built in 1906 by Brooks Locomotive Works, Dunkirk, N.Y., and are what is commonly known as 2-6-0, or mogul stype; that they were built for the United States Government, and used in the construction of the Panama Canal, hence their name; that when the canal was complete, a number of them were shipped back to the U.S., being purchased by second hand machinery companies; that 12 of them were bought by the G.T.R. for its Western Lines, and that they were being used in switch and way freight service. One of our subscribers, Arlington Bryant, of Detroit, Mich., has sent us their general dimensions as follows:—

Weight of engine.....	147,500 lb.
Weight on drivers.....	127,500 lb.
Tractive effort.....	25,200 lb.
Cylinders, diam. and stroke.....	20 x 26 in.
Diam. of drivers.....	63 in.
Steam pressure.....	180 lb.
Boiler diam.	64 in.
Tubes, no.	316
Tubes, diam.	2 in.
Tubes, length.....	12 ft. 3/4 in.
Heating surface, tubes.....	2,029 sq. ft.
Heating surface, firebox.....	174 sq. ft.
Grate area.....	31 sq. ft.
Firebox dimensions.....	108 1/4 x 41 1/4 in.
Driving wheel, base.....	14 ft. 6 in.
Engine wheel, base.....	22 ft. 8 in.

Locomotive Stokers for Canadian National Railways.

As stated in Canadian Railway and Marine World for September, pg. 464, good progress is being made with the installation of duplex locomotive stokers on Canadian National Rys. locomotives at Moncton, N. B., and Transcona, Man. At Moncton, 10 Santa Fe locomotives, nos. 4025-26-27-29-31-32-33-34-36-40, are being equipped, these being 2-10-2 locomotives with 26 x 32 in. cylinders, 57 in. drivers, 200 lb. per sq. in. boiler pressure, 64,500 lb. tractive effort, 257,800 lb. weight on drivers, weight of engine 319,300 lb., and weight of engine and tender in working order 518,100 lb. To the end of August, stokers had been applied on locomotives 4029, 4031 and 4026, the work being done as the locomotives were shopped for general repairs. Up to the end of August only one locomotive at a time of this class was being put through the shop, but it was expected that they would be put through in pairs beginning Sept. 1, in which case it is probable all the 10 will be equipped by Oct. 15.

At the Transcona shops, work is proceeding on the application of stokers to 10 mikado locomotives and 5 heavy consolidations.

In applying the stokers on the Santa Fe locomotives, two holes have to be cut through the boiler back-head and fire-box door sheet, one on either side of the fire door, and 12 in. diameter tubes are applied by electric welding, to accommodate the stoker's distributor tubes. The foot plate casting has to be cut away in one or two places, to clear the stoker mechanism, and the cab had to be reconstructed at the bottom, to clear the conveyor trough and drive shaft, a new cab bracket being used on the right side and a substantial plate applied to brace the cab together at the back of the foot plate. Two 21 x 22 1/2 in. openings are made in the top of the cab, directly above the elevators, to facilitate lifting them, if necessary for

repairing, and the cab vestibule is extended down to clear the conveyor trough. The tenders of these Santa Fe's were previously equipped with horizontal coal pushers; in equipping with the stokers, these coal pushers are removed and the tank cut out, and slide plates and supports, angles, and brackets applied to take the stoker conveyor trough. The stoker application entails considerable work, as in addition to the changes mentioned, the fittings on the boiler back-head, piping in cab, power grate shakers, etc., have to be completely rearranged.

The first regular run of the first Santa Fe locomotive to be equipped at Moncton, No. 4029, was made on Aug. 11, from Moncton to Truro, 125 miles, with full tonnage. The total time on the road was 9 hr. 25 min., with 3 hr. 2 min., detention, giving a net running time of 6 hr. 23 min. Thus the average actual running speed for the trip was 19 1/2 miles an hour, a performance which we are officially advised, it would be impossible to duplicate with a hand fired locomotive of this class.

The stokers, which were made by the Canadian Westinghouse Co., Hamilton, Ont., under the supervision of H. C. Woodbridge, of the Locomotive Stoker Co., Pittsburg, Pa., have all been delivered.

Algoma Eastern Railway Operating Results.

The Lake Superior Corporation's report, for the year ended June 30, contains the following references to the Algoma Eastern Ry. Co.: The complete cessation of operations of the International Nickel Co., and other industrial concerns upon which the railway is dependent for its principal traffic, is reflected in the earnings of the company for the fiscal year. The reduction in the tonnage of mining and other products hauled as compared with the previous year is approximately 1,000,000 tons. As a result of this the company is not yet in a position to pay the half year's interest on its 1st mortgage bonds, which was due March 1. It is fully expected, however, that this condition is only temporary. It is understood that the mining, smelting and refining operations of the International Nickel Co. will be resumed about Sept. 1, on a basis which will furnish ore traffic to the railway of approximately 50,000 tons a month. Coal, coke, quartz and other mining supplies will be shipped in proportion. The physical condition of the property is excellent and will continue to be maintained.

Income Account, for Year ended June 30, 1922.	
Net earnings from operations.....	\$8,228.54
Other income	5,655.67

Interest and Rental Charges—	\$13,884.21
On 1st mortgage bonds.....	\$124,976.00
On equipment trust bonds.....	12,885.75
On advances from Lake Superior Corporation	31,307.78
Rental of terminal properties	54,000.00
Other rentals	5,021.56
Less, int. rest on bank accounts, etc.	228,191.09
	590.14
	227,600.95

Deficit for the year..... \$213,716.74
The Algoma Eastern Ry Co. owes the Lake Superior Corporation \$653,409.33, as follows: Advances secured on railway's equity in equipment held in trust, \$240,003.33; assigned claims of creditors against railway company, purchased by Corporation, \$217,996.99; unsecured general advances, \$195,409.01.

The Inverness Railway and Collieries' Position and Future.

A conciliation board which sat recently to deal with the differences between the Inverness Railway & Collieries, Ltd., and its coal mining employees has sent its report to the Labor Department, and is said to have recommended that the company's railway be taken over by the Government and added to the Canadian National Rys. The railway extends from Inverness Jct., about a mile from Point Tupper, N.S., on the Intercolonial Ry., northeasterly on Cape Breton Island, to Inverness, 60.91 miles. There are 4.6 miles of sidings, and the company has a shipping pier at Port Hastings. The line was built by the Inverness & Richmond Ry. & Coal Co., and was acquired by the Mackenzie-Mann interests, about 20 years ago. Several plans were reported to have been considered for the extension of the line, with a view of making it independent of the Intercolonial Ry., and for improving its coal shipping facilities, but nothing came of them.

For the year ended June 30, 1914, the company reported earnings of \$212,911.61; and operating expenses, \$122,586.96, leaving net earnings of \$90,324.65. This is the last return made to the Dominion Government. A meeting of bondholders in Toronto, June 30, 1915, passed a resolution suspending payment of interest on bonds and the provision of a sinking fund, and subsequently the National Trust Co., Toronto, took proceedings for the foreclosure of the mortgage, and the Eastern Trust Co. was appointed receiver. The taking over of the line was considered by the Railways Department, and in Oct., 1919, a price of \$150,000 was fixed for the railway, the equipment and stores to be taken over at a valuation, the price of the whole not to exceed 175,000, but the transaction was never completed.

American Travelling Passenger Agents' Association in Canada.

The American Association of Travelling Passenger Agents opened its annual meeting in Montreal, Sept. 8, and after a preliminary session and some sight-seeing, the members left there in two special C.P.R. trains. Some members who arrived in Toronto from U.S. points, joined the party at Sudbury, where the first stop was made. At Fort Wil- liam the party was given a civic reception, and reached Winnipeg, Sept. 11. Members from western United States points joined the party at Winnipeg, having travelled in a special train leaving Minneapolis, Minn., Sept. 10. The entire party was entertained at dinner at the Royal Alexandra Hotel, Winnipeg, at which the Lieutenant-Governor of Manitoba, the Mayor of Winnipeg, and D. C. Coleman, Vice President, C.P.R., were the principal speakers. Other entertainment was provided for the visitors, who left the city on the following day, the two special trains travelling half an hour apart. Stops were made at Regina, Calgary, Banff and Lake Louise where business was combined with pleasure. Vancouver was reached Sept. 17, and the next two days were spent in the Association's business. On Sept. 18, the party was entertained at luncheon on the C.P.R. s.s. Empress of Australia. The Association's business was concluded Sept. 19, when the party was taken on the C.P.R. s.s. Princess Charlotte, to Victoria, leaving there at midnight for Seattle, Wash.

Freight and Passenger Traffic Notes.

The Canadian National Rys. management has prohibited the transportation of beer over its lines, out of Windsor, Ont.

The Canadian National Rys. are reported to have put on 225 new crews of men, each to handle grain trains from western line points.

Grant Hall, Vice President, C.P.R., and several Eastern and Western Lines officials, met in Winnipeg, July 31, to consult as to the winter train schedules.

The Sydney & Louisburg Ry. hauled a train of 237 cars of coal from the assembly yard to Hub Jct., Glace Bay, N.S., on Sept. 6, which it said to have been the longest train ever hauled.

The C.P.R. re-opened its freight yards at Transcona, Man., Sept. 2, to facilitate the handling of the grain crop. These yards are not ordinarily used, but are operated to take care of any excess of traffic.

The C.P.R. has provided a train to travel over its lines in Quebec, for agricultural instruction purposes. The Dominion and Quebec Agriculture Departments provide the instructors and the exhibits.

The Quebec Council of Agriculture, is reported to have decided to take up with the Dominion Government the matter of obtaining special rates of transportation for the exhibitions held in various parts of the province.

The Canadian National Rys. are reported to have moved 663 cars of grain on Sept. 1, the first day of the 1922-23 season. Of these, 351 were from Manitoba points, 280 from Saskatchewan, and 32 from Alberta.

The C.P.R. is reported to be considering utilizing shed 28 on the St. Charles River waterfront, Quebec, for storing import merchandise freight. Shed 26 is being used now, but its location is not so convenient as no. 28.

The Canadian Northern Ontario Ry. (Canadian National Rys.) has been authorized by the Board of Railway Commissioners to close its station at Oshawa, Ont., and the G.T.R. station there will be used in future.

The C.P.R. is reported to have handled 4,660,975 bushels of grain, during the last 10 days in August, against 3,955,185 bushels in the same period of 1921. The number of cars loaded during these 10 days was 2,887, against 2,621 in the same period of 1921.

The C.P.R. commenced, Sept. 24, operating a passenger train, leaving Toronto union station, at 12.30 a.m., Sundays only, arriving Montreal, Windsor St. station, 9.40 a.m. It carries standard sleeping cars, and first class passenger car with smoking compartment, and stops at Peterborough and Smiths Falls.

The Fredericton & Grand Lake Coal & Ry. Co., is reported to be sending out large shipments of coal from its collieries over its railway from Minto to Fredericton, N.B., which is operated by the C.P.R. A press report states that on Aug. 16, a train of 38 cars of coal, a record shipment for a day, was taken into Fredericton.

The Sydney & Louisburg Ry. is reported to be carrying an exceptionally heavy coal traffic, and in order to cope with it nine brakemen and firemen have been borrowed from the Canadian National Rys. For the week ended Aug. 5, there was reported to have been received for shipment at Sydney pier, over the rail-

way from the collieries, 98,000 tons of coal.

The Alberta Government's attention has been called to what are termed the excessive freight rates being charged on the Lacombe & Northwestern Ry., running from Lacombe to Rimbey, Alta., which is owned and operated by the Government. An instance is given where a box of cherries was carried from the British Columbia fruit districts to Lacombe for 55c, and the consignee had to pay an additional 60c for its conveyance over the 30 miles between Lacombe and Rimbey.

The U.S. Interstate Commerce Commission made an order recently under which on western freight billed through to and from New England, the proportions to be allowed to New England roads is to be 15% more than heretofore. The C.P.R. and the G.T.R., which were not parties to the case before the Commission, are reported to have accepted the terms of the order voluntarily. According to a Boston, Mass., press report, the Boston Chamber of Commerce announced recently that the revision in rates is retroactive to July 1.

I. Lester and A. Mayoff were committed for trial in the Montreal Enquete Court, recently, charged with a breach of the criminal code, article 412a. They are alleged to have promised bribes to C.P.R. conductors to permit persons to travel on the line between St. Agathe and Montreal, for \$1. The evidence showed that \$1 was given to each of the accused on different occasions for transportation to Montreal, and that in return punched bad checks were given. Other persons are said to have been seen dealing with the accused.

The Kettle Valley Ry. has been authorized by the Board of Railway Commissioners to carry freight traffic over the portion of its line from Penticton to the international boundary, B.C., between miles 1.62 and 3.99, at not exceeding 15 miles an hour. This is the branch line from Penticton to the northerly end of Dog Lake, from which point traffic will be carried by towed scows to the south end of the lake. From that point another section of the line is under construction to the irrigation colony. The line will be extended to the international boundary at a later date, and when traffic warrants it, the section which will run round Dog Lake will be built.

Railway Association of Canada Circulars.

The Railway Association of Canada has issued the following circulars:—

Circular 96 dated Jan. 28, 1919, and Supplement 1, dated March 14, 1919, issued by the Canadian Railway War Board in connection with privately owned tank cars, are hereby cancelled. It is understood that Canadian Railways will be governed by the American Railway Association's Circular 2266 B, dated June 17, 1922.

As the Canadian Freight Association's Tariff 14 A, effective Aug. 1, 1922, contains regulations governing the weighing of cars and freight, now covered by the Canadian Railway War Board's Circular 118, the latter is hereby cancelled.

Lord Shaughnessy, Chairman, C.P.R. Co., and Vice President, Montreal Jockey Club, presented a silver cup to the Dorval Jockey Club for competition at its autumn meeting.

Telautograph Installation at Montreal.

The G.T.R. has installed in its Bonaventure station, Montreal, a telautograph, by which handwriting is transmitted electrically over wires. The instruments in commercial use include a type by which messages may be either sent or received another type which receives only, and additional equipment includes a selective switch key by means of which a message written on a metal plate in an instrument used in sending, can be directed for written reproduction at any one or more of the receiving instruments used in the system, as desired. The exact handwriting of the sender is reproduced at the receiving instrument at the other end of the wire.

The installation at Bonaventure station is to provide the public with prompt information of train arrivals. For this purpose the sending machine is located in the dispatcher's office, one receiving machine is in the station master's office, for use in connection with the bulletin board, and another is in the information bureau, for the use of counter clerks and public information telephone operators.

The machines are operated on direct current. To transmit a message a special pen is used, which is connected to the transmitting machine by guide rods. As the message is written on the metal plate, every impression is exactly recorded in indelible ink, on a paper tape, in full view of the writer, and by a very fine adjustment of the current is faithfully reproduced in synchronism on the receiving machine paper tape.

The Hanna No Politics Order.

Toronto Saturday Night says: "When Mr. D. B. Hanna, the retiring President of the Canadian National Rys., ruled to the effect that politics and railroading should be divorced to the point where any employee of the National system, entering actively into the political arena, would automatically lose his railway job, he was on sound lines. And when the other day Premier King ruled the opposite, in the case of the two Winnipeg candidates in the recent provincial election, he was on dangerous ground. If the National Railways situation is to be bedeviled, politics will be the tool. It has been argued that what the C.P.R. can do in respect to having among its employees members of legislatures, and possibly members of Parliament, the Government Railways can also do. But it should be pointed out that the privately owned C.P.R. can hire and fire without any danger of the matter becoming a subject of debate in the Dominion Parliament, or an issue in an election. Why should government railway hands be an exception to the general rule prevailing among government employees? These labor candidates in Winnipeg are just as much employees of the Government of Canada as they would be if stationed at Ottawa in the Customs Department. And a rule that applies to an Ottawa Government official in respect to minding his own business, doing his work, and keeping out of politics, should apply also to the railway department. And, furthermore, how can any railway executive hope to succeed in his difficult task when his general orders are not only brazenly disobeyed, but the Prime Minister goes so far as to back up those who disregard established rules."

"The Great Landslides of the C.P.R. in British Columbia."

Canadian Railway and Marine World, for April, in referring to the death of R. B. Stanton, civil engineer, at New Canaan, Conn., who was mentioned as having been the author of a number of works, including "The great landslides of the C.P.R. in British Columbia," expressed its desire to get a copy of the latter, and we are much indebted to Hugh B. Walkem of Port Haney, B.C., formerly Assistant Engineer, C.P.R., who has given us the following information:—The paper referred to was read by Mr. Stanton before the Institution of Civil Engineers, in London, Eng., of which he was a member, and was published in its Transactions in the latter part of 1896 or beginning of 1897. The article was the outcome of an action brought by the C.P.R., against two ranchers who were irrigating a piece of ground above the railway at Black Canyon, some five miles east of Ashcroft, on the Thompson River, the C.P.R. contending that the irrigation caused slides that threatened the roadbed's stability and the traveling public's safety. Mr. Stanton was retained by the company, as an expert on clays, and gave evidence as to the effect of water on the soil, in causing slides. The C.P.R. won its case and the ranchers abandoned their farm. From the title of the article it might be supposed that the C.P.R. had enjoyed a monopoly in slides in British Columbia, but several slides occurred in the district referred to, which were not a menace to the track in any way, and which were caused by irrigation. The first and greatest slide at Black Canyon occurred in 1880, four years before the railway was built; in fact before it was located, and was caused by overirrigation. Another slide occurred at Spences Bridge, in 1905, which entombed 16 Indians and wiped out their village and graveyard. This occurred on the right bank of the Thompson River, and did not affect the C.P.R., which is on the left bank, and was about the third or fourth slide at that point caused by irrigation. Mr. Walkem has an intimate knowledge of these slides, both during construction and maintenance of the railway, and did much to stop their movements finally.

Aerial Transportation Notes.

The Aerial Survey Co. is reported to have received 3 new aeroplanes at Botwood, Nfld., from England for survey, mail transportation, and general transportation work.

Giuseppe Pagliacci, who is spoken of as having been a celebrated Italian aviator during the war, is reported to be working as a freight handler in the G.T.R. at Depot Harbor, Ont.

Lt. Col. Broome sailed from Victoria, B.C., Aug. 10, for Japan, to prepare stations on the Kamchatka Peninsula and the Aleutian Islands for the Blake aeroplane flight round the world, which is since reported to have been abandoned.

A London, Eng., cablegram states that the Civil Aviation Advisory Board on Imperial mail service suggests that the Imperial Government should grant a considerable measure of financial assistance to efficient civil attempts to keep open the Empire's airways.

Major E. MacLaurin, in charge of the Dominion Government aeroplane station

at Vancouver, B.C., was drowned Sept. 11, when a seaplane which he was piloting plunged into shallow water on the Point Grey shore of English Bay. A passenger sustained a broken leg, and the mechanic was injured in the back.

The Laurentide Airship Co., which is carrying on forestry survey and patrol operations from Grand Mere, Que., had one of its hydroplanes wrecked on the Saguenay River, near Tadousac, Aug. 5. The plane had made a landing in the river, and was about to rise again, when it came in contact with a submerged log, which ripped out a large part of the bottom of the machine.

A London, Eng., cable states that arrangements are projected to operate a mail and passenger airship service between London, Eng., and Bombay, India, the airships to have a capacity of 5,000,000 cu. ft., to be capable of flying 80 miles an hour, and to carry 200 passengers, the trip is to be made in three days, and the fares to be charged \$300 for 1st. class accommodation, and \$175 for 2nd. class.

The Canadian Forestry Association has issued a pamphlet, in which it is stated that nearly 3,000 forest fires have been reported since the beginning of 1922, and that airplanes and seaplanes have been used to great advantage in locating fires and in reducing losses. Excellent work has been done in British Columbia, where 1,400 fires were reported, and in Central Quebec, which passed through its worst forest fire experience for many years.

The Dominion Government aeroplane station staff at Jericho Beach, B.C., according to a press report, has made 997 flights in about two years to July 21, flying 43,851 miles and carrying 1,700 passengers, the total passenger mileage being 436,084. The work done includes forestry reconnaissance, photography and patrol; photographic survey, exploration, communication, demonstration and transportation, geodetic survey work and customs patrol.

Radio stations have been established at the Victoria Beach and Norway House aeroplane stations, in Manitoba, for use in connection with the Dominion Forestry Service. The distance between the two stations is approximately 300 miles. As an illustration of the value of the radio adjunct to the service, a forest fire was located in the vicinity of the Norway House station, on the morning of July 29, and within a few hours the available forces of the service were fighting the fires, which were got under control by night.

The Aerial Survey Co., which is making surveys at Hawkes Bay, Nfld., had a difference with its employes, recently, as to wages. Major Cotton, went to Hawkes Bay to effect a settlement, but the men refused to accept it, and struck. About 150 of the men assembled at Hawkes Bay, and on Sept. 5, boarded the Reid Newfoundland Co's s.s. Home, and demanded to be taken to Humbermouth. On their demand being refused they took charge of the ship and it is reported they carried out their object; being subsequently taken to St. John's by train.

The Sinclair Construction Co. Ltd. has been incorporated under the Dominion Companies' Act with authorized capital of \$150,000 and office at Toronto, to carry on business as general contractors for the construction and equipment of public and private works and as an engineer, including railways, tramways, docks, harbors, piers, wharves, canals, etc. It will take over the business carried on by the late Angus Sinclair.

Buffalo and Fort Erie Public Bridge Co.

The House of Commons passed a bill at its recent session incorporating a company with this title to build a general traffic bridge, with electric railway tracks, across the Niagara River, from Walnut St., Fort Erie, Ont., to Hampshire St., Buffalo, N.Y., the company to have power to charge tolls. On the bill coming up for its second reading in the Senate, Senator Robertson opposed its principle, and stated that while improved facilities are needed between Fort Erie and Buffalo, they should be provided by the Government completing the building of a second track on the G.T.R. bridge, which now has a double track from Buffalo to an island in the middle of the river, and by the addition of facilities for general traffic. The revenue derived from tolls, he thought, would compensate the Government for the expenditure. When the bill subsequently came before the railway committee it was rejected on the ground that it was not at present in the public interest to authorize the construction of such a bridge.

Baggage-man Fined for Drunkenness.

Frank Lang, a former C.P.R. baggage-man, was fined \$400, or in default 6 months imprisonment at the Montreal Court of Special Sessions, recently, for being under the influence of liquor when on duty, at Windsor St. station, Montreal, March 8, 1920, in contravention of Sec. 423 of the Railway Act of 1919. When the case was originally heard by the Court of Special Sessions, a verdict of not guilty was recorded on the ground that no evidence had been offered that his occupation had anything to do with the operation of trains. A reserved case upon this point was stated for the Court of Appeal, and after hearing arguments the court sent the case back to the Court of Special Session for supplemental details, including a definition of a baggage-man's duties. These having been supplied, judgment was delivered in Dec., 1921, by the Court of Appeal, a majority of the judges holding that Lang's duties as a baggage-man included acting as a trainman when required so to do, and directing that the case should go back to the Court of Special Sessions for disposition according to the Railway Act, sec. 423, the finding of not guilty being quashed. This decision was subsequently confirmed by the Supreme Court, and the decision referred to above is the disposition of case under the section. It is stated that an appeal will be made against the sentence.

Misplaced Familiarity.—An east end matron got the shock of her life over the telephone the other day. She is extremely dignified, and conducts her whole life in keeping with a calm stateliness that is increasing with the whitening of her hair. In her quiet, slow, perfectly self-possessed manner and tone of voice she called the Pennsylvania station, requested "Information," and from the person at the other end of the wire enquired concerning trains to a certain town. Imagine her emotion when said voice flippantly rasped out: "What time of the day do you want to go, girlie?"—Pittsburg Chronicle-Telegraph.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canada Steamship Lines Ltd.—R. BROCK THOMSON has been appointed Secretary, vice F. Percy Smith, resigned on account of ill health. Office, Montreal.

Canadian National Rys.—J. E. ARMSTRONG, heretofore Chief Dispatcher, Grand Trunk Pacific Ry. portion of Biggar Division, Alberta District, Edmonton, has been appointed acting Superintendent of Transportation, Alberta District, vice C. H. Brown, appointed Assistant Superintendent, Biggar Division. Office, Edmonton, Alta.

C. H. BROWN, heretofore Superintendent of Transportation, Alberta District, Edmonton, has been appointed Assistant Superintendent, Biggar Division, with

vice J. T. Armstrong, appointed acting Superintendent of Transportation, Alberta District. Office, Edmonton, Alta.

Canadian Pacific Ry.—H. W. BRODIE, heretofore General Passenger Agent, lines west of Revelstoke, B.C., Vancouver, has been appointed Assistant Passenger Traffic Manager, Eastern Lines, vice C. B. Foster, whose appointment as Passenger Traffic Manager, Rail Lines, Montreal, was announced in our last issue. Office, Montreal.

G. BRUCE BURPEE, heretofore General Agent, Passenger Department, Cleveland, Ohio, has been appointed District Passenger Agent, Rail and Steamship Lines, New Brunswick District, vice N. R. Des Brisay, appointed Assistant General Passenger Agent, at Vancouver. Office, St. John, N.B.

ALLAN CAMERON, heretofore Superintendent, Land Branch, Natural Resources Department, Calgary, Alta., has been appointed Oriental Manager, C.P.R. and Canadian Pacific Steamships Ltd., Hong Kong, China, and not Oriental Manager, Canadian Pacific Steamship

Toronto, has been appointed Assistant General Passenger Agent, Eastern Lines, vice W. Maughan, appointed Assistant to General Passenger Traffic Manager. Office, Montreal.

R. G. McNEILLIE, heretofore Assistant General Passenger Agent, Western Lines, Winnipeg, has been appointed General Passenger Agent, lines Field, Kootenay Landing and east, vice G. A. Walton transferred to Montreal. Office, Winnipeg.

W. MAUGHAN, heretofore Assistant General Passenger Agent, Eastern Lines, Montreal, has been appointed Assistant to General Passenger Traffic Manager. Office, Montreal.

W. H. SNELL, heretofore General Passenger Agent, Eastern Lines, Montreal, has been appointed General Passenger Agent, lines west of Field and Kootenay Landing, vice H. W. Brodie,



G. A. Walton, X
General Passenger Agent, Eastern Lines, C.P.R.

jurisdiction over Bashaw, Cutknife, Dodsland, Porter, Three Hills, Viking and Unity Subdivisions, vice M. H. Stuart. Office, Biggar, Sask.

F. H. KEEFE, heretofore dispatcher, Biggar, Sask., has been appointed Chief Dispatcher there, vice T. S. Sullivan, appointed Chief Dispatcher at Edmonton, Alta.

J. P. JOHNSON, heretofore Assistant Superintendent, Prince Albert, Sask., has been appointed Superintendent, Prince Albert Division, a new division which has been established, comprising the lines from Prince Albert to Hudsons Bay Jct.; Melfort to Humboldt; junction with Prince Albert Subdivision to Ridgedale; Shellbrook to Big River; Young to Cudworth Jct.; and Prince Albert to Warman, not including Warman. Office, Prince Albert, Sask.

T. S. SULLIVAN, heretofore Chief Dispatcher, Biggar, Sask., has been appointed Chief Dispatcher, Grand Trunk Pacific Ry. portion of Biggar Division,



William Fulton,
District Passenger Agent, C.P.R., Toronto.

Lines, as stated in our last issue.

N. R. DES BRISAY, heretofore District Passenger Agent, New Brunswick District, St. John, N.B., has been appointed Assistant General Passenger Agent, Western Lines, Field, Kootenay Landing and east, vice R. G. McNeillie, appointed General Passenger Agent, at Winnipeg. Office, Winnipeg.

W. FULTON, heretofore Assistant District Passenger Agent, Toronto, has been appointed District Passenger Agent there, vice W. B. Howard, appointed Assistant General Passenger Agent, at Montreal.

G. H. GRIFFIN, heretofore City Passenger Agent, St. Louis, Mo., has been appointed General Agent, Passenger Department, Rail and Steamship Lines, Cleveland, Ohio, vice G. Bruce Burpee, appointed District Passenger Agent, at St. John, N.B.

W. HORDER, heretofore chief clerk, Passenger Department, Montreal, has been appointed Assistant District Passenger Agent, Ontario District, vice W. Fulton, appointed District Passenger Agent there. Office, Toronto.

W. B. HOWARD, heretofore District Passenger Agent, Ontario District,



W. S. Thompson,
Publicity Agent, Grand Trunk Railway.

appointed Assistant Passenger Traffic Manager, Eastern Lines. Office, Vancouver, B.C.

G. A. WALTON, heretofore General Passenger Agent, Western Lines, Winnipeg, has been appointed General Passenger Agent, Eastern Lines, vice W. H. Snell, transferred to Vancouver, B.C. Office, Montreal.

Grand Trunk Ry.—GEORGE F. ANCRUM, heretofore Assistant to Treasurer, has been appointed Assistant Treasurer. Office, Montreal.

A. B. ATWATER, Assistant to President, Detroit, Mich., after 48 years service with the company, has asked to be relieved from active service, and will be placed on the pension fund, from Oct. 1. The directors in acceding to his request placed upon the company's records their appreciation of his long and faithful service. The office of Assistant to President at Detroit has been abolished, and all correspondence hitherto addressed to him, and pertaining to the company's business, should be forwarded to H. E.

X This portrait is C. W. Johnston, A. S. P. A. Grand Trunk Ry.

Whittenberger, General Manager, Grand Trunk Western Lines, Detroit.

R. W. DENMAN, of the Treasurer's office, Montreal, has been appointed chief clerk there, vice E. Fleming, appointed Assistant to Treasurer.

E. DONALD, heretofore Land and Tax Commissioner, has been appointed Solicitor, Land and Taxation Division, Office, Montreal.

E. FLEMING heretofore chief clerk, Treasurer's office, has been appointed Assistant to Treasurer, vice G. F. Ancrum, appointed Assistant Treasurer, Office, Montreal.

G. C. JONES, whose position as Assistant to President, with office at Toronto, has been abolished, will, until further notice, be attached to the Vice President and General Manager's office, and perform such special work as may be assigned to him by that officer.

R. S. LOGAN, Vice President, Land, Tax and Claims Department, has after 27 years service, asked to be relieved from active service, and will be placed upon the superannuation fund from Oct. 1. The directors, in acceding to his request, placed upon the company's records their appreciation of his long and faithful service. The office of Vice President, Land Tax and Claims has been abolished, and its functions and the duties performed by its officers have been transferred to the Legal Department, except as follows:—H. A. Palmer, heretofore Assistant, Land and Tax Commissioner, has been appointed Property Commissioner, to deal with all matters connected with the purchase, sale and leasing of the company's lands, reporting directly to the Vice President and General Manager's office. The handling of Government mails, compensation therefor, etc., has been placed under the Traffic Department's jurisdiction.

W. R. McRAE continues as Chief Claims Agent, and reports to the General Solicitor, Office, Montreal.

H. A. PALMER heretofore Assistant Land and Tax Commissioner, has been appointed Property Commissioner, dealing with all matters connected with purchase, sale and leasing of the company's lands, reporting directly to the Vice President and General Manager, Office, Montreal.

J. P. PRATT, heretofore Assistant to General Counsel, has been appointed Assistant General Solicitor, Office, Montreal.

W. D. ROBB, who has been appointed ranking Vice President and General Manager, continues in charge of the Transportation, Construction and Maintenance Departments.

WALTER S. THOMPSON, heretofore Editor, Press Bureau, General Advertising Department, has been appointed Publicity Agent, reporting to the Vice President and General Manager's office.

Reid Newfoundland Co. — E. V. CHEESEMAN, Travelling Paymaster and statistical clerk, has resigned to enter private business at Burin, Nfld.

M. A. WHITE, Trainmaster, has also been appointed Claims Agent, vice W. Chard, deceased, Office, St. John's, Nfld.

Train Requests, Not Orders.—The Goblins, Toronto, says: "Our own correspondent, at the headquarters of the railway brotherhoods, informs us that a strike is expected over the refusal of the employers to abandon 'train orders' in favor of 'train requests.'"

German railway passenger rates are, according to a Berlin cable, to be raised 50% on Oct. 1.

Canadian National Railways Construction, Betterments, Etc.

Lunenburg, N.S.—The Board of Railway Commissioners has approved the proposed location of station and freight shed at Lunenburg, and authorized the diversion of track on Lunenburg Subdivision, from station 347+16.2 to 367, south of Medway St., and to cross Dufferin, Falkland and Medway Sts.

Limoilou Locomotive House.—A press report states that a locomotive house is being built at Limoilou, Que., by day labor.

Cadorna-Chaudiere Block Signals Installation.—A press report states that automatic block signals are being installed at Cadorna and Chaudiere, Que., 11 miles, on the bridge and Drummondville Subdivision, Quebec District. They are style T2, direct current, 25 signals.

Lachevrotiere and St. Marc Cut-Off.—The Board of Railway Commissioners has authorized the operation of trains over the cut-off between Lachevrotiere station on the Canadian Northern Ry., to St. Marc station on the National Transcontinental Ry., mile 47.9 to 50.1 from Quebec. This piece of line was described in Canadian Railway and Marine World, for Jan. 1921, pg. 11.

Graham-Kashabowie Subdivision Connection and Grade Revision.—We are officially advised that the C.N.R. is about to build a diversion between mile 35.65 and 38.59 west of Port Arthur, on the Kashabowie Subdivision, to accomplish a grade reduction of five-tenths of 1%, compensated. In addition, a connection between the Graham and Kashabowie Subdivisions will be built, the connecting line leaving the Graham Subdivision at mile 30.52 west of Fort William, and entering the revised Kashabowie Subdivision line 4,589 ft. west of mile 35.65 west of Port Arthur. The Kashabowie Subdivision is in the Rainy River Division on the Canadian Northern Ry., and the Graham Subdivision is in the Fort William Division, on the Grand Trunk Pacific Ry's Fort William branch. The length of the revision will be 2.73 miles, and of the connecting line 0.66 mile.

At the points of connection, the C.P.R. double track line from Fort William to Winnipeg runs between the Canadian National Rys. Kashabowie and Graham Subdivisions' lines. The C.P.R. line parallels the Mattawin River there, and the new Canadian National Rys. connecting link will be carried over the C.P.R. tracks and the river on a bridge about 700 ft. long, with the Canadian National Rys. grade about 30 ft. above the C.P.R.

The building of this connection is intimately connected with the Canadian National Rys. terminal improvements now under way at Fort William, and will enable the large Mount yard now under construction there to serve both Canadian National Rys. lines from the west with maximum economy in the handling of traffic.

The contract for grading and culverts for both diversion and connection has been let to W. A. Dutton, Winnipeg. Tracklaying and ballasting will be done by the railways' own forces. No contract has been let for the bridge work.

Water Supply.—Tenders were received recently for the construction of the following works:—For approximately 12,500 lin. ft. of 8-in. water pipe line in Neebing Tp., Ont.; for the improvement of the water supply in the Little Saskatchewan River near Rivers, Man.; for a water supply at mile 14.7 Riverhurst Subdivision, Sask.; for approximately 6,500 lin. ft. of 8-in. pipe line

at North Battleford, Sask.; for approximately 3,100 lin. ft. of cast iron pipe line at Lampman, Sask.

Victoria Beach Line Electrification.—Winnipeg papers have been persistently stating that the line from Winnipeg to Victoria Beach, 61 miles, is to be electrified, and that the Manitoba Power Co., which is controlled by the Winnipeg Electric Ry. Co. has offered to supply power for the operation of the branch at a very low rate, from its plant now under construction at the Great Falls of the Winnipeg River. The transmission line from this new development will be in close proximity to the branch, and the necessary connections could, it is said, be made easily. We are officially advised that the C.N.R. management has no present intention, of electrifying the line as the expenditure involved would not be justified by the business, and the Winnipeg Electric Ry Co's management advises us that no consideration has been given to the matter.

Dauphin Freight Sheds.—Tenders have been received for the erection of a brick freight shed and office at Dauphin, Man.

Regina Improvements.—A press report states that the old Canadian Northern Ry. locomotive house north of Regina is being taken down and that the material is being salvaged for use in the erection of a 6-stall addition to the North Regina locomotive house. Work is also reported to be well advanced in a new piece of line connecting the Canadian Northern Ry. line to Saskatoon, so as to enable trains to run into North Regina. The yard tracks at North Regina are being extended, and it is reported that all Canadian Northern Ry. buildings are to be removed to North Regina, thus concentrating all the Canadian National Rys. terminals at one point.

Radville Water Supply.—We are officially advised that a contract has been given Gibbs Bros., Lumsden, Sask., for grading an earth dam and spillway at Radville, Sask., for water supply purposes.

Saskatoon Office Building.—Tenders have been received for building an additional story to the office building at Saskatoon, Sask.

Jasper and Lucerne Divisional Points.—The Board of Railway Commissioners sitting at Jasper, Alta., Sept. 12, heard evidence in connection with the C.N.R. application, to close the divisional point at Jasper, B.C., and to consolidate it with the divisional point at Lucerne, B.C. Jasper is the divisional point on the Grand Trunk Pacific Ry., and Lucerne is the divisional point on the Canadian Northern Ry. When about 200 miles of track on these two lines were taken up in 1919, and the remaining mileages consolidated into one line between Imrie and Resplendent; there was no necessity for two divisional points, about 22 miles apart. Lucerne is just west of the divide, and Jasper is 290 ft. lower, while the latter has the larger population, and is not altogether a railway village as Lucerne is. It is claimed that Lucerne has the advantage of being 22 miles nearer the area where snow blockades are likely to occur than is Jasper. It is claimed by those who desire the terminal facilities to be concentrated at Jasper, that the buildings there were planned on a large and more permanent scale than those at Lucerne, and would therefore require a smaller expenditure for the alterations that may be required.

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Unfair Government Discrimination.

The Customs and Excise Department, at Ottawa, has announced that cheques with words indicating that the stamp tax thereon has been paid, may be used by persons to whom a license is issued in accordance with regulations, made under the provisions of the Act of 1922 (sec. 4) to amend the Special War Revenue Act, 1915. Regulation 10 is as follows: "The blank cheques must be forwarded to the American Bank Note Co., Ottawa, who must be advised by the shipper as to the quantity and description of blank cheques in the consignment, the outer covering of the parcel being also marked to indicate the name and address of the shipper. Packages, the gross weight of which exceeds 90 lb., if shipped from Montreal; 60 lb., if shipped from Toronto; or 40 lb., if shipped from Winnipeg, must be forwarded by freight. Under these weights shipment must be made by express. From each of the three places mentioned the parcels are to be forwarded by Canadian Government Railways or Canadian National Express (as the case may be), charges collect."

This direction to people as to what railway they must make their shipments by is a most glaring discrimination. Men in the railway industry, and students of railway regulation, have watched with interest, throughout the years, the gradual throttling of discrimination as practiced by railways, among shippers, by regulatory laws designed to do away with it, but this new departure which now intrudes itself, that of a Government undertaking to practice discrimination as among railways, is a development full of significance.

When necessity forced the launching of the Canadian National Rys. enterprise, the common hope and belief was that competition as between the National lines and the Canadian Pacific would be kept on an absolutely fair and proper basis, and that it would be a competition of service, purely and simply. Competition is the life of trade, and modern business sentiment is to the effect that competition must be kept on a plane of honesty, decency and fair dealing. It is only with that kind of competition prevailing that the success all hope will attend the National Railways venture can be a real success. A success based on unfair competition and discriminatory favoritism shown the National system is not to be desired. In Canadian Railway and Marine World's opinion, the only success worthy of the name to be obtained by the National Railways will be coincident with increased success by the Canadian Pacific—in other words, the success of both enterprises must depend on the country's prosperity and growth, and any unfair competition and discrimination injected into the railway industry will not advance the common prosperity one iota.

It is probable the traffic in cheques forwarded for embossing will not be very large or very profitable, but it is the principle of the thing which is important. Unless the fact is that the Government saw fit to privately call for tenders on this business, and awarded it to the successful bidder, which we very greatly doubt, it would seem the part of wisdom and fairness for it to withdraw regulation 10, refrain from ordering private individuals to ship their goods by a specified railway, and forever desist from causing any discrimination, or suspicion of discrimination, to taint the atmosphere

of honesty and decency in competition, which should surround the Canadian railway industry.

Another Lame Duck Railway.

The conciliation board which investigated a dispute between the Inverness Ry. and Coal Co. and certain of its employees recently, in presenting its report said, in part:—"The men's claim that the company's crippled financial condition is due largely to the losses sustained annually in the operation of the railway, and that the two projects, railway and mine, should be dissociated, involves a question of policy which is perhaps beyond the province of this board to deal with, but it was made to appear so clearly that it was in the interest; not only of the miners and the company, but of the entire district, that the Dominion Government should take over and operate the railway; that the board recommends that some joint action be taken by the men and the company to impress this view upon the Dominion Government." The Canadian National Rys. have already been loaded down with far too many so-called branch lines that have never been made to pay and probably never can be. Several local lines in the Maritime Provinces, and one in Quebec, have been taken over by different Dominion Governments, at prices which, in view of their earnings, were absolutely unjustifiable, and have been tacked on to the Canadian National Rys., making it increasingly difficult to even begin to earn operating expenses, and the practice should stop. The Inverness Ry. & Coal Co's line is one that should never have been built, and if the present owners cannot run it, it should be abandoned, and not be taken over by the Government to increase the deficits of the national system.

Howard G. Kelley's Policies.

The Montreal Star, in referring to Mr. Kelley's resignation from the G.T.R. directorate and Presidency, says: "If Mr. Kelley's policies had been more faithfully followed, neither the railway nor the country would be in so desperate a plight." It would be interesting to know what the policies were which were not followed. Presumably the Star knows, and we suggest that it makes them public.

Bunker Coal Rates.—The U.S. Interstate Commerce Commission held an investigation recently concerning the propriety of rates on bunker coal which are lower than the rates from the same points of origin to the same ports on similar kinds of coal for local delivery not into ships, and held that the maintenance of such lower rates on coal for delivery at ports to ships, whether as cargo or for bunker purposes, is not in violation of the Interstate Commerce Act, sec. 4, or otherwise unlawful.

Ride Stealers Punished.—W. Kennedy was fined \$5, or in default, 15 days imprisonment, by the Quebec Court of Sessions, recently, for travelling without a ticket on the Canadian National Ays., and W. Baker was fined \$5 or in default 8 days imprisonment, by the Montreal Enquete Court, for travelling without a ticket on the G.T.R.

Canadian Railway Club.—The first meeting for the 1922-1923 season was held in Montreal, Sept. 12, when W. T. Hawes lectured on radio. The 21st anniversary of the Club's establishment was celebrated at the same time.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Cowichan Bay Ry.—A press report states that plans have been filed with the British Columbia Department of Railways showing a line from Deerholm, Vancouver Island, on the Canadian National Rys., to the head of Cowichan Bay, and for a 5-mile line along the southern shore of Cowichan Lake. The main line route will, it is said, cross the Esquimalt and Nanaimo Ry. at Koksilah, and reach Cowichan Bay near the present wharf. The extension along the south shore of the lake is intended to reach Bear Lake, where wharves are to be built.

Dominion Atlantic Ry.—A press report states that a spur line is nearly completed at Digby, N.S., for use in connection with the shipping facilities of the port. This is probably one of the five spur lines, of the construction of which during the year we were advised in July. (Aug., pg. 409.)

Drum Lummin Mines Ry.—A press report states that work on the railway from Hartley Bay, B.C., to the company's mines is progressing rapidly, it being about 50% completed. A wharf, 1,100 ft. long is reported to have been completed at Hartley Bay, on which the railway will run. It is expected that the first shipments of ore will be made early in October.

Esquimalt and Nanaimo Ry.—G. A. Mountain, Chief Engineer of the Board of Railway Commissioners, Ottawa, inspected the work in progress on the new Johnston St. bridge at Victoria, B.C., recently. (Sept., pg. 458.)

Lacombe & Northwestern Ry.—The Alberta Minister of Railways completed a trip of inspection over the 16-mile extension, under construction from Rimbey, Alta., northwesterly, recently, and is reported to have stated on his return to Edmonton that it was expected to have the extension finished this autumn. (Sept., pg. 458.)

Michigan Central Rd.—The Board of Railway Commissioners has authorized the M.C.R. to build a bridge over the Niagara River, just below Niagara Falls, Ont. This approval is for a bridge to replace the company's present cantilever bridge, built in 1882, the reconstruction of which has been under consideration for a considerable time. As the bridge connects the company's Canadian line with its line into Buffalo, N.Y., the U.S. authorities' approval is also required. (Aug., pg. 410.)

Quebec Central Ry.—Owing to a recent washout just north of Ascot, Que., the Q.C.R. had to route its trains between Sherbrooke and Dudwell Jct. and Quebec, over the C.P.R. via Cookshire. Aug., pg. 410.)

Pere Marquette Ry.—We are officially advised that there was no foundation for the recent press report, stating that the company was planning to build a line from St. Thomas, Ont., to the Niagara frontier. The company has an arrangement with the Michigan Central Rd., under which it operates its trains over that company's line from St. Thomas to and across the Niagara River.

Timiskaming & Northern Ontario Ry.—A press report states that the construction of the extension from Cochrane to opposite New Post, on the Abitibi River, is going on rather slowly, and

that the progress made to the end of July was not what was expected, as at that date only about 4 miles of track had been laid out of Cochrane. The contract let to Grant Smith & Co. and McDonnell, Ltd., Vancouver, B.C., calls for the completion of the first 40 miles from Cochrane by Dec. 31, 1922, and of the remaining 30 miles by Dec. 31, 1923.

We are officially advised that grading has been completed, track laid and ballasting in progress to the first crossing of the Abitibi River, 11.3 miles from Cochrane. Grading is well under way from the opposite side of the river for 33 miles to the second crossing of the Abitibi River, mile 44.4 from Cochrane. The erecting of the bridge at the first crossing of the river was suspended for some time, owing to a washout, and one pier is not completed. The Hamilton Bridge Co., which has the contract for the superstructure, is putting up temporary work where the incomplete pier is located, and the permanent steel work on the other spans. The bridge is expected to be completed sufficient for operation early in October, and it is expected that track will be laid to the second crossing of the Abitibi River this winter, and a first lift of ballast put down.

The Premier of Ontario left Toronto, Sept. 12, for a trip into Northern Ontario, during which he made an inspection of the work in progress on the extension, and is reported to have looked into matters connected with the proposed electrification of the line. (Aug., pg. 410.)

Wigwam Pulp & Paper Co.—In connection with the erection of a large addition to the Wigwam Pulp & Paper Co.'s plant at Elko, B.C., a press report states that about 8 miles of railway is to be built from Elko to the site of the plant at Phillips Bridge. The report states that the railway will be built by the C.P.R. and the Great Northern Ry. jointly, that it will be used for getting material in for the construction of the plant and then for hauling out the product of the paper mills, that it is estimated to cost about \$200,000, and that surveys for its construction are in progress. The contract for the whole undertaking is stated to have been let to MacDougall & MacNeill, Ltd., Calgary, Alta.

Grain Carried by Canadian National Railways.

Geo. Stephen, Freight Traffic Manager, formation:—During the crop year ended C.N.R., has furnished Canadian Railway and Marine World with the following in Aug. 31, 1922, the C.N.R. handled 116,034 cars of grain, compared with 96,358 during the crop year ended Aug. 31, 1921. The increase for the year which has just ended is, therefore, 19,676 cars, or 20.4%. The figures are taken from the Dominion Government Grain Inspection Bureau's returns at Winnipeg, which further indicate that of the total crop produced in the three prairie provinces in 1921 the C. N. R. handled somewhat in excess of 50%, compared with 47% of the 1920 crop, the balance of the crop movement during the two years mentioned being handled by the other rail carriers.

The crop year begins on Sept. 1, and for the first week, i.e., Sept. 1 to 7, inclusive,

the movement of this year's crop, as reported by the Dominion Government Grain Inspection Bureau at Winnipeg, was divided amongst the rail carriers as follows:—C.N.R., 2,689 cars, 49.4%; C.P.R., 2,649 cars, 48.6%; G.N.R., 110 cars, 2.0%; total, 5,448 cars.

United States Railways' Financial Results.

Results secured by the U.S. class 1 railways in July were not so favorable as in June, as they earned at the rate of but 4.04% annually on their tentative valuation, compared with 4.78% in June, the July net operating income being but \$69,239,000 compared with \$76,594,000 in June. Compared with July 1921, the returns in July, 1922, were about one-tenth of 1% smaller. The Interstate Commerce Commission, in its last general rate decision, fixed 5% as the rate at which the railways should be allowed to earn on their tentative valuation, but in order to earn at that rate in July, they would have had to get \$29,333,000 more than they did.

The railways in the eastern district had a net operating income in July of \$24,165,400, compared with \$31,054,370 in July, 1921. The net operating income earned in July this year is representative of an annual return of 2.86%. Operating revenues for these roads were 5.3% smaller than in July, 1921, while operating expenses were but 3.4% smaller.

The railways in the western district had a net operating income in July of \$38,594,500, representative of an annual rate of return on tentative valuation of 5.36%. The net operating income in July, 1921, was \$33,566,800. Operating revenues decreased by 5.7% from those of July, 1921, but operating expenses decreased 9.2%, accounting for the more favorable net operating income secured.

The railways in the southern district had a net operating income in July of \$6,479,000, representative of a return of 4.38%. The net operating income in July, 1921, was \$33,566,800. Operating revenues decreased 1.9% from July, 1921, and operating expenses decreased 7.1%.

For all class 1 railways, operating revenues in July were \$443,183,000, a decrease of 4.3% from July, 1921, and operating expenses were \$340,725,800, a decrease of 6.1% from July, 1921.

Despite the coal miners' and shopmen's strike, loadings of revenue freight on the U.S. railways as a whole were 10% greater in July, 1922, than in July, 1921. While the number of cars loaded with coal was 48% less than in July, 1921, the number of cars loaded with other commodities was 24% greater.

For the first seven months of the year, operating revenues were \$3,054,531,000, a decrease of 2.6% from the first seven months of 1921. Operating expenses for the period were \$2,419,602,000, a decrease of 11.2%. The net operating income for the first seven months of 1922 was \$418,271,000, representative of a return of 4.36%, compared with \$214,130,400 for the same period of 1921, which was representative of a return of 2.24%.

Heretofore the statistics for U.S. class 1 roads have been based on returns filed by 201 carriers, but due to consolidation of reports by several properties, beginning with July, there are now but 197 class 1 roads reporting to the Interstate Commerce Commission.

Railway Wages and Working Conditions in Canada and the United States.

Shopmen.—The conciliation board appointed to enquire into the dispute between the Canadian railways and their shopmen, of which Alex. Smith, barrister, Ottawa, was chairman, and on which the railways were represented by I. Pitblado, K.C., and the shopmen by Jas. Simpson, Toronto, met on Aug. 8, and also in Montreal between Aug. 10 and Sept. 1. In the proceedings before the board, the railways were represented by Geo. Hodge, Assistant General Manager, Eastern Lines, C.P.R.; A. J. Hills, Assistant to President, Canadian National Rys., and C. F. Needham, Assistant to General Superintendent, Motive Power and Car Departments, G.T.R. The men were represented by R. J. Tallon, President, American Federation of Labor, Railway Employees' Department, Division 4; F. McKenna, Vice President, C. Dickie, Secretary, and John Bruce, general representative, plumbers and steamfitters. The wage decreases which the railways proposed to put into effect were given in full in Canadian Railway and Marine World for August, pg. 401, and were, generally, 7c. an hour for machinists and other shop craftsmen, 9c. for freight carmen, 7c. for apprentices and helpers, and 5c. for cra cleaners.

The board's majority report, signed by Messrs. Smith and Pitblado, made public Sept. 5, reviewed at length the circumstances of the case and the evidence taken, and, while not laying down the principle that United States conditions should always prevail in every detail, said the board was impressed with the bearing which the U.S. wage adjustments have had on Canadian railway wages during the last five years, and particularly with respect to the class directly concerned in those proceedings. It proceeded:—"The fact, that the large majority of the membership of the men's organizations have expressed their willingness to resume work at reduced rates in the U.S. subject to a re-hearing by the U.S. Railroad Labor Board, is an argument for the same class of employees on Canadian railways continuing work under the same scale, protected as they are by the railways' proposals, under which, in Canada, the reductions are only tentatively withheld. The view of the undersigned is that the question of permanent rates (the word permanent being understood to mean rates embodied in a wage agreement, but subject to the usual termination clause, included therein) has not yet received sufficient consideration by the parties to the dispute, the railways taking the position that their announced intention was only with respect to tentative withholdings. Only meagre evidence was submitted to the board which would assist it to form a judgment on permanent rates. Therefore, in the board's opinion the parties thereto should confer with respect to permanent rates, as soon as conditions indicate that an arrangement might reasonably be concluded, and if they fail to reach an agreement such disagreement would constitute a new disagreement, for the hearing of which the laws provide ample means.

It seems to the undersigned that the proposed tentative agreement, while fully protecting the railway companies in case a definite reduction in rates by mutual agreement became retroactive until July 16, at the same time fully protected the interests of the employees until such time as such definite agreement could be entered into, and was

a fair and reasonable proposal. Having in view, however, the fact that the railways undertook, pending a report of the board, to pay the employees at the old rates of pay on conditions set out, the board recommends that the rates of pay suggested in the notice posted in the shops should be made effective from Aug. 15, 1922, on the basis mentioned in such notice, and that promptly on notice from one party to the other, the representatives of both parties confer further as to definite or permanent rates, provided, however, that in so far as such definite rates are concerned, they should, when agreed upon, be retroactive to July 16, 1922, and that, notwithstanding the fact that the employees have received, or will receive, pay at the old rates up to Aug. 15, 1922, any necessary adjustments, when definite rates are agreed upon, be made as of July 15, 1922. In negotiating an agreement covering such definite rates, the employees will have the advantage of having actually received the old rates of pay until Aug. 15, 1922."

Mr. Simpson, in his minority report, contended that the majority report rendered did not deal with the proper subject. In his opinion, the issue before the board was not the railways' tentative proposal to reduce wages, but the justification for any wage reductions, and in this connection he said: "In presenting this report to you, as Minister of Labor, it is my intention to make it clear that the difference between my colleagues and myself is as to the cause of the dispute, and the issue before the board. The acceptance of the tentative proposition, as to the issue before this board does not ensure industrial peace on Canadian railways, but, on the other hand, only delays the reaching of amicable understandings between Canadian employers and employees, based upon the conditions existing in this country. It is unreasonable and unjustifiable to accept a compromised proposal of the railways, pending negotiations, as the real issue to be determined by our board. Had the board performed its duties in dealing with the issue upon which the application for its appointment was made, the railways should have submitted evidence to justify the reductions in wages which they are desirous of putting into effect. Without this evidence it is impossible for the board to report upon the question of wage reductions, either tentative or prolonged, and I therefore submit that the issue before the board has not been dealt with. It is with the hope of averting a strike that I report my objections to the acceptance of a report dealing with the railway companies' tentative proposal."

On Sept. 6, the shopmen's officers notified the Minister of Labor, that in their opinion the board's award brought about no settlement of the dispute, and to all intents and purposes left matters exactly where they stood before its sessions were begun, and acceptance of the majority report by the Labor Department was strongly protested. In reply, the Minister telegraphed to Chas. Dickie, the shopmen's secretary, stating that he was not at all convinced that it would answer any beneficial purpose to resubmit questions bearing on the original dispute to the same board, but assuring the shopmen that he was willing and anxious to do all possible to preserve industrial peace. Acceptance of the board's majority report, and announcement of intention to place in

effect the recommendations contained therein was made by the railways on Sept. 6. On Sept. 7 the shopmen's officers held a meeting in Montreal, attended by Messrs. Tallon, McKenna and Dickie, and by W. R. Rogers, Moncton, N.B., representing the machinists, J. A. Davis, Stratford, Ont., representing the boilermakers, J. Corbett, London, Ont., representing the carmen, F. Walsh, Montreal, representing the pipe-fitters, F. Harrison, Montreal, representing the blacksmiths, and P. A. Jardine, representing the electricians, at which the matter was discussed and future action deliberated. Mr. Tallon went to Chicago, where he attended meetings of the shopmen's policy committee, and where he was informed by B. M. Jewell, President of the American Federation of Labor's Railway Employees' Department, that it would be well to withhold strike orders for a time. Following another shopmen's meeting in Montreal on Sept. 8, shopmen throughout the country were advised to hold themselves in readiness for a strike, and the Minister of Labor was advised by letter that, in the shopmen's opinion; the board's report held the Industrial Disputes Investigation Act up to ridicule, and, as nothing more was to be expected from the board or the act, in all probability the committee's deliberations, which were continuing, would result in a strike being called. On Sept. 9 the Minister of Labor wrote the Railway Association of Canada's General Secretary, calling attention to the shopmen's refusal to abide by the board's majority award, and recommending that the railways should without delay intimate to their employees their willingness to at once take up the matter of negotiating permanent wages, as recommended by the report. He also wrote Mr. Dickie, suggesting that the country deserved something better than a strike at that time, and requesting the shopmen's committee to try to reach, by direct negotiation, an understanding with the railways as to permanent wages. He also dealt with the shopmen's criticism of the act, pointing out that through its operation Canadian shopmen were in a position which the U.S. shopmen were striving to regain, and had enjoyed 30 days more employment at the higher rates than the railways' proposals had intended. On Sept. 11 the Minister was advised by the Railway Association of Canada that the proposal to negotiate with the shopmen on permanent wages had been referred to member railways, and on Sept. 12 the Minister was notified by the Association that the railways concerned had accepted the board's majority report, without reservation, and that, therefore, in accordance with the recommendations made therein, they were prepared to negotiate with the shopmen on permanent rates of pay, upon advice that the shopmen were agreeable to that course of action. On Sept. 14, R. J. Tallon, returning from Chicago, acquainted the other members of the shopmen's committee with what he had learned from the policy committee as to how things were going in the U.S., and on Sept. 19, meetings having been held daily from Sept. 14 to 19, the committee decided to agree to the opening of direct negotiations with the railways, following an assurance obtained from the Minister of Labor, that by again negotiating with the railways, in the event of disagreement, a new dispute necessitating a new

board would not be created under the terms of the act, and that, failing an agreement within a reasonable time, the shopmen's committee would be legally free to go ahead and issue its strike call.

New York Central Rd., New York and Ottawa Division, Shopmen.—This dispute was referred to a board of which Senator G. D. Robertson was chairman, and on which M. Goodrich represented the railway and J. T. Foster the employees. The board's report, signed by all three members, recommended that the railway apply, and the men accept, the wages paid shopmen on the larger Canadian railways, as changed from time to time. The award was accepted by all concerned.

Michigan Central Rd. Shopmen.—The dispute between the M.C.R. and its shopmen was investigated by a board, of which J. M. McEvoy, K.C., was Chairman, and on which H. T. Malcolmson, Superintendent T. H. & B. Ry., Hamilton, represented the railway, and W. D. Robbins, Toronto, the men, and the majority report, signed by Messrs. McEvoy and Malcolmson, in which the circumstances were reviewed at length, and the cuts proposed by the railway were upheld, was made public Sept. 12. A minority report, in which the reductions were held to be unjustified was made by Mr. Robbins. Prior to the report being made public, the railway posted notices in its shops at St. Thomas, Ont., to the effect that the cuts were going into effect, whereupon the shopmen held a meeting on Sept. 10, and decided to strike. On the same day, J. Lane, chairman of the local federation at St. Thomas, received a message from the Minister of Labor asking that the strike be postponed, and on the same day, a message was received from J. A. Franklin, President, International Brotherhood of Boilermakers, from Chicago, advising that no strike be called pending developments in the U.S. The M.C.R. is one of the U.S. lines settling with the shopmen on the terms of the agreement detailed in the latter part of this article, and on Sept. 14 the general chairman of the boilermakers' union on the M.C.R. received notification from Chicago to the effect that the St. Thomas men would be included in that settlement. It is probable, therefore, that they will accept the reductions as provided for in the Chicago settlement and in the board's award. The award stated that the reduced wages should be retroactive to Aug. 16, but it is said that the railway officials have assured the shopmen that the retroactive feature of the award will not be enforced.

Pere Marquette Ry. Shopmen.—This dispute was investigated by a Board of which W. T. R. Preston, of Port Hope, Ont., was chairman, and on which the railway was represented by A. Leslie, and the men by W. D. Robbins. The majority report, signed by Messrs. Preston and Leslie, and made public Sept. 17, declared the reductions in pay proposed by the railway to be justified, and recommended that they take effect Sept. 16. A minority report, signed by Mr. Robbins, held the reductions to be unjustified. However, it is said the railway and its employees had come to an agreement before the report was made public, the men agreeing to the reductions. The majority report showed that the railway shopmen were in receipt of wages much in excess of those paid for similar work in other shops throughout western Ontario.

Canadian National Rys. Telegraphers.—The C.N.R. telegraphers are negotiating directly with the railway manage-

ment in connection with working conditions.

C.P.R.—As stated in Canadian Railway and Marine World for September, pg. 454, the C.P.R. and its telegraphers came to an agreement on working conditions, which were up for discussion. As a result, supplement B to the existing schedule was introduced by which certain changes are made in articles 2, 15, 18, 20, 23, 28, and while it was agreed that the preamble and clause G of article 2, and articles 3, 5, 6, 7, 8, 11, 12, 24, and 26 will also apply to assistant agents. The agreement, as amended, is to remain in effect subject to 30 days notice from either party.

G.T.R. Telegraphers.—Negotiations between the G.T.R. and its telegraphers for a settlement of differences in regard to working conditions are taking place.

Canadian National Rys. Clerks, Etc.—The dispute between the C.N.R. and its clerical employees, members of the Canadian Brotherhood of Railway Employees, upon the employees being notified of a wage reduction, was referred to a conciliation board, of which F. T. Costello, barrister, Alexandria, Ont., is Chairman, and on which the railway is represented by G. D. Kelley, Ottawa, and the men by H. S. Ross, K.C., Montreal. Several sittings have been held at Montreal, the railway and employees being represented by the same men as mentioned in Canadian Railway and Marine World for September, pg. 454. At the time of writing (Sept. 22) the sittings are continuing. As stated in our September number, the railway agreed to restore the previous rates of pay pending a report from the board.

C.P.R. Clerks, Etc.—As stated in Canadian Railway and Marine World for September, pg. 454, a board was appointed to hear the dispute between the C.P.R. and its clerks, freight handlers, etc., the majority of whom are members of the International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees. The chairman was Daniel Urquhart, Toronto, and the railway was represented by J. T. Arundel, formerly General Superintendent, Ontario District, C.P.R. and the men by J. G. O'Donoghue, Toronto. The board held a preliminary meeting in Montreal on Aug. 23 and then suspended sittings till Sept. 18, during which time the railway and its employees were able to agree on working conditions, but not in connection with the proposed wage cut, similar to that ordered in the U.S. by the U.S. Labor Board. Sittings were held in Montreal from Sept. 18 to 21, at which the railway was represented by Geo. Hodge, Assistant General Manager, Eastern Lines, and W. A. Mather, General Superintendent, Saskatchewan District, and the employees by H. Carr, Winnipeg, J. Brodie, Vancouver, and W. E. Turner, for the western lines, and F. H. Hall, Montreal, W. Rowe, Windsor, and J. Fisher, McAdam Jct., for eastern lines. The railway stated that pending the board's report the original wage rates would be kept in force, with the understanding that the company's case should not be prejudiced by such action. The board's sittings were concluded Sept. 21, but no report has been made public at the time of writing (Sept. 22).

Grand Trunk Ry. Clerks, Etc.—The dispute between the G.T.R. and its clerks, freight handlers, express and station employees, and other employees associated with the foregoing classes, in the Canadian Brotherhood of Railway Employees, was referred to a conciliation board of

which E. McG. Quirk, Montreal, is chairman, and on which the G.T.R. is represented by U. E. Gillen, Toronto, and the employees by H. S. Ross, K.C., Montreal. Numerous sittings have been held by the Board in Montreal, and at the time of writing (Sept. 22) are continuing. Not all of the men belong to the Canadian Brotherhood of Railway Employees, some being members of the International Brotherhood of Railroad Stationmen, and others of the International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees, but all are concerned equally in the proposed wage reductions. It was reported that a protest was sent to the Prime Minister against the railway's action in enforcing the lower wages pending the board's report, but subsequently it was stated that the Canadian Brotherhood of Railway Employees' officers had nothing to do with this protest. On Sept. 12 it was announced by the railway that the old wage scale would be restored, pending a report by the board, on the understanding that this would be without prejudice to the railway's case.

Pere Marquette Ry. Clerks.—The dispute between the P.M.R. and its clerical employees on Canadian lines was referred to a conciliation board, of which W. T. R. Preston was chairman, and on which the railway was represented by A. Leslie and the employees by C. B. McLurg. The board's report, signed by all three members, recommended that there shall be no discrimination made by the railway between employees of the class affected in Canada and those in the U.S.; that the former wages should continue till Sept. 15; that after that date such wages as may be agreed upon between the railway and the employees should obtain, or, if there be no agreement, that the reduced wages ordered by the U.S. Labor Board in decision 1074 (effective July 1, in the U.S.) should apply, and that if the Labor Board increased the wages, such increase should automatically apply in Canada. The Canadian employees, by applying for a board, were able to enjoy the higher wages two and a half months longer than the U.S. employees.

General.—At a meeting in Montreal on Sept. 18, attended by officers of the Canadian Brotherhood of Railway Employees and the International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees, and by Tom Moore, President, and J. T. Foster, Vice President, Canadian Trades and Labor Congress, a proposal to amalgamate the two railway labor organizations was discussed. It was stated by A. R. Mosher, President, C.B. of R.E., that if the amalgamation were effected, the present status of his membership in so far as the conduct of business in Canada is concerned would not be affected, but that duplication of efforts in Canada by the two organizations would be eliminated. No definite information is available as to just what would be the terms on which the amalgamation would be effected, and the results of the meeting were not made public.

On Sept. 10 a meeting was held in Fredericton, N.B., by maintenance of way employees' representatives, at which the question of breaking away from the maintenance employees' international union was debated. Two suggestions were considered, one to amalgamate with the Canadian Brotherhood of Railway Employees, and the other to form a new national organization. No definite action was taken, but another meeting to dis-

cuss the matter is to be held in October, after the Canadian delegates have returned from the International Brotherhood of Maintenance of Way Employees and Railway Shop Laborers convention to be held in Detroit in October.

On Aug. 25, the Minister of Labor wrote the following chairmen of conciliation boards: A. Smith, J. E. McEvoy, W. T. R. Preston, and Senator G. D. Robertson, to the effect that, as the matters to be considered by all boards were similar, it would be detrimental to the public interest, and to the railways' and employees' interests, if the findings of the boards were not in substantial agreement in principle. He said that it was not sought to influence the findings of any one of the four boards, but suggested that it would be well if the respective chairmen could meet and talk things over. An Ottawa press dispatch of Aug. 28 reported E. W. Beatty, President, C.P.R., as protesting against this procedure, on the ground that it would delay matters, but the meeting was held at Ottawa on Aug. 31, at which the chairmen exchanged views.

In view of developments to date, and in view of the turn which matters in the U.S. have taken, the indications are that all disputes between Canadian railways and their employees will be amicably settled without strikes, a condition of affairs which can be viewed with much gratification by the railways, the employees and the public alike.

United States Situation.—Following the rejection by the U.S. railway executives of the terms proposed for settlement of the shopmen's strike on Aug. 23, by a vote of 254 to 4, executives representing 52 class 1 carriers got together with the train service brotherhood leaders as mediators, and tried to come to an understanding upon which the strike as it affected their roads could be settled. Conferences were held on Aug. 24 and 25 in New York, in which the railways were represented by Daniel Willard, President, Baltimore & Ohio Rd.; Chas. Donnelly, President, Great Northern Ry.; N. D. Maher, President, Norfolk & Western Rd.; A. H. Smith, President, New York Central Rd.; and Hale Holden, President, Chicago, Burlington and Quincy Rd. The train service brotherhood leaders who acted as mediators were L. E. Sheppard, President, Order of Railway Conductors; W. N. Doak, Vice President, Brotherhood of Railroad Trainmen; W. S. Stone, Grand Chief, Brotherhood of Locomotive Engineers; D. B. Robertson, President, Brotherhood of Locomotive Firemen and Enginemen, and T. C. Cashen, President, Switchmen's Union of North America. The final conference broke up on Aug. 25, with no agreement having been secured, the railway executives being unwilling to desert their loyal and new employees and grant the strikers their seniority, and the strikers being unwilling to return at the reduced wages without restoration of their seniority. The shopmen's leaders were also unwilling to have the strikers return on some roads only, holding out for a national settlement of the strike.

During the week ended Sept. 2, the U.S. railways recruited many more men for work in their shops, and on Sept. 1, the number employed was approximately 305,000, compared with 400,000 before the strike began. During that week, however, violence due to the strike increased, and as a result the U.S. Government, through Attorney-General Daugherty, applied on Sept. 1, to the Federal District court at Chicago, pre-

sided over by Judge J. H. Wilkerson, for a temporary injunction restraining all striking railway employees throughout the U.S. from interfering with train operation in any way. The injunction was granted, and Sept. 11 was set as the date for hearings on the Government's application to have the temporary injunction made permanent. The injunction named all shop crafts' officers, and restrained them from instructing any of their organizations' members to attempt to make any railway employee leave his employment or refuse employment, and also restrained all shopmen and their officers on strike from picketing, trying to discourage employment of men by railways, by intimidation or other means, interfering with employees, loitering near entrance gates to railway shops, committing violence of any kind, interfering with railway operation, conspiring to hinder transportation, doing bodily harm to any railway employee, and trespassing on railway property.

In applying for the injunction, the Attorney-General stated the Government's attitude as follows: "The United States Government is not opposed to labor unions if they perform such functions as can be performed in lawful America. Never, while the labor unions limit their activities to legitimate acts and lawful pursuits not injurious to society, at least while I speak, and to the extent that I can speak, for the U.S. Government shall a blow be struck at them. But it may be understood that, so long, and to the extent, that I can speak for the U.S. Government, I will use the power of the Government within my control to prevent the labor unions of the country from destroying the open shop. When a man in this country is not permitted to engage in lawful toil, whether he belongs to a union or not, with full protection and without interruption, the death knell to liberty will be sounded and anarchy will supersede organized government." As further justification for the injunction, the Attorney-General informed the court that in California alone more than \$75,000,000 worth of fruit had been lost because of transportation failure; that lawlessness and violence had resulted in applications for 40,000 deputy marshals, and that delays in railway transportation were seriously adding to domestic and industrial fuel difficulties originating with the coal strike. The granting of the injunction drew forth severe criticism from Samuel Gompers, President, American Federation of Labor, who forthwith telegraphed B. M. Jewell, President, Federation's Railway Employees' Department, assuring the shopmen of the Federation's sympathy and support in the strike. Although many ominous threats of a nation-wide general strike were provoked by the injunction, nothing of the sort materialized.

On Sept. 2, S. Davies Warfield, President, Seaboard Air Line Ry., who cast the lone four votes in favor of the strike settlement proposed in the meeting of Aug. 23, met Mr. Jewell in Baltimore, and as a result, it was believed by both that an understanding to settle the strike could be reached. Thereupon Mr. Warfield called upon A. H. Smith, President, New York Central Rd., and Daniel Willard, President, Baltimore & Ohio Rd., and these, in conference with Mr. Jewell and his associates, reached a mutually acceptable agreement. Other railway executives being called in, a further meeting was held in Chicago during the week ended Sept. 16, at which an agreement for the strike's termination

was arrived at between the shopmen's representatives and railways representing about 55,000 miles of line. The railways entering into this agreement were largely those which participated in the conference terminating Aug. 25, but some of these did not sign the agreement. The shopmen's leaders authorized the general chairmen on individual railways to try to get such railways to agree to the terms set forth, which were as follows:

1. In order to bring to an end the existing strike of employees upon the undersigned railroads and relieve the country from the adverse effects thereof and to expedite the movement of essential traffic, the following memorandum of agreement is made upon the understanding, which the parties hereto accept, that the terms hereof shall be carried out by the officers of the companies and the representatives of the employees in a spirit of conciliation and sincere purpose to effect a genuine settlement of the matters in controversy referred to below. This paragraph does not apply to or include strikes in effect prior to July 1, 1922.

2. All men to return to work in positions of the class they originally held on June 30, 1922, and at that same point. As many of such men as possible are to be immediately put to work at present rates of pay, and all such employees who have been on strike to be put to work or under pay not later than 30 days after the signing of this agreement, except such men as have been proven guilty of acts of violence which in the opinion of the commission, hereinafter provided for, shall be sufficient cause for dismissal from service.

3. The relative standing as between themselves of men returning to work and men laid off, furloughed or on leave of absence, including general chairmen and others who were as of June 30, 1922, properly on leave of absence, will be restored as of June 30, 1922, and they will be called back to work in that order.

4. If a dispute arises as to relative standing of an employee or if any other controversy arises growing out of the strike that cannot be otherwise adjusted by the carrier, and said employee or the duly authorized representatives thereof, the matter shall be referred by the organizations by parties to this agreement, the employees or the carrier in the interest of any employees who may be aggrieved, to a commission to be established and constituted as hereinafter provided for final decision by a majority vote.

5. The commission referred to in paragraph 4 hereof shall be composed of 6 representatives to be named by the chief officers of the organizations parties hereto and 6 railroad officers or representatives selected from and by the railroads agreeing hereto. This commission shall be constituted within 15 days from the signing of this agreement and shall have jurisdiction to decide all cases that may properly be referred to into or before May 21, 1923, but not thereafter.

6. Inasmuch as this agreement is reached for the purpose of composing in a spirit of compromise this controversy, all parties hereto agree that neither this settlement nor any decision of the commission above provided for, shall be used or cited in any controversy between these parties or between the railroad signing the same or any other class or classes of their employees in any other controversy that may hereafter arise.

7. Both parties pledge themselves that no intimidation nor oppression shall be

practiced or permitted against any of the employes who have remained at work or have taken service or as against those who resumed work under this understanding.

8. All suits at law now pending as the result of the strike to be withdrawn and cancelled by both parties.

It is evident from the wording of this agreement that the strikers have agreed to return to employment without any definite prospect of having their seniority rights restored, and it appears that the commission provided for in the agreement will have a multitude of disputes to settle. It is also evident that the shopmen's leaders saw fit to retire from their previous position to the effect that nothing but a national settlement would be acceptable to them.

Reports are very conflicting as to the roads which have adopted this agreement, as much secrecy has surrounded the negotiations and no official statement has been made. Latest advices are to the effect that it was acceptable to the following large systems: Baltimore & Ohio; New York Central; Southern; Seaboard Air Line; Chicago & Northwestern; Chicago, Milwaukee & St. Paul. The following have refused to take their shopmen back on the terms of the agreement: Pennsylvania; Union Pacific; Norfolk & Western; Southern Pacific; Chicago & Alton; Chicago, Rock Island & Pacific; Northern Pacific; Great Northern; Chicago, Burlington & Quincy; Missouri, Kansas & Texas; Central of Georgia; Delaware, Lackawanna & Western; Erie, Illinois Central; Louisville & Nashville; Missouri Pacific; Frisco; Wabash; Acheson, Topeka & Santa Fe; Chicago Great Western, and numerous others. It is said that on the New York Central additional misunderstandings and difficulties have presented themselves, and that the strikers have made demands which were not countenanced in the agreement, resulting in the refusal of the company's officers to adopt it. On the majority of the roads refusing to enter into the agreement, shop forces have been recruited up to near normal, while the American Railway Association's figures for bad order cars and locomotives show that equipment has not suffered any great deterioration.

Argument on the U.S. Government's application to have the temporary injunction of Sept. 1, made permanent was begun in Judge Wilkerson's court at Chicago on Sept. 11, by D. R. Richberg, counsel for the shopmen, arguing for the injunction's dismissal. This was refused, and following further argument by opposing counsel, the injunction was extended for 10 days. Blackburn Esterline, Assistant U.S. Solicitor-General, in argument as to why the injunction should be made permanent, submitted evidence concerning the numerous cases of murder, assault, arson, train-wrecking, burning of bridges and dynamiting caused by the strike. A. M. McLaughlin, an assistant to the Attorney-General, said he intended to show, as a result of secret service reports, that the shopmen's officials were not acting in good faith when they claimed they did not approve of violence, and that he would produce evidence to show that they did everything possible to hinder traffic. Latest reports indicate a legal battle of several weeks' duration.

U.S. Maintenance of Way Employees.—It will be remembered that the Railroad Labor Board promised U.S. Maintenance of Way Employees a hearing of their

wage dispute with the railways, as a spirit of conciliation and fairness, except reward for their refraining from striking. The hearing was held before the Board in the latter part of August, and terminated early in September, and was important chiefly because the employees' representatives, led by E. F. Grable, President of the maintenance men's organization, asked the Board to adopt the principle of the living wage and grant his men a minimum of 48c. an hour. W. Jett Lauck, consulting economist for various labor organizations, admitted that the Board in fixing just and reasonable wages, should base their awards on a

"just and reasonable wage system," which, he claimed, has not heretofore existed. The Board was not very sympathetic to his theories, particularly when the railway representatives, J. Aronson and J. W. Higgins, undertook to demonstrate the economic impossibility of having the consumption of wealth continuously exceed its production. The railways appeared, however, to give the impression throughout the hearings that they were approaching the matter in a spirit of conciliation and fairness, but were strongly opposed to the theories advanced by Mr. Lauck. The Board took the matter into consideration.

Traffic Orders by Board of Railway Commissioners.

Interswitching at Simcoe.

32,684. July 24.—Re application of manufacturers and shippers of Simcoe, Ont., and district, for an order requiring the establishment of interswitching facilities at Simcoe: Upon hearing the application at Simcoe, June 9, 1922, the Town of Simcoe, the Dominion Cannery, the Norfolk Fruit Growers' Association, the Norfolk Co-operative Co., the Simcoe Board of Trade, J. B. Jackson Co., the Norfolk Milling Co., the Lee Pickling Co., the Grand Trunk and the Lake Erie & Northern Rys., and the Wabash Rd. being represented; and upon reading the further submissions filed, the Board orders that the Lake Erie & Northern Ry. be required to construct and maintain at its own expense, an interchange track between its railway and the G.T.R. tracks at Simcoe; detail plans of the proposed interchange tracks to be filed for the approval of an engineer of the Board; and the work to be completed on or before Sept. 1, 1922.

British Columbia Electric Railway Freight Tariff.

32,784. Aug. 23.—Re application of British Columbia Electric Ry. under sec. 330 of the Railway Act, 1919, for approval of standard freight mileage tariff C.R.C. 221, cancelling C.R.C. 191: Upon reading what is filed in support of the application and on the report of its Assistant Chief Traffic Officer, the Board orders that the said standard freight mileage tariff C.R.C. 221, cancelling C.R.C. 191, in so far as the same has application to the Vancouver & Lulu Island Ry. and the Vancouver, Fraser Valley & Southern Ry., be approved.

Supplement to Express Classification.

32,785. Aug. 23.—Re application of the Express Traffic Association of Canada for approval of Supplement B to Express Classification for Canada no. 5; and order 32,652, dated July 21, 1922: Upon reading what is filed in support of the application and the reports of the Board's Chief and Assistant Chief Traffic Officers, the Board orders that the change in the classification of returned empties having been disallowed by order 32,652, July 21, 1922, that, with the exception of the item covering returned empties, and with the addition of rating on dress forms, as follows:—

Dress forms or dummy figures, n.o.s.:	
K.d. or collapsed, boxed or crated.....	1
K.d. or collapsed, in fibreboard, pulpwood or	
double-faced corrugated strawboard, shipping	
cases.....	1½
Shipped otherwise.....	2 to 1

Supplement B to Express Classification for Canada no. 5, be approved. The Board further orders that the proposed supplement be published as Supplement 2 to Express Classification for Canada no. 5.

Cordwood and Lumber Export Rates.

32,813. Sept. 2.—Re application of Zwicker & Co., Lunenburg, N.S., complaining against rate charged by Canadian National Rys. on cordwood and lumber for export. Upon hearing the application at Bridgewater, N.S., on Sept. 29, 1921, and upon the report of the Board's Chief Traffic Officer, the Board orders that the application be dismissed.

32,814. Sept. 2.—Re application of the Town of Bridgewater, the Bridgewater Board of Trade, and the Acadia Gas Engines, Ltd., complaining against rate charged by Canadian National Rys. on cordwood and lumber for export: Upon hearing the application at Bridgewater, N.S., on Sept. 29, 1921, and upon the report of its Chief Traffic Officer, the Board orders that the application be dismissed.

New Brunswick Coal and Railway Co's Freight Tariff.

32,829. Sept. 7.—Re application of Canadian Pacific Ry. Co., as lessee exercising the franchises of the New Brunswick Coal & Ry. Co., under sec. 330 of the Railway Act, 1919, for approval of its Standard Mileage Freight Tariff, 59, C.R.C. 89: Upon the report and recommendation of the Board's Assistant Chief Traffic Officer, it is ordered that the standard tariff of maximum mileage freight rates, C.R.C. 89, to apply between stations on the New Brunswick Coal & Ry. Co's railway, be approved.

Fredericton and Grand Lake Coal and Railway Co's Tariff.

32,830. Sept. 7.—Re application of Canadian Pacific Ry. Co., as lessee exercising the franchises of the Fredericton & Grand Lake Coal & Ry. Co., under sec. 330 of the Railway Act, 1919, for approval of its standard mileage freight tariff, C.R.C. 123: Upon the report and recommendation of the Board's Assistant Chief Traffic Officer, it is ordered that the standard tariff of maximum mileage freight rates, C.R.C. 123, to apply between stations on the Fredericton & Grand Lake Coal & Ry. Co's railway be approved.

Eastern British Columbia Ry. Fire.

A press report states that the locomotive house and adjoining machine shop at Corbin, B. C., have been burned; the damage being put at over \$70,000. Two locomotives and a steam shovel were saved, but two other locomotives could not be got out. The Eastern B. C. Ry. extends from C.P.R. Crowsnest Pass line at York, B.C., to Kingsgate, 1.96 miles, while it connects with the Spokane International Ry., both lines being owned by the Corbin interests.

Canadian Pacific Railway Construction, Betterments, Etc.

Chateau Frontenac, Quebec.—Work on the central tower has progressed as far as the 12th story, and the Dominion Bridge Co. is pushing forward the erection of the steel work for the other 8 stories. It is expected that the steel work will be completed by the end of the year, and that the tower will be fully completed by next summer.

Interprovincial and James Bay Ry.—A press report states that about 1,200 men are employed on the construction of the line from near Kipawa, Que., to the Quinz River falls, and the branch to Ville Marie. There is a considerable amount of rock work. The grading gangs are reported to be working east of Fabre, and expect to get into Ville Marie next spring.

The Board of Railway Commissioners has approved revised plans for the line from Lot 37, Range 1, Laverlaschere Tp. to Lot 51, Range 5, Baby Tp.; mile 52.12 to 67.78, Timiskaming County, Que.

St. Agathe Subdivision Bridge.—We are officially advised with regard to the reconstruction of bridge 42.3 over North River, St. Agathe Subdivision, Quebec District, that the existing bridge consists of a 50 ft. half-deck plate girder span, resting on masonry abutments. It is intended to replace this span with a heavier type one to permit of the operation of heavier power. The only changes to the abutments will be a small amount of cutting down of the bridge seats, to suit the heavier span, which is being fabricated by McGregor, McIntyre & Co., Toronto. The alteration to the bridge seats will be done by the railway's forces.

Owen Sound Dock.—A press report states that a contract has been let to Green and Woolrich for rebuilding the dock in front of no. 1 shed, Owen Sound, Ont., at an estimated cost of \$20,000.

Fort William Freight Shed.—We are officially advised that plans are being prepared for rebuilding on the same site, freight shed no. 3, on the Kaministiquia River, Fort William, Ont., destroyed by fire Aug. 23.

Fort William Electrical Work.—We are officially advised that the company's own forces are doing a considerable amount of electrical work at Fort William, Ont., which it is expected to have completed by Oct. 15. It includes the rewiring of sheds 1, 2, 3, 5 and 6; of 18 stalls in the locomotive house; of the hard coal pick-ups, and of the rewiring of front of no. 5 hard coal shed; installation of axle car lighting equipment at the station and the lighting of Mead coal dock.

Ignace-Kenora Track Relaying.—Rapid progress is reported to have been made with the relaying of 16 miles of the double track between Ignace and Kenora, Ont. The old 80 and 85 lb. rails are being replaced with 100 lb. rails. Six rail laying machines are reported to be at work, and to be replacing 6 miles of track a day.

Winnipeg Freight Shed Improvements.—We are officially advised that the company is making considerable improvements to its Winnipeg freight sheds, which it is expected will be completed this year. The work being done by the company's own forces includes the rearrangement of tracks and platforms and the renewal of platform; the re-roofing of a section of the inbound freight shed; the renewing of eavestroughing and

downspouts of both ends; and the erection of an awning for outbound freight shed. For the renewal of a portion of the paving of G yard, a contract has been let to Bitulithic Contracting Co., Winnipeg.

Weston Shops.—We are officially advised that the improvements being made at the Weston shops, Winnipeg, consist of painting all the frame buildings; bricking up of 2 doors in the east end of the stores building; putting in a sump at the tender shop; erecting a lye vat in the erecting shop, and building a scrap platform and shelter. The work is being done by the company's forces.

Brandon and North Bend Turntables.—We are officially advised that a contract has been given Hamilton Bridge Co., Hamilton, Ont., for two 90 ft. turntables, one to be installed at Brandon, Man.; and the other at North Bend, B.C.

Russell Northerly.—We are officially advised that a contract was given the Northern Construction Co., Winnipeg, for completing the grading on the extension of the branch from Russell northerly from the present terminus at Cracknell, Man., to Inglis, 6.2 miles. It is intended to lay rails, do ballasting, fence the line, erect stations and telegraph line, and put the extension in condition for operation.

Regina and Saskatoon Divisions Culverts.—We are officially advised that contracts have been let as follows: Poole Construction Co., Regina Sask., building 4 concrete culverts on Indian Head Subdivision; E. C. W. Johnson, Regina, building 4 concrete culverts on Colonsay Subdivision; La Cour & Schoeler, Winnipeg, building 4 concrete culverts on Hardisty Subdivision; Hurst Engineering Construction Co., Winnipeg, building one concrete culvert each on Wynyard, Sutherland and Wilkie Subdivisions.

Lanigan Branch.—We are officially advised that a contract has been given A. C. Creelman & Co., Calgary, Alta., for building stations, section houses, grain-loading platforms, stock yards and water tanks, and for the fencing on the 50 miles of the branch from Lanigan to Naicam, Sask., on which track was laid in 1921.

Swift Current Northwestern Branch.—The Board of Railway Commissioners has approved revised location of a portion of the Swift Current, Sask., northwesterly branch (Empress Subdivision), from Sec. 11 to Sec. 16, Tp. 19, Range 18, West 3rd Meridian, mile 31.07 to 34.02.

Secretan Coaling Plant.—We are officially advised that a contract has been given A. E. Hamilton, Moose Jaw, Sask., to build a 100-ton standard mechanical coaling plant at Secretan, Sask. It is expected to be completed by Oct. 15.

Consul Southeast Branch.—We are officially advised that this branch from Consul will extend southeasterly to Climax, mile 61.07, in the s.e. $\frac{1}{4}$ of Sec. 17, Tp. 3, Range 18, West 3rd Meridian, Sask. The grading on the first 30 miles has been completed and a contract for grading the second 30 miles was let to W. A. Dutton, Winnipeg, in 1920. This line is now to be completed.

Medicine Hat Locomotive House.—We are officially advised that the work to be done at Medicine Hat, Alta., consists of a 15-ft. extension to the rear wall of the 80-ft. locomotive house.

Weyburn-Lethbridge Line.—We are officially advised that a contract has

been given W. A. Dutton, Winnipeg, for grading the final section of the Weyburn-Lethbridge Line, from the present western terminus at Bain, Alta., to Manyberries, Alta., the present eastern terminus. A contract has been given J. H. Simmons, Winnipeg, for building 4 small pile and trestle bridges on the line, and for the necessary buildings.

Coutts Detention Shed.—We are officially advised that a contract has been given T. Stubbs, Lethbridge, Alta., for removing the immigrant detention shed at Coutts, Alta., closer to the station, and for putting in a concrete foundation under it. The work is expected to be completed Oct. 15.

Ogden Shops.—We are officially advised that the improvements being made at Ogden shops, Calgary, include installing a sprinkler system in the dry lumber shed, and repairing the interlocking plant. The work is being done by the company's forces, and will be completed this year.

Calgary Locomotive House.—We are officially advised that a contract has been given T. Jamieson & McKenzie, Ltd., Calgary, Alta., for extending the 12 westerly stalls of the Calgary, Alta., locomotive house 20 ft. The work is to be completed this year.

Nelson Wharves.—We are officially advised that the wharf improvement to be done at Nelson, B.C., consists of filling a wharf trestle 985 ft. long. It will be done by the company's own forces.

Shuswap Subdivision Bridge.—We are officially advised that the work to be done on the bridge over the Eagle River, mile 19, Shuswap Subdivision, British Columbia District, consists of putting in concrete abutments in place of the old pile ones.

Vancouver Freight Handling Facilities.—We are officially advised that auto truck scales and a motor generator set are being installed at Vancouver, B.C. (Sept., pg. 461), and the shop mill floor is being repaired. The work is being done by the company's forces, and will be completed this year.

Transportation and Power Corporation Ltd. has been incorporated under the Dominion Companies Act, with authorized capital of \$15,000,000, and office in Montreal, to acquire the assets of the Great Lakes and Atlantic Canal and Power Co., Ltd.; to make plans and estimates for dredging, deepening, lowering or raising levels of existing rivers, lakes or waterways; to acquire terminals, harbours, docks, etc.; to acquire or build dams or other works necessary for the production of electric, hydraulic, pneumatic or other power; to lease or otherwise dispose of all such works; to enter into agreements with municipalities for franchises to operate waterworks, power and electric light plants; to operate steamships, tugs, dredges, etc.; to build drydocks or shipbuilding plants; and to carry on other businesses connected with any of the above. The incorporators are: J. M. McEvoy, K.C., and others of London, Ont.

Toronto Union Station.—The Goblin makes a number of suggestions for an exhibition pageant interpreting the spirit of Toronto, including the following: "Float bearing a model of the new Union Station, with the caption, 'To be opened next week—or the week after'."

Canadian National Newspapers and Periodicals and the Canadian National Exhibition.

In speaking at the Canadian National Exhibition directors' luncheon at Toronto, Press Day, Aug. 31, Horace T. Hunter, Vice President, Canadian National Newspapers and Periodicals Association, in responding to the toast of the press, said:—You have heard from the Daily Newspaper Association, from the Weekly Newspaper Association and I have been asked to speak for the Canadian National Newspapers and Periodicals Association, which might be termed the residuary legatee of the newspaper publishing business. It is not, however, an uncommon thing for the residuary legatee to get a very large part of an estate.

Over 3,000,000 Subscribers.—The extent and influence of publications represented by our Association are indicated by the following approximate statement of circulation:—Farm papers, 1,030,897; magazines, 1,065,307; religious and educational papers, 725,000; business and technical newspapers, 399,099; total, 3,220,303. On behalf of the Canadian National Newspapers and Periodicals Association, representing about 3,000,000 subscribers, I wish to congratulate you on the success of this year's Exhibition. We know that it has not, like Topsy, "just grown." It has been brought to the high state of perfection it occupies today by the shrewd and far-seeing policies of the directors and executive officers, and by their untiring energy in carrying out those policies. You referred, Mr. President, to the old custom of subscribers to weekly newspapers sending in cordwood to pay for subscriptions, and suggested that some of this wood be sent to relieve fuel shortage in Toronto. May I suggest that if there is still a shortage some of the "hot air" in the daily newspapers could be used to advantage.

Optimistic Outlook.—It is easy to be optimistic about the exhibition today; but there are many of us here who can remember the difficulties that had to be overcome, and the optimists of 25 years ago would probably be looked upon as the pessimists today. This situation reminds me of an old settler who was told that they were going to build a railway right through the village in which he had lived for 70 years. He shook his head, however, and stated: "They'll never run it." The right of way was secured, the tracks were laid and finally a person went to him and told him to come down to the station, that the new train was there and was going to start off in an hour's time. The old settler went down, looked over the equipment, and finally, as the train glided gracefully away, remarked: "They'll never stop it." This Mr. President, must be the feeling of everyone today. Nothing will stop your progress.

Similar Aims and Interests.—There are many points of similarity between the work of our Association and that of the Canadian National Exhibition. These form a strong bond of interest and sympathy between us.

Both are national. Our subscribers in the various provinces of the Dominion are the men and women you are most anxious to bring to the exhibition. The fact that they are readers and subscribers of our papers is the proof that they are people of intelligence, students of business, interested in new methods and in learning of new goods. They are the people who will travel a hundred or a thousand miles when the opportunity

offers to see an exhibition such as you have developed, and I congratulate you that these people are coming in increasing numbers each year. The international aspect is also a common bond. You have an increasing number of visitors from foreign countries, thus creating a feeling of good will with these countries, and helping our manufacturers to establish connections abroad. The same reason that brings business men from the United States, Great Britain, West Indies, etc., also causes them to subscribe for our publications. These foreign subscriptions have become such a big factor with some of our publications that they are now issuing export editions.

Educational Aspect Most Important.—Then we are on common ground in educational work. I believe, that this exhibition was started primarily for educational purposes, and its great success is due to the fact that you have never allowed the amusements side to dominate. I believe the educational features should be given wider publicity. The individual exhibitors do a good deal in this connection but there is much to be done collectively. A few people would come to see a few exhibits of motor cars, but thousands will come when they know there will be 70 exhibitors representing probably 70% of the manufacturers who are seeking Canadian business. In our Association there is a publication for practically every line of business. These publications have told, year by year, the outstanding events of the exhibition that would be of interest to their readers, and I think we can claim that this has been a factor in increasing interest and attendance of a very desirable class of people.

Influence of Business Press.—I would like to quote briefly from an address delivered within the past year by the Lieutenant-Governor of Ontario, Colonel Harry Cockshut, who officially opened the exhibition this year. Addressing the Canadian National Newspapers and Periodicals Association, he said:—"I believe that the influence of the business press will be one of the most important factors in re-establishing business conditions in Canada on a safe and sane basis. I make a distinction between the business newspapers and the daily press, because I believe that your papers—the business newspapers of Canada—exert a greater influence than the daily press, because of the greater confidence your readers have in them. People read the daily newspapers to keep abreast of the general news of the day. They are interested in what is happening around them and they read to satisfy their desire for excitement or interest or entertainment. What they read in the daily newspapers today is forgotten tomorrow. But this is not the case with the business newspaper. Business men need the service of these papers in the conduct of their every day business life. I have noted that they usually have a business paper or two in their pocket when they go home Saturday night. I do not say that they read them on Sunday, that I do not know, but I do know that they study them carefully and a great number of your readers will come to their business on Monday morning with some clippings from your papers in their pockets. They will say to their associates: 'This is the situation, I can show it to you in this clipping.' For that

reason, gentlemen, I say that yours is the greater obligation, because you are leaders, because you are helping to build up the business fabric of the country."

We appreciate the honor the exhibition directors have conferred on the press in singling out a day in their honor. In a larger sense, however, every day is "Press Day," for some of the publishers in our Association. Our publications are of such a varied nature and cover such diversified fields that in nearly every case there is one or more publication devoted to the industry that gives the day its name.

Quality Not Quantity.—I believe your directors are interested, not merely in bringing the numbers, but in bringing the men and women with a stake in the country—the responsible people, the people of large buying power. To put it in newspaper language, you are interested in class in circulation rather than in the mass circulation. In every one of the lines mentioned above our publications reach a large percentage of the best men and women engaged in the business, and reach them with publications that they have come to regard as their business associates.

I believe the big work of the future for the Canadian National Exhibition is to develop the exhibits of the various industries as units. I believe this is the line on which you are working and which has been so well exemplified this year in the pure food building, a building in which we were particularly interested because the editor of one of our publications, Mr. Huston, acted as secretary of the committee in charge of the work during the past couple of years.

I can assure you the publications in our Association will be very glad to cooperate with you, not only in organizing exhibitors, and inducing them to guarantee the cost of the buildings, but in making the buildings a success after they are erected, by bringing to the exhibition the class of people these exhibitors want to reach. For, after all, the real success of an exhibition does not consist in large buildings, or elaborate exhibits, but in the class of people who attend.

Grand Trunk Railway Construction, Betterments, Etc.

Midland Division.—A press report states that it is proposed to relay the Midland Division with 90 or 100 lb. rails next year.

Woodstock Improvements.—A press report states that two new footbridges have been added to the Wellington and Bay St. bridges approaching the station; that tarvia macadam is to be laid on the approaches, and that it is reported that an interlocking plant is being installed about 200 yards east of the station.

London Station Improvements.—A good deal of work is reported, as in progress on repairs to the London, Ont., station, including the renewal of the platform.

New Steel Bridges in Michigan.—A contract is reported to have been let to American Bridge Co., for 200 tons of fabricated steel for bridges in Michigan.

C.P.R. Elevator D, Fort William Ont., has been leased to the Northland Elevator Co. for five years.

Self Propelled Cars on Steam Railways.

The Canadian National Rys. had 4 self propelled cars on exhibit at the Canadian National Exhibition, Toronto, from Aug. 26 to Sept. 9, viz., 15,803, storage battery car; 15,805, steam car; 15,813, gasoline car; and 15,814, gasoline car. The showing of these brought home to the public the possibilities in connection with self propelled car operation in short line and branch line service, and great public interest in them was evident. Car 15,814 was the service gasoline car, which has been thoroughly described and illustrated in preceding numbers of

from storage batteries contained in the large battery holder seen below the car body and between the trucks, the batteries being charged between trips. The car is equipped with ball bearing trucks of the arch bar type, and is fitted with a snow plough arrangement as shown at the front. At the time of writing (Sept. 13) some changes remain to be made in the car, viz., renewal of storage battery, equipping of car with lavatory, baggage racks, coat hooks, locomotive type bell, and a smoking seat in the baggage compartment. This work will

Horse power, normal90
Weight, approximately60,000 lb.
Steam pressure700 to 1000 lb. per sq. in.

This car burns kerosene, or crude oil, as fuel, and as the name "unit car" implies, each car is a unit in itself, carrying its own fuel, water and other supplies. The car is propelled by a modified twin cylinder engine, mounted on, and forming a part of, the leading truck, power being transmitted direct to the axle by a spur gear, the engine and driving gear running in an oil bath in an oil tight case. The power developed is approximately 60 h.p., and when periods of emergency exist, such as when starting on heavy grades, or in deep snow, a maximum of 280 h.p. may be developed. An improved water tube boiler, mounted in the forward end of the car, supplies steam at a working pressure averaging 750 lb. In operation, oil is fed to the combustion chamber, under a constant pressure controlled by an automatic valve. The main burner and pilot are parts of the automatic control system used, and the water is also fed automatically to the boiler. The throttle valve is placed in the steam line where it leaves the boiler, and the throttle valve control lever, together with the reverse lever and air brake control equipment, are located in the operating compartment at the forward end of the car.

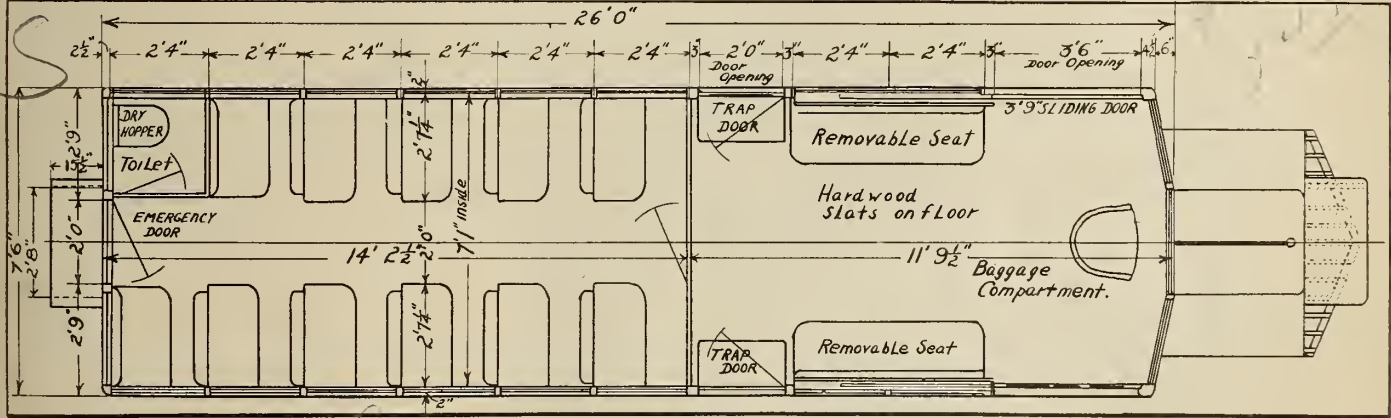
The water is fed from the auxiliary water tank to the boiler, by a double acting pump, and the automatic control feature is arranged so that if more water is being delivered than is required, the water is diverted back to the tank by an automatic movement of a valve. If the water supply to the boiler falls below a predetermined rate, resulting in the level getting dangerously low, the fuel oil supply to the burner is automatically cut off. The main water and oil tanks are below the car floor, but there are auxiliary tanks for both fuel



Canadian National Railways Gasoline Railway Motor Car, 15813.

Canadian Railway and Marine World. Gasoline car 15,813, built by Ledoux, Jennings, Ltd., Montreal, has not been described and illustrated, but car 15,812, a car very similar to 15,813, and built by the same builders, has been. No. 15,813 is illustrated herewith and a floor plan is given. It is the same as 15,812 with the exception of the leading truck and the interior arrangement. No. 15,813 has a baggage compartment 11 ft. 9 1/2 in.

be done at the Niagara, St. Catharines & Toronto Ry. shops at St. Catharines, Ont. The other battery car bought from the Cambria & Indiana Rd., No. 15,802, is larger than 15,803, the seating capacity being 50. This car will also undergo some changes at the Niagara, St. Catharines & Toronto Ry. shops, among which will be the providing of a larger baggage compartment. It is probable that 8 seats will be taken out of the



Canadian National Railways Gasoline Railway Motor Car, 15813.

long, fitted with removable seats, while 15,812 has no baggage compartment. The leading truck of 15,813 is the same as the rear truck, with the exception of the side rods on the latter, while on 15,812 the front truck wheels are much smaller than those of the rear truck. With these exceptions, the description given in preceding numbers of Canadian Railway and Marine World for 15,812 is applicable to this gasoline motor car 15,813.

Car 15,803, of the storage battery type, is one of two bought from the Cambria & Indiana Rd., in the U.S., and is illustrated herewith. It has a seating capacity of 36. The drive is by motors geared to axles, with current derived

passenger compartment to provide for this. Renewal of the storage batteries will also be necessary before the car is placed in operation.

Car 15,805, the steam car furnished by the Unit Railway Car Co., Boston, Mass., a plan and illustration of which are given herewith, has the following dimensions:

Length over bumpers.....	50 ft. 7 in.
of main passenger compartment.....	24 ft. 6 in.
of operating compartment.....	8 ft.
of smoking and baggage compartment.....	12 ft. 7 1/2 in.
Width over side sills.....	8 ft. 6 in.
Width of aisle.....	1 ft. 9 1/2 in.
Height from rail to top of roof.....	11 ft. 11 1/2 in.
Truck centers.....	28 ft.
wheel base, motor.....	6 ft. 1 in.
wheel base, trailer.....	5 ft. 6 in.
Total seating capacity.....	42

and water, that for the fuel being in the baggage compartment, and that for the water at the front of the car. The oil is elevated to the auxiliary tank by air pressure, and then flows from the auxiliary tank to the burner, while the water is elevated to the auxiliary water tank by a lifting injector, and is forced from there to the boiler by a pump, as stated above. The steam is superheated in a 2 unit superheater. Simplicity is the outstanding feature of the control system.

The trucks are of the arch bar type, and are equipped with roller bearings. The engine and front, or driving, truck being a unit, with the drive connecting to the leading axle of the truck, the

present time. Above this capacity, we examined a car 43 ft. in length, equipped with two 4-wheel pivotal trucks, which was capable of making a maximum speed of slightly better than 40 m.p.h., at which speed it rode very comfortably. The weight of this car was about 30,000 lb. I believe that these cars are going to prove the salvation of a great many short-line railways, as well as branch lines of the larger systems; and, as a

cial switch is provided for charging when the car is standing. In addition to the saving in operating costs claimed for these Diesel-electric cars, other advantages claimed are the saving in car heating from the engine cooling water, the independence of cooling and charging stations, and the elimination of waste of time in taking on water and fuel at stations, as the oil fuel suffices for a 600 mile run, and no cooling water is

Railway Finance, Meetings, Etc.

Algoma Central & Hudson Bay Ry. Co. The Lake Superior Corporation's report for the year ended June 30, says:—The year's operations of the Algoma Central & Hudson Bay Ry. Co., and Algoma Central Terminals, resulted in a net loss, before bond interest, of \$95,403.48, against net earnings of \$159,425.66 for the previous fiscal year.

Boston and Maine Rd.—There has been deposited with the Secretary of State at Ottawa, duplicate original of an equipment trust agreement dated Aug. 1, between J. H. Hustin and others, the First National Bank of Boston, and the Boston and Maine Rd., and a lease from the First National Bank to the Boston and Maine Rd., covering the following rolling stock:—22 switching locomotives, 2 Mallet switching locomotives, 65 steel passenger cars, 20 steel smoking cars, 8 steel baggage and smoking cars, 5 steel baggage and mail cars, and 25 milk cars, passenger equipped.

The Hereford Ry. shareholders' annual meeting was held at Sherbrooke, Que., Sept. 5. Following are the directors for the current year:—President, Stephen Bond, New York; Vice President, J. H. Walsh, Sherbrooke; Secretary-Treasurer, H. R. Fraser, Sherbrooke; other directors, J. F. Allen, New York; E. W. Farwell, Sherbrooke. The company's railway, from the International Boundary, Compton County, Vt., to Lime Ridge, Que., 53.30 miles, is leased to the Maine Central Rd.

Lacombe and Northwestern Ry.—An issue of \$225,000 of the company's 5% first mortgage bonds was offered recently at 93.74. The issue is guaranteed by the Alberta Government, which owns the line, having taken it over from the original owners.

Steel Rail Prices.—A New York press dispatch of Sept. 13, says that the United States Steel Corporation announced that



Canadian National Railways Storage Battery Car, 15803.

great many of our member lines have stated, they have figures from red to black. While the cars of the type under consideration are absolutely successful and will faithfully perform the duties imposed on them, I feel that efforts should be expended toward the development of a higher powered engine, as the present equipment has none too much power. I do not mean to increase the bore of the cylinders, or go to the slow speed marine type of engine; but, instead, to increase the number of cylinders and adhere strictly to the successful and proved type of automobile engine."

Diesel-Electric Cars.—Swedish railways have been using self propelled cars, equipped with 75 and 120 h.p. Diesel engines, and electrical transmission, for many years, some of them having been in service since 1913, and more recently cars equipped with 160 and 250 h.p. engines have been placed in service. Four of these large units are in service between Gothenburg and cities south of that point. The complete power installation for these cars consists of the following apparatus; one Diesel engine of the 4 stroke cycle type, with 6, 8 or 12 cylinders, according to the capacity. (The size of generators and other electrical equipment is also increased with the engine capacity); one direct-coupled, direct-current generator of the 8-pole type, with commutating poles. The generator is shunt wound, but has a separate series winding, the latter being connected to the circuit only when the generator is driven from the storage battery in starting. The generator voltage can be varied within wide limits up to 550 volts. Two electric motors of standard series-wound railway type, with commutating poles. (Power is transmitted to the axles by spur gearing); one storage battery of alkaline type, suspended beneath car and supplying current for starting, lighting and working auxiliary apparatus. This is charged automatically when the car is in motion, and a spe-

lost or evaporated.

Canadian Railway and Marine World has been advised that some of its readers have been under the impression that the rear trucks of the gasoline railway motor cars built by Ledoux, Jennings, Ltd., of Montreal, are fixed and rigid in relation to the car body, which has caused enquiries to be made as to how curvature is taken care of. We cannot understand how such an idea could have



Quebec, Montreal & Southern Railway Gasoline Railway Motor Car.

originated, as Canadian Railway and Marine World has published nothing to that effect.

Of course, proper curving and tracking would be impossible with the truck fixed, and the rear truck on these cars, like the front trucks, swivels on a center plate and side bearings as on any other railway car, the drive being taken care of by a ring universal joint and the telescoping.

it had recommended to its subsidiary companies that the price of standard rails be increased, commencing Oct. 1, to \$43 a gross ton base, f.o.b. mills, for delivery in about equal monthly installments prior to June 30, 1923, the price of \$40 a gross ton base to continue in effect until Sept. 30, 1922.

Steel Plates.—The C.P.R. ordered 100 tons of British plates recently, through a Montreal jobber.

Railway Rolling Stock Orders and Deliveries.

The G.T.R. has received 6 switching locomotives from its Montreal shops.

Abitibi Transportation & Navigation Co. has received 30 flat cars at Iroquois Falls, Ont., for the logging railway which it is building from there to Hughes. They were shipped from Chicago Heights, Ill.

The C.P.R., between July 13 and Sept. 13, received 14 vans from its Angus shops, 1 Industrial wrecking crane of 160 tons capacity, from F. H. Hopkins & Co., and 1 scale test car of 80,000 lb. capacity from Canadian Fairbanks-Morse Co., and has ordered 25 vans.

The Timiskaming & Northern Ontario Ry. has placed an order with Canadian Locomotive Co. for rebuilding and repairing six 10-wheel locomotives, which were built by that company in April, 1908, and weigh 144,000 lb., of which 114,000 are on the drivers; cylinders are 19 x 24 in., and the driving wheels are 56 in. dia., the boiler having a working pressure of 200 lb. a sq. in., with saturated steam. The following equipment is to be applied: Robinson superheater, Mudge-Slater smoke box, new firebox with Nicholson thermic syphon, American brick arch, Franklin fire door, steel cab in place of wood originally applied, metallic packing, Walschaert valve gear in place of Stephenson gear applied originally, Westinghouse E.T.6 air brake, Gold steam heat equipment, Barco metallic joints between engine and tender. The locomotives will have new cylinders of the piston valve type, 20 x 24 in., with 57 in. drivers, the boilers being made to carry a working pressure of 180 lb. a sq. in.

The Brazilian Railway Board has ordered a mikado (2-8-2) locomotive from Montreal Locomotive Works. Following are the chief details:—

Gauge	39 3/4 in.
Weight on drivers	86,000 lb.
Weight on engine truck	15,000 lb.
Weight on trailing truck	21,500 lb.
Weight, total engine	122,500 lb.
Wheel base, driving	11 ft. 3 in.
Wheel base, total engine	26 ft. 10 in.
Cylinders, dia. and stroke	16 x 22 in.
Driving wheels, dia.	42 in.
Driving journals	7 x 8 in.
Engine truck wheels, dia.	24 1/4 in.
Engine truck journals	5 1/2 x 10 in.
Boiler, type	Straight top, combustion type
Boiler, dia. first ring	58 in.
Firebox, length and width	90 7/8 x 75 1/4 in.
Tubes, no. and dia.	90-2 in.
Flues, no. and dia.	14-5 3/8 in.
Heating surface, tubes	566 sq. ft.
Heating surface, firebox	152 sq. ft.
Heating surface, flues	231 sq. ft.
Heating surface, total	949 sq. ft.
Grate area	47 sq. ft.
Tractive power	20,500 lb.
Factor of adhesion	4.2
Superheater	Superheater Co.
Reverse gear	Screw type
Cab	Steel plate
Water capacity	2,600 gall.
Coal capacity	4 tons

Algoma Rolling Stock Co.—The Lake Superior Corporation's report, for the year ended June 30, gives the Algoma Rolling Stock Co's balance sheet at June 30 as follows: Assets, equipment, \$75,000; accounts receivable, \$1,131.43; Dominion of Canada bonds, \$700; total, \$76,831.43. Liabilities, capital stock, \$700; first mortgage 6% bonds, \$75,000; accrued interest on bonds, etc., \$1,131.43; total, \$76,831.43.

Automatic Stokers and Power Shakers.

The Brotherhood of Locomotive and Enginemen, having asked the Board of Railway Commissioners to consider the question of ordering the equipping of coal burning locomotives, weighing over 140,000 lb. on drivers, with automatic stokers and power grate shakers, the matter was placed on the order paper to be heard at Ottawa, Sept. 19.

Telegraph, Telephone and Cable Matters.

Wm. Farrell, President, British Columbia Telephone Co., died at Vancouver, Sept. 12, aged 68.

C. E. Mersereau, Commercial Manager, Maritime Telegraph and Telephone Co., died at Halifax, N.S., Sept. 5, aged 52.

Canadian National Telegraphs have opened offices at Norway Bay, Que.; Callander and Joe Lake, Ont.; Laporte, Pathlow and Rama, Sask., and Bollis, Blackfoot and Scollard, Alta.

The Commercial Cable Co. announces the partial restoration of its cable service with Great Britain. The deferred service has not yet been restored, but it is expected that it will be shortly.

A conciliation board has been appointed to enquire into the matters in dispute between the Marconi Wireless Telegraph Co. of Canada and its employees. E. McG. Quirk, Montreal, has been appointed chairman, the company is represented by M. P. White, Toronto, and the employees by T. Taylor, Toronto.

Oliver S. Chalk, Chief Clerk, Plant Inspector's Office, Canadian National Telegraphs, Toronto, died at the Victoria Memorial Hospital, Toronto, Sept. 1, aged 34, following an operation. He entered Great North Western Telegraph Co's service about 17 years ago, in the District Plant Superintendent's office.

The Postal Telegraph-Commercial Cable System, is reported to have entered into an alliance with All America Cables, Inc., involving over 50,000 miles of submarine cable. The agreement provides for an exchange of traffic between the two systems, the agents of each company acting as agents for the other. C. H. Mackay, President, Postal Telegraph-Commercial Cables, states that the arrangement provides a comprehensive cable system extending from all parts of the U.S. and Canada to Central and South America, and from Europe to the Orient.

The Canadian National Telegraphers during the Canadian National Exhibition at Toronto, Aug. 26, to Sept. 9, demonstrated in actual operation various types of equipment in use for commercial and railway communication service. A 2-channel multiplex was installed at the Transportation Building's western entrance and handled sample telegrams with accuracy at a high speed. Another automatic telegraph device in the exhibit was the teletype, which has become popular with public and private institutions for handling telegrams, conversations, stock quotations, etc. This machine has recently been demonstrated in radio communication. On the opposite side of the room, telephone train dispatching equipment, for central and way stations, was displayed. The train dispatching apparatus, enclosed in fireproof steel cabinets, was designed and built by the Canadian National Telegraphs especially for use on the Canadian National Rys. transcontinental line. There was a demonstration of radio reception on a Canadian National Rys. standard all steel passenger train. In co-operation with the Marconi Co. and the Northern Electric Co., a concert programme was broadcasted daily from the C.N.R. steamship Dalhousie City, plying between Toronto and Port Dalhousie on Lake Ontario. Concerts were also received on this train from other broadcasting stations in Canada and the United States.

Among the Express Companies.

E. J. Wearing, European Agent, Canadian National Ex. Co., has moved his office from 20 Water St., Liverpool, to 17 Cockspur St., London, Eng.

A. W. Lee, heretofore route agent, British Columbia Division, Dominion Ex. Co., has been appointed agent at Victoria, B.C., vice J. H. Young, deceased.

E. E. Nixon, heretofore station agent, Dominion Ex. Co., Vancouver, B.C., has been appointed route agent, British Columbia Division, Vancouver, vice A. W. Lee.

John Buchan, heretofore chief clerk, European Agent, Canadian National Ex. Co., Liverpool, Eng., has been appointed local agent, there, the European Agent's office have been moved to London.

The Board of Railway Commissioners passed order 32,785, Aug. 23, approving Supplement B to Express Classification for Canada no. 5, with certain changes. The order is given in full on another page of this issue, under "Traffic Orders by Board of Railway Commissioners."

The Canadian National Ex. Co. has opened offices at Walsh and Hughes, Ont., Makaroff, Man., Laporte and Rama, Sask., and Scollard, Leslieville and Gibbons, Alta., and has closed its offices at Elmira, P.E.I., Victoria Beach and Grand Beach, Man., and Crooked River, Sask.

The Lake Superior Corporation's annual report, for the year ended June 30, gives the following particulars of the British America Express Co's operations for the same period:—Net earnings from operations, \$3,937.31; interest on bank account, \$74.78; balance brought forward from previous year, \$20.37; total \$4,032.46. Dividend on capital stock, \$3,550, income tax, \$384.52; balance at credit, carried forward, \$147.94.

Jas. Hector Young, agent, Dominion Ex. Co. and American Railway Ex. Co., at Victoria, B.C., who died there, Aug. 3, as stated in Canadian Railway and Marine World for September, entered the Dominion Ex. Co's service Aug. 25, 1886, as messenger between Calgary, Alta., and Vancouver, B.C., continuing in that position until May 17, 1897, when he was appointed agent at Rossland, B.C. He was transferred to Victoria, as agent, Dec. 5, 1905.

The Post Office Department is entering into competition with the express companies. It has given notice that commencing Oct. 1, a c.o.d. service will be established in connection with mail matter, for delivery within Canada, whereby charges due the sender up to \$100 may be collected from the addressee, and remitted to the sender by money order. The fees will be 15c. if the amount to be collected is not more than \$50, 30c. if over \$50, the limit of collection being \$100, and the fee is to be paid by stamps affixed to the parcel by the sender. The fee also covers insurance and registration, in the case of articles prepaid at parcel post rates, for loss, abstraction or damage, not to exceed \$50 when a 15c. fee has been paid, and not to exceed \$100 when a 30c. fee has been paid; and in the case of articles prepaid at other than parcel post rates, the indemnity for loss only, shall in no case exceed \$25, or the actual value of the lost article if the same is less than \$25. Articles sent on this plan must have been ordered by the addressee, and no article is to be accepted for transmission which bears any wording to the effect that it may be examined before acceptance.

Electric Railway Department

Toronto Transportation Commission's Work.

The track work to be done under the Toronto Transportation Commission's programme for this year's working season is well on the way to completion, and September saw a start made and good progress accomplished on the Commission's largest individual undertaking in the way of track reconstruction or extension to date, viz., the laying of a double track line on upper Yonge St., from Farnham Ave. to Deloraine Ave., at the city's northern limits. This involves the laying of 37,100 single track feet of track. The loop for turning some of the cars operating on Yonge St., in order that not all of them will have to operate to the northern city limits, has been installed at Lawton St. Of the list of work to be done this year, as given in Canadian Railway and Marine World for Sept., pg. 480, the following remains to be done. Track to be resurfaced and joints welded on Dundas St., between Roncesvalles Ave. and Queen St.; track to be rehabilitated on Bloor St., between Spadina Ave. and Avenue Road; extension to be built on Terauley St., between Bloor St. and Davenport Road; track to be rehabilitated on Bloor St., between Yonge St. and Church St.; track to be resurfaced and joints built up on Dundas St., between Terauley and McCaul Sts.; joints to be welded in track on Danforth Ave., between Hillingdon and Luttrell Aves.; extension to be built on Kingston Road, between Columbine Ave., near Queen St., and Victoria Park Ave.

Work on the upper Yonge St. track extension was begun on Aug. 26, and at the time of writing (Sept. 12), track had been laid on 122-S-G foundation from Woodlawn Ave. to Heath St., 2,370 ft., and the foundation was completed from Woodlawn Ave. to Lawton Ave. loop, 2,773 ft., North from Lawton Ave., 122-C-G construction is being used, and at the time of writing the foundation between Lawton Ave. and Berwick Ave., 4,746 ft., is nearing completion. Between Berwick Ave. and Eglinton Ave., one block apart, the turnouts for entrance to and exit from the new car house and yards are located, and at Sept. 12 this special work had been laid, while on Eglinton Ave., west of Yonge St., the foundation has been laid for the car house turnouts from Eglinton Ave. North of Eglinton Ave., grading was completed and the concrete slab laid as far north as Glengrove Ave., 4,694 ft., and the rails laid from Eglinton Ave. to Roselawn Ave., 1,544 ft., while on a section farther north, from Lawrence Ave. to the northern city limits, 3,151 ft., the grading was completed. The 122-S-G construction used from Woodlawn Ave. to Lawton Ave. has a broken stone foundation and granite block wearing surface. While the 122-C-G construction used north of Lawton Ave. has a concrete slab foundation and granite block wearing surface. Illustrations of longitudinal and cross sections for both types of track construction were given in Canadian Railway and Marine World for Dec. 1921, pg. 656.

In excavating for the new track, in the macadamized road material, the Commission has used steam shovels throughout, drills operating by compressed air being used along the side limits of the excavation. The excavated ma-

terial was hauled away by motor trucks. Traffic on Yonge St. has been suspended, except at important road crossings, and a temporary track to replace the Toronto and York Radial Ry's Metropolitan Division single track line has been built at the west side of Yonge St. As the new track is completed, this temporary track will be removed by sections and temporary connections between the remaining portion of it and the completed portion of the new track will be established. At present the T. & Y. R. Ry. is operating its own cars as far south

half mile of double track will be laid with International steel twin ties, which are built up on transverse steel channels spaced about 2½ ft. apart, with a plate spanning the channels, to which the rails are secured by clips passing through the plate, and the other half mile will be laid with Carnegie steel ties, section M 24, of I beam section.

Loop at north city limits.—The Ontario Railway and Municipal Board has approved the location plan of the Commission's loop for turning its Yonge St. cars at the northern city limits, and for the Toronto & York Radial Ry's Metropolitan Division barns and yards. Doncliffe Road is to be closed from Yonge St. east to Forest Glen Crescent, the latter to be extended south one block. The Commission's loop will be built east of Yonge St. on land provided by closing Doncliffe Road, the T. & Y. R. Ry. line will come to a dead end at the loop, and a diverging track will be built to give access to the radial railway barns and yards to be built east of Yonge St. and north of the Commission's loop. The new barns and yard for the T. & Y. R. Ry. are necessitated, of course, by the fact that the radial cars will, on completion of the Commission's new Yonge St. line, run only as far south as the city's northern limits, where passengers will transfer to the Commission's cars.

Car Houses.—Rapid progress is being made with the building of the car house at the intersection of Yonge St. and Eglinton Ave., the contract for which was given Wells & Gray, Ltd., Toronto, on July 19. The work is to be finished by Dec. 6, under a penalty and bonus clause in the contract. Considerable grading was necessary to prepare the property for the house and yards, and retaining walls have been built to support a portion of the fill required.

The Commission received tenders, Sept. 29, for the installation of a fire protection system and car washing service for the St. Clair, Danforth, Russell and Lansdowne car house yards, including water lines, monitor nozzles, hydrants, standpipes, hose and other equipment.

Dundas St. Cross-Town Line.—Work has been begun on the removal of buildings necessary for the provision by the city of a right of way for the line to be built by the Commission to make the Dundas St. line continuous across the city from east to west. Buildings have to be removed from the east side of Yonge St. north of Dundas St., and on the north side of Dundas St. both east and west of Victoria St., after which the line on Dundas St. west will be extended from Terauley St. to Yonge and continued to join the present line on Dundas St. east, at a point about 400 ft. east of Victoria St.

Philip Pocock, Chairman, London, Ont., Public Utilities Commission, and Vice Chairman London Railway Commission, is reported to have stated, Sept. 11, that, owing to increased charges for hydro electric power since the putting into operation of the Chippewa power plant, there will probably be an increase in the cost of power for operating the London and Port Stanley Ry.

Canadian Electric Railway Association.

Honorary President, E. A. Robert, President, Montreal Tramways Co., and Quebec Ry., Light, Heat & Power Co.

Honorary Vice President, Wm. C. Hawkins, Managing Director and Secretary, Dominion Power & Transmission Co.

Honorary Council, Thos. Abearn, President, Ottawa Electric Ry.; Acton Burrows, Proprietor, Canadian Railway and Marine World; Geo. Kidd, General Manager, British Columbia Electric Ry.; Lt.-Col. J. E. Hutcheson, General Manager, Montreal Tramways Co., and director, Quebec Ry., Light, Heat & Power Co.

President, Major F. D. Burpee, Manager and director, Ottawa Electric Ry.

Vice President, H. H. Couzens, General Manager, Toronto Transportation Commission.

Executive Committee, The President, the Vice President, the immediate past President (G. Gordon Gale, Vice President and General Manager, Hull Electric Co.) and D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co.; E. P. Coleman, General Manager, Dominion Power & Transmission Co.; A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Ry.; D. W. Houston, Superintendent, Regina Municipal Ry.; A. W. McLimont, Vice President and General Manager, Winnipeg Electric Ry.; R. Mayne-Read, Superintendent, Quebec Railway, Light & Power Co.; W. R. Robertson, General Superintendent of Railways, Hydro-Electric Power Commission of Ontario; W. L. Weston, Manager, Nova Scotia Tramways & Power Co.; H. E. Weyman, Manager, Lewis County Ry.; C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Treasurer, W. S. Hart, Managing Director, Three Rivers Traction Co.

Auditor, Lt.-Col. G. C. Royce, General Manager, Toronto Suburban Ry.

Secretary, D. N. Gill, Comptroller, Ottawa Electric Ry., Ottawa, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

as Heath St., and using cars rented from the Toronto Transportation Commission to carry passengers down to Woodlawn Ave. on the new track, and as the work progresses, the passengers will be transferred at Eglinton Ave., later at Glencairn Ave., and finally will be transferred permanently at the northern city limits, at the northern terminus of the Commission's new line. The Yonge St. work is progressing in two shifts, about 500 men being employed on the day shift and 450 men on the night, about 50 watchmen at road crossings and at other points being necessary. Over 100 trucks are employed in removing the excavated material and in other work. Steel ties are being introduced by the Commission in its north Yonge St. work, and will be tried thoroughly. The most northerly mile of track, extending to the city limits, will have the rails supported on steel ties embedded in the concrete. One

Toronto Transportation Commission Fare Prepayment Wickets.

The accompanying plan shows the car loading platform and prepayment wickets built this year near the Canadian National Exhibition's western, or Dufferin St. entrance in Toronto. In past years much delay and confusion was experienced in loading passengers on street cars on Dufferin St., outside the exhibition grounds entrance, and a great deal of time was lost by conductors selling tickets on the crowded cars. With the introduction of the prepayment wickets and loading platform, combined with the method used of looping the cars, this delay has been obviated, and a speeding up of the exhibition car service and greater satisfaction to passengers have resulted. Exhibition cars coming south on Dufferin St. unload their passengers at the corner of Dufferin St. and Springhurst Ave., the latter street running east and west and intersecting Dufferin St. about 300 ft. north of the prepayment wickets. The cars then loop, by swinging west on

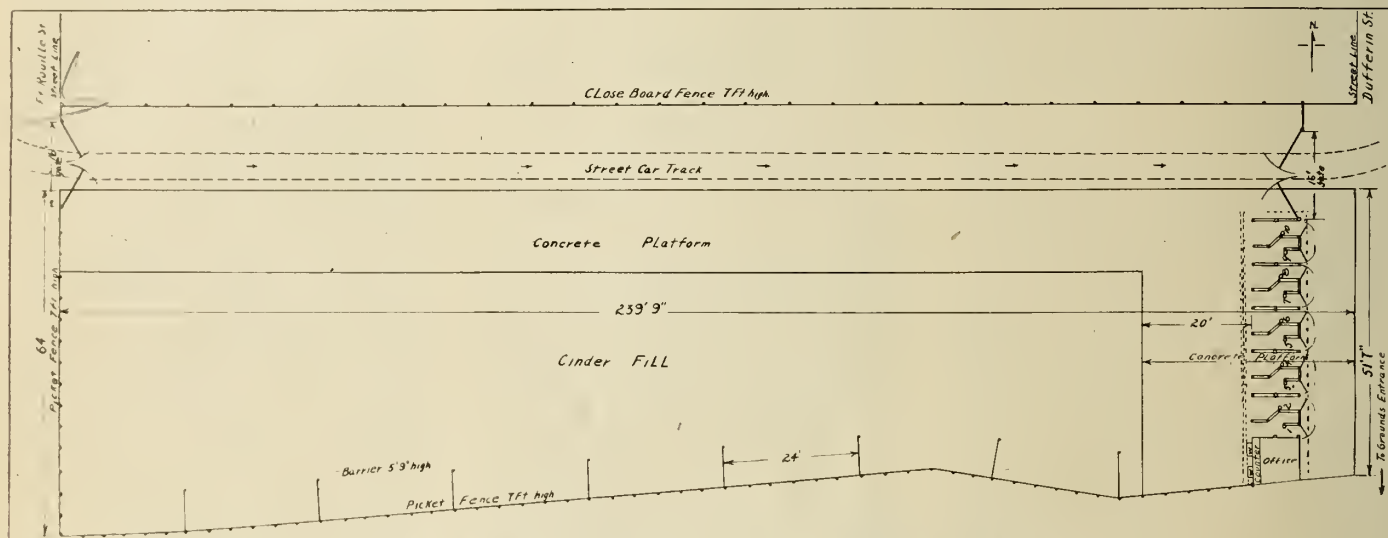
butted to the fare box attendants is also shown.

A fare prepayment arrangement was installed by the Toronto Ry. in 1921 at the eastern entrance to the exhibition grounds, and this was altered and enlarged by the Toronto Transportation Commission for this year's exhibition. The number of wickets at the eastern entrance is greater than at the Dufferin St. entrance, and the wickets are at right angles to the track, but the principle of operation is the same.

We are officially advised that 1,415,000 people used the street cars to and from the exhibition this year, and when it is considered that this number of people were handled to and from two terminals during the two weeks the exhibition was in progress, some idea of the traffic density may be had. The manner in which the fare prepayment facilities speeded up the car service and assisted in obviating crowding and discomfort to passengers was most gratifying.

Hull Electric Co's Pagan Falls Electrical Development.

Residents of Ottawa, Ont., and Hull, Que., and particularly those who have been interested in the local hydro electric development, have long known of the Pagan Falls, on the Gatineau River, at Low, about 35 miles northwest of Hull. The ownership of these falls developed a controversy which was finally carried to the Imperial Privy Council, the judgment of which settled for all time the claims of the opposing parties. This question having been settled, prospective purchasers were interviewed, and in 1916, G. Gordon Gale, Vice President and General Manager, Hull Electric Co., investigated the possibilities of developing electric power from the falls with a hydraulic head of 30 ft. He reported that such an undertaking could not be carried out economically at that time, and the offer to dispose of the falls was not accepted. During the study of the locality, however, Mr. Gale was impressed with the topography above the falls, which apparently made possible a much larger development, involving the construction of a huge dam above the falls,



Fare Prepayment Wickets, etc., Canadian National Exhibition's Western Entrance.

Springhurst Ave. for a short block, then south on Fort Rouille St., then east as shown by the arrows, pulling up at the concrete platform, where there is accommodation for 4 large cars.

When street car passengers leave the exhibition, they pass through some of the 10 prepayment wickets shown at the right, each wicket having standard street car fare box, as numbered in the plan. A conductor is stationed at each fare box to sell tickets and collect fares. On depositing his fare or ticket the passenger proceeds to board the waiting car, from the conductor of which he receives a transfer if required. After the cars start, the cars leave the platform east-bound, completing the loop, and proceed north on the north-bound track on Dufferin St.

The wooden barriers, 5 3/4 ft. high, shown along the south side of the enclosure, have a tendency to check the surging movement common to large crowds, and have also been found useful in segregating parties destined for special cars, such as lodge members, children's excursion parties, etc. The arrangement of gates, fences, etc., to ensure collection of all fares and the proper operation of the system is evident from the plan, and the office from which tickets are distri-

Street Car Speed in Victoria. — The British Columbia Electric Ry. Co., and D. Templeton, one of its motormen, were summoned in the Victoria, B.C., police court, Aug. 29, for exceeding the speed limit of 18 miles an hour under the provisions of the traffic bylaws as amended in 1921. The police magistrate decided that the weight of evidence was in the company's favor, and dismissed the charges. We are advised that on Fort St., Victoria, between Harrison and Oak Bay Jet., there is a narrow strip of roadway upon which the company has tracks. The city, some weeks ago, passed an ordinance limiting the speed of vehicular traffic through there to 15 miles an hour. A number of motorists have been fined for exceeding this speed at that point, and on Aug. 16, information was laid against the company and D. Templeton, for a breach of the ordinance. From the evidence given by the witnesses for the defence the company's management does not believe that the speed limit was exceeded. We are further advised that since the city put up its notice reducing the speed, instructions have been issued to all motormen to maintain a speed of less than 18 miles an hour, and that this order is being strictly carried out by those concerned.

which would back up the Gatineau River for many miles and inundate large areas. Walter J. Francis & Co., consulting engineers, Montreal, were engaged to survey and report upon the property, and in 1918, a score or more of engineers worked for several months investigating the territory. The report made confirmed the preliminary investigation, and arrangements were made to acquire the properties which would be flooded by the proposed dam. It is proposed to build a dam 125 ft. high, above which a lake of from 8 to 10 sq. miles will be formed, stretching from Low to Kazabazua, providing a very desirable local storage basin. The plant's ultimate capacity will be 150,000 h.p. The estimated cost has not been definitely determined, but is expected to be approximately \$10,000,000.

The Hull Publicity Commission has received a number of enquiries from prospective users of large blocks of power, and the Hull Electric Co's decision to undertake this great work will have a marked effect upon those who have been considering the possibilities of establishing industrial plants in Hull. The growth of many of the towns and cities in the Province of Quebec has rapidly followed the introduction of hydro electric power, which is so necessary for al-

most all the activities of modern industry. When this great undertaking has been completed, and quantities of electric power are made available, there is every prospect that Hull will soon grow into an extensive and important industrial center. Ottawa and Hull have been advertised for many years as the power cities, with over 1,000,000 undeveloped water horsepower within easy reach. Their needs have so far been provided for by the electric plants at the Chaudiere, and the ambitious engineering feat now proposed by the Hull Electric Co. marks a definite step towards the expansion and industrial development which has for years been prophesied for Hull.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies.

	July, 1922	July, 1921
Gross	\$834,772	\$840,155
Expenses	612,113	636,019
Net	222,659	204,136

Cape Breton Electric Co.—

	July, 1922	July, 1921	12 mos. to July 31, 1922	12 mos. to July 31, 1921
Gross	\$52,712	\$62,128	\$657,071	\$689,264
Expenses and taxes	39,567	45,901	585,532	578,122
Net	13,145	16,227	71,539	111,142
Interest	5,641	5,739	67,518	68,881
Balance	7,504	10,488	4,022	42,260

Chatham, Wallaceburg and Lake Erie Ry. Co.—The following officers and directors were elected, Sept. 6:—President, R. G. O. Thomson; Vice President, J. D. Morton; Secretary-Treasurer, H. S. Gausby; other directors:—J. G. Kerr, W. A. Walker, F. M. Little, R. Keemle.

Fort William Municipal Ry.—A press report of Sept. 6, stated that earnings since Sept. 1, showed a saving of \$60 a day, compared with the cost of operation before the putting on of one-man cars. The extension to Chippewa Park which was put in operation during July, is reported to have had a net revenue of \$495 to the end of that month, and a net revenue of \$817.39 for August.

Hamilton St. Ry.—Hamilton, Ont., City Treasurer is reported to have stated that the company's revenue declined considerably during the three months ended, June 30, notwithstanding the fixing of the fare at 5 cents straight. The percentage of earnings payable to the city during that period was \$20,005.28, compared with 20,292.86 for the corresponding three months of 1921. The decrease in earnings, is said to be due to buses being run on Main St. in direct competition with the railway.

Hull Electric Co's annual meeting was held Sept. 6. Following are the officers and directors for the current year:—President, A. D. MacTier; Vice President, G. Gordon Gale; other directors: Grant Hall, I. G. Ogden, W. R. MacInnes, F. L. Wanklyn and E. Hanson; Secretary Treasurer, H. C. Oswald.

Quebec Ry., Light and Power Co.—Gross earnings for the three months ended March, are reported to have been \$197,777, an increase over the corresponding period of 1921.

Sault Ste. Marie Traction Co.—Following is the profit and loss account for the year ended June 30, 1922:—

Loss from operations	\$ 5,435.39
Less: interest on bank account	123.03
	\$ 5,312.36
Depreciation of buildings, equipment, etc.	4,104.24
	\$ 9,416.60
Balance at debit from previous year	9,244.29
Balance at debit carried forward	\$18,660.89

The Southern Canada Power Co. which owns the Sherbrooke Ry. and Power Co., has sold \$650,000 of 6% preferred stock. The proceeds will be used in part to liquidate notes payable for \$527,120.

Winnipeg Electric Railway.—

	July, 1922	July, 1921	7 mos. to July 31, 1922	7 mos. to July 31, 1921
Gross	\$397,685	\$390,110	\$3,151,172	\$3,246,825
Expenses	299,958	296,561	2,336,870	2,443,170
Net	97,727	93,549	814,302	803,655
Fixed charges	70,233	42,778	428,701	402,832
Surplus	27,494	50,771	385,511	399,522

The Comptroller has written as follows:—"The surplus after fixed charges for the month, is somewhat below July, 1921. This may be attributed to two general causes, a decrease in the gross receipts of the railway utility, and an abnormal increase in operating expenses of both railway and electric utilities. The decrease in railway gross receipts is due to a small adjustment in some of the special rates of fare that was made Aug. 1, 1921, to stimulate traffic and encourage riding, and the lack of activity and general depressed business conditions. The increase in operating expenses of both the railway and electric utilities, is due primarily to an increase in the cost of power, on account of it being necessary to operate the steam reserve plant almost continually throughout the month. Part of this was due to damage that was done to the transmission line by the June 23 storm, and the balance to a breakdown at the hydraulic plant during the month, which put 2 of the generators out of service. Had we continued to operate throughout July under regular normal conditions, the operating expenses would have compared very favorably with July 1921 and the 6 preceding months of this year, and the net showing for the month would have shown an increase over 1921."

Fort William and Port Arthur Street Railway Matters.

The Port Arthur, Ont., Civic Ry. put a one-man car service in operation on its entire system, Sept. 1, which necessitated a revision of the main line service. The new service from Current River, Port Arthur to Yonge St., Fort William is a 13 minute one on week days. On Sundays a 26 minute service is given until noon, and thereafter a 13 minute one. The services on the other lines are unchanged. The new service was put in operation in conjunction with the Fort William Municipal Ry. two cars being operated by each railway. Two additional cars will be added by each railway.

Fort William Municipal Ry. and Port Arthur Civic Ry. operate a joint service over a line connecting the two cities, the cars of each railway running over the lines of the other to a central point in each city. Owing to the mileage in Port Arthur over which the Fort William cars operate being about a mile longer, than that over which the Port Arthur cars operate in Fort William, there has been a dispute between the two corporations as to mileage cost. The Fort William Municipal Ry. claimed \$1,300 and the Port Arthur Civic Ry. offered \$750 in settlement. As they could not agree, the matter was referred to the Ontario Railway and Municipal Board for settlement. After hearing the parties, the Board fixed the amount for 1922 at \$1,000, to be paid before Dec. 31.

Electric Railway Freight and Passenger Rates.

The British Columbia Electric Ry's standard freight mileage tariff C.R.C. 221, cancelling C.R.C. 191, in so far as the same has application to the Vancouver & Lulu Island Ry. and the Vancouver Fraser Valley & Southern Ry., was approved by the Board of Railway Commissioners' order 32784, Aug. 23.

The City of Vancouver and G. E. Bennett applied to the Board of Railway Commissioners recently, for an order directing the Vancouver Fraser Valley & Southern Ry., a B. C. Electric Ry. subsidiary, to reduce its passenger fares on the Burnaby Lake line, within Vancouver, to the same rate as existing on city lines, and the case was set down for hearing at Vancouver on Sept. 19. The Burnaby Lake line is an interurban one, which parallels a city line at a distance of about three-quarters of a mile. The city fare is 6c. and the interurban line fare 10c.

Kitchener and Waterloo St. Ry.—We are officially advised that the Kitchener, Ont., Light Commissioners, who operate the railway, do not at present contemplate any increase of fares. There has been an increase in cost, due to higher rates for Chippewa power, which may necessitate a slight increase in fares next year.

London and Port Stanley Ry.—Summer cottage owners at Port Stanley, Ont., whose permanent residences are in London and other points on the L. and P.S. Ry., are reported to have asked the London Railway Commission to sell the commutation tickets, which are sold only during summer months, throughout the year. They desire this so that they may lengthen the period of their residence at the lakeside, and be able to have house parties for winter amusements for week-ends.

Ontario Hydro Electric Rys., Essex Division.—We are officially advised that a charge of 1 cent is still being made for transfers from the electric railway lines in Windsor to the trackless trollies and vice versa. This charge was put in force on the installation of the buses; and will be effective until further notice.

Toronto Transportation Commission.—P. W. Ellis, Chairman, when addressing the city council recently, in opposition to the proposal to give the Hydro Electric Power Commission of Ontario a free right of way over the Toronto Harbor Commissioners' property, said that, under the act constituting the Toronto Transportation Commission, it is compelled to charge fares which will sustain the enterprise; that during reconstruction and its interference with travel, a large amount had been lost in fares, but now that reconstruction is nearly completed the Commission would concentrate on economy of operation, in the hope that it would be possible before long to lower fares. He advises Canadian Railway and Marine World that while he can make no promise, the public can rely upon the Commission doing its utmost, while giving frequent, rapid and comfortable service, to cheapen the cost of transportation.

St. Thomas Municipal Ry.—A press report states that a 7 cent fare was put in operation on the St. Thomas, Ont., Municipal Ry., Sept. 6. Tickets are reported as being sold, at a rate which makes the fare only half a cent more than under the old rate.

York County and the Toronto and York Radial Railway.

The County of York has entered action in the Ontario Superior Court against the Toronto Transportation Commission and the City of Toronto, the writ asking for a mandatory injunction compelling the defendants to restore the roadbed, right of way, tracks and other equipment of the portion of the highway formerly occupied by the Toronto and York Radial Ry. on Yonge St. in Toronto, which is alleged to have been illegally and unlawfully removed by the defendants, their servants, workmen or agents, and for an injunction restraining the defendants from in any way interfering with the County of York, exercising all the rights, privileges and franchise which the county is legally entitled to under and by virtue of the provision in certain agreements confirmed by statute entered into between what was formally known as the Metropolitan Ry., and also for a direction that the county is entitled to uninterrupted use of Yonge St. as far as Farnham Ave. This action is one of the side issues arising out of the Toronto electrical clean-up deal.

Electric Railway Employes' Wages, Working Conditions, Etc.

Ottawa Electric Ry.—An Ottawa press dispatch of Sept. 18, says that the company's Manager, Major F. D. Burpee, has signed an agreement with the Amalgamated Association of Street and Electric Railway Employes of America, Division 279, based on the finding brought in some three months ago, by a conciliation board, which recommended a general reduction of 12½% in wages and a continuance of the 9 hour day, the wages, per hour, to be as follows:—1st. year, 43c.; 2nd. year, 45c.; 3rd. year, 46c.; 4th. year and after, 48c. The agreement provides that the management will meet and treat with officials of the Division on questions and differences that may arise during the term of the agreement, including dismissals after suspension.

The schedule of wages per hour for conductors and motormen, mentioned in draft agreement annexed to the majority report was:—1st. year, 43c.; 2nd. year, 45c.; 3rd. year, 46c.; 4th year and after, 48c.

An Ottawa press dispatch stated that this clause was claimed as a distinct concession to the men, but there is nothing new about it, as for many years past the agreements have contained a similar clause. The whole agreement is such as could be entered into with any number of employes who wished to form themselves into an association, or with any individual employe, as he so desired.

Toronto Suburban Ry. has entered into a new agreement with its conductors and motormen, members of the Amalgamated Association of Street and Electric Railway Employes of America, Division 113, to be in effect until Sept. 1923, subject to 30 days notice, under which wages have been reduced by from 3 to 5c. an hour, as follows:—

	New	Old
First year	41c	46c
Second "	44c	48c
Third "	46c	50c
Over three years	49c	52c

England.—A London cablegram says that tramway workers throughout England are facing the prospect of a reduction of 12 shillings a week in their

wages, the reduction to be made in three installments. The municipalities which are the largest employers of this branch of labor, assert that skilled workmen in many industries are now receiving less than the tramway workers.

It is asserted that the municipal tramways throughout the country are being conducted at a loss of about £250,000 annually.

The tramway workers are organizing a national resistance to the proposed wage reduction.

Canadian Electric Railway Association's Activities.

The Association's executive has appointed the following special committees:

Standards: G. Gordon Gale, Vice President and General Manager, Hull Electric Co., chairman; D. E. Blair, Superintendent of Equipment, Montreal Tramways Co.; E. P. Coleman, General Manager, Dominion Power & Transmission Co.; C. C. Curtis, Manager, Cape Breton Electric Co.; W. G. Murrin, Assistant General Manager, British Columbia Electric Ry.

Public Relations: A. W. McLimont, Vice President, Winnipeg Electric Ry., chairman; G. Kidd, General Manager, British Columbia Electric Ry.; W. J. Lynch, General Manager, Quebec Railway, Light, Heat & Power Co.; E. W. Oliver, General Superintendent, Niagara, St. Catharines & Toronto Ry.; M. A. Pooler, General Manager, New Brunswick Power Co.

Safety: J. F. H. Wyse, General Manager, Ontario Safety League, chairman; C. C. Curtis, Manager, Cape Breton Electric Co.; W. H. Darracott, chief clerk to Manager, Winnipeg Electric Ry.; W. R. McRae, Superintendent of Rolling Stock and Shops, Toronto Transportation Commission; R. M. Reade, Superintendent, City Division, Quebec Ry., Light & Power Co.

It is proposed to appoint a special committee on the government classification of electric railway accounts, to deal particularly with maintenance and depreciation questions.

Electric Railway Notes.

L. Pilon, Hull, Que., was fined \$10 and costs, by the Ottawa Police Magistrate, recently, for passing a standing car on the Ottawa Electric Ry.

The Kitchener Light Commissioners have bought 5 Peter Witt cars, 50 ft. long overall, all-steel construction, and with seating capacity for 64 passengers, from Cincinnati Car Co.

Moncton Tramways, Electricity & Gas Co. has ordered a McGuire-Cummings street railway sweeper, through D. M. Campbell, Preston, Ont. It will also probably order two Birney safety cars.

The British Columbia Electric Ry. Company, started operation of its Broadway West extension in Vancouver, on Sept. 1, giving a 10 minute service. Since then traffic has increased so that 3 additional cars have been placed in service in the evening rush hour, making a 7½ minute service.

The Montreal & Southern Counties Ry. has ordered a 500 k.w. rotary converter complete for substation operation, from Canadian Westinghouse Co.; a Wilson plastic arc rail bond welder complete with truck, from Ohio Brass Co., and 2 motor and 2 trailer interurban passenger cars from Ottawa Car Manufacturing Co.

The British Columbia Electric Ry. Co's

extension work at its Stave Lake power plant near Vancouver, B.C., was visited, recently, by a Vancouver Board of Trade delegation. George Kidd, General Manager, B. C. E. Ry. Co., acted as host. Reference to this work was made in Canadian Railway and Marine World, for Sept. pg. 481.

The Hull Electric Co's franchise for an electric railway in Hull, Que., is for 25 years, of which about 7 are still to run, and provides that the city may acquire the property after 25 years. The city council passed a resolution Sept. 6, asking the company to name a price at which it would sell its railway and power plant.

Hull, Que., city council was asked by Alderman Legault, Sept. 6, to prevent the Hull Electric Co. from operating one-man cars. The City Solicitor advised that there is nothing in the franchise which would prevent the company operating such cars, and that the only way of obtaining redress would be to bring the matter to the Board of Railway Commissioner's attention. No action was taken.

The St. John, N.B., City Council has arranged a conference with the New Brunswick Power Commission to discuss the draft contract for the supply of power from the province's Musquash plant to the city. The question of whether the city will enter into a contract with the New Brunswick Power Co. for the distribution of the power, or distribute it itself, either by taking over the company's undertaking, or by installing a separate plant, is still under consideration.

Calgary Municipal Ry. employes have heretofore belonged to a union affiliated with the International Union of Street Railway Employes. A press report states, that a considerable number of the employes have withdrawn from the union recently, and have formed an organization for which they have obtained a charter from the Canadian Federation of Labor, Toronto. Of the 215 men in the railway operating branch of the street railway, it is stated that about 100 have joined the new organization.

The special transportation committee appointed by London, Ont., city council, recently, to study the transportation question in the city, engaged an engineer to make a valuation of the London St. Ry. It was reported, Sept. 8, that he had completed his inspections, and that while the basis of the valuation will be the estimate of the value of the road as a going concern made by the Hydro Electric Power Commission of Ontario in 1920, the present valuation is to show the scrap value of the property.

The Board of Railway Commissioners sitting at Quebec, Que., Sept. 6, heard two applications affecting the Quebec Ry., Light and Power Co's line from Limoilou to Beauport. The first was in regard to the provision of a spur line at Limoilou to permit merchants to obtain freight, instead of having to go to Quebec for it, and the second was in connection with the operation of through cars on the line to Beauport Asylum. This line crosses the Canadian National Rys. and passengers have to transfer from one car to another at that point. The company's solicitor stated that the company was willing to contribute one-third of the cost of a subway, estimated to cost \$150,000, which the city had obtained authority to construct. The company objected to a level crossing, owing to the heavy traffic. Both matters were referred to the Commissioners' engineer for a report.

Right of Way for Hydro Electric Radial Railway in Toronto.

Following the signing of agreements for the purchase of the various properties involved in the Toronto electric clean-up deal, and the ratification of the same by the Ontario Government, as announced in Canadian Railway and Marine World, September pg. 478, the Toronto City Council, on Sept. 6, by a vote of 18 to 6, decided to lease to the Hydro Electric Power Commission of Ontario, as trustees for the associated municipalities, a right of way along the water front for the radial railway. This decision was only reached after considerable negotiations and a prolonged and acrimonious debate in the council. The agreement of which the resolution approves, provides for leasing, for 50 years to the Hydro Electric Power Commission, a 6 track right of way over city property within the Toronto Harbor Commission's jurisdiction, for the nominal rental of \$1 a year, and gives the Commission authority over the radial railways entering Toronto. The agreement was opposed by the Toronto Transportation Commission on the ground that it would practically hand over to the Hydro Electric Commission the right to operate electric cars within the city and to collect fares. The Toronto Harbor Commissioners, and the Toronto Board of Trade also opposed it.

An interim injunction was obtained to restrain the city council from dealing with the matter, but it was dissolved Aug. 27, and an arrangement was made for hearing a general action, which will involve the legality of the agreement, at the earliest date possible.

The agreement for the leasing of the right of way by the city to the H. E. P. Commission will be ineffective unless ratified by the Ontario Legislature. Prime Minister Drury has written Sir Adam Beck, Chairman of the Commission, pointing out that bills validating agreements with the Commission have been regarded as government bills, and that the Government will not be disposed to bring in such a bill because there appears to be important differences between the radial entrance plans now put forward and those voted on in 1916; and that a considerable minority of the city council, and the Toronto Transportation Commission, the Toronto Harbor Board and the Canadian National Exhibition Board are opposed to the plan. This position of the Government would be changed if the agreement were submitted to, and approved by, a majority of the ratepayers.

Mainly About Electric Railway People.

Wm. Farrell, of the British Columbia Telephone Co., who died in Vancouver, Sept. 12, aged 68, went there in connection with the Yorkshire Guarantee Co's business about 30 years ago, and was interested in the British Columbia Electric Ry. in its early days.

Fred R. Miller, a member of the Toronto Transportation Commission, and of the Hydro Electric Power Commission of Ontario, whose serious illness was mentioned in our last issue, died at Toronto, Aug. 30, aged 44. He was Vice President, Roger Miller & Sons, harbor and general contractors, Toronto.

E. A. Robert, President, Montreal Tramways Co., and Quebec Ry., Light and Power Co., was the principal guest

at a luncheon given by the Quebec exhibition directors at Quebec, Sept. 4.

Lt.-Col. G. C. Royce, General Manager, Toronto Suburban Ry., and Mrs. Royce, returned to Toronto early in September, after spending the summer in Muskoka.

J. C. Smith, Vice President and General Manager, Shawinigan Water & Power Co., which controls the Shawinigan Terminal Ry. and the Three Rivers Traction Co., was entertained at dinner at Shawinigan Falls by the employees, on Sept. 14, in connection with the completion of his twentieth year of service with the company. Among the other principal guests were Premier Taschereau, of Quebec, Sir Lomer Gouin, Minister of Justice, and Hon. Jacques Bureau, Minister of Customs and Excise.

Levis County Railway Snow Fighting Equipment.

As stated in Canadian Railway and Marine World for August, the Levis County Railway, Levis, Que., has ordered 3 sweepers, a rotary plough and a snow leveller, particulars of which have been furnished us as follows:—Of the 3 single truck bevel gear drive long broom snow sweepers, 2 will be arranged so as to throw the snow on the same side of the street, running in either direction, the other will be standard. The 40 ft. flat car will have cabs at each end, equipped with Westinghouse straight air brakes, detachable snow plough noses on each end of car, and 2 special single track flangers mounted under the center of the car body, and operated by air for cutting out ice down to the track level. It will also have heavy side wings, for pushing back the snow several feet beyond the plough cut. The 30 ft car body will have composite wood and steel underframe, to fit the railways company's rotary snow-plough ends. It will also have heavy side wings. The rolling stock is being supplied by Russell Car & Snow Plow Co., Ridgway, Pa.

Motor Omnibus Notes.

The London St. Ry. Co., we are officially advised, is now considering the use of motor buses in London, Ont., as press reports stated recently.

County Judge Gauld, is reported to have questioned the conviction of the owners of 7 motor bus lines operating in Hamilton, Ont., who were fined \$50 each, for operating in the city in contravention of a bylaw. He is said to have held that the bylaw is illegal. The bus companies suspended business following the imposition of the \$50 fine by the Police Magistrate on Aug. 21. Following the imposition, the Hamilton City Council's special subcommittee on licenses, gave consideration to a number of points raised by the bus owners as to the bylaw under which they were fined. As a result the subcommittee recommended the rearrangement of the fees for licenses, and fixed Sept. 15, as the date upon which the police would enforce the bylaw in contravention of it. The license fee for passenger buses was fixed at \$2 per seat a year for buses having a carrying capacity up to 20, and \$40 for those having a larger seating capacity. The original bylaw was \$3.25 per seat a year. The charges to be paid by interurban freight transport trucks were also reduced. Cars operating between points inside the city to points outside exclusively will be required to pay \$5 a ton for the first ton and \$1 for each additional ton capacity, or frac-

tion of a ton. Thus the charges for a 5-ton truck will be but \$9, compared with \$25 on the straight \$5 ton charge, which was previously in force.

Toronto Street Railway Arbitration.

The arbitration proceedings to determine the amount the City of Toronto shall pay for the Toronto Ry. Co's property, which it took over Sept. 1, 1921, were resumed in Toronto, Sept. 19, before Hume Cronyn of London, Ont., chairman; Sir Thomas White, representing the company; and Sir Adam Beck, representing the city, the sitting on Sept. 19, being the 120th, the first having been on Sept. 11, 1921, and the last previous one on June 23, 1922, when the arbitrators adjourned to allow counsel to prepare their arguments.

On the reopening of the hearings, the company's case was argued by Hon. N. W. Rowell, K.C., who submitted that the principal questions to be considered were, the subject matter of the arbitration, the basis of principles of valuation; how these principles should be applied in arriving at the value of the property, and the value of the property. After speaking on two days he was followed by Eugene Lafleur, K.C., Montreal, Pierce Butler of the Minnesota bar, and F. H. Phippen, K.C., Toronto, and the arguments are proceeding at the time of writing, Sept. 26.

Twelve Miles in Toronto for Six Cents.

The Toronto Star says: The new carline along the Sunnyside Boulevard to the Humber opened today, and King St. cars will now run from the eastern limits of Toronto to the Humber, a distance of nearly 11½ miles. But this is not the longest ride obtainable in Toronto for 6c, though it is the longest non-transfer ride. From the north limit of North Toronto to the Humber via Yonge and King Sts. is approximately 12¼ miles. For this trip, at 6c, the passenger pays less than half a cent a mile. On Danforth Ave. the old civic carline gave a trip of 3.4 miles for 1.66c, which is practically the same ratio.

The Manchester Guardian points out that in Glasgow the longest tramway ride for a penny is 1 mile and 264 yards; Aberdeen, 1 mile and 422 yards; Dundee, 994 yards; Edinburgh, 931 yards. These fares are of course far higher per mile than Toronto passengers pay when they take the longest possible ride which the single fare system affords. But if they travel only 1 mile and 264 yards, they still pay 6c against Glasgow's 2c. It is the long haul passenger who rides cheap in Toronto. And that after all, encourages residence in the suburbs, and militates against the creation of congested districts downtown.

L. and J. Roy were each fined \$30, or in default a month in jail, by the Ottawa Police Magistrate recently, for assaulting A. J. McRae, Ottawa Electric Ry. conductor while on duty. The defendants were intoxicated, and interfered with the conductor while he was collecting fares.

The Quebec Ry., Light and Power Co. is reported to have contracted with the C.P.R. to supply an additional 400 h.p., of electric energy to the Chateau Frontenac, Quebec. It is also reported to be considering plans for the enlargement of its power plant.

Electric Railway Projects, Construction, Betterments, Etc.

The British Columbia Electric Ry. Co., through its subsidiary the Vancouver Fraser River and Southern Ry. Co., owns and operates a line from New Westminster to Chilliwack, which crosses the Vedder River. Owing to freshets considerable damage is done to the railway as well as to surrounding property nearly every spring. The Public Works Department has prepared plans for straightening out the river channel, and building a wall, to prevent the river breaking through, and flooding the country. The cost of the work is estimated at \$75,000 of which the B.C. Government will pay half, and the remainder will be contributed in various proportions by the Sumas Dyking District, the property owners, the City of Chilliwack and the B. C. E. Ry Co. (Sept. pg. 479.)

The British Columbia Electric Ry. Co. is electrifying its Stave Lake railway, which connects the Stave Lake power plant with the C.P.R., at Ruskin, B.C. The line is about 6 miles long, and besides being used in the past for hauling logs from the lake above, will be used extensively for hauling gravel during the building of the new dam at the power plant. Power will be supplied from one substation, containing 3 transformers and one 400 k.w. motor generator set. Electric locomotives from the company's interurban system will be used and the 2 steam locomotives will be sold. Passenger service is now given by a gasoline car. The company's plan calls for a second development, lower down the river than the first plant, in a few years, and when that is proceeded with the present railway will be submerged. The work, therefore, is of a more or less temporary nature.

Kingston, Portsmouth and Cataraqui Electric Ry., expects, we are officially advised, to rebuild about 1,500 ft. of track next spring. It will be relaid with 90-lb T rails. The work is rendered necessary owing to the Kingston, Ont., City Council desiring to do certain paving work. (Sept. pg. 479.)

Kitchener & Waterloo St. Ry.—We are officially advised that the car barn, to be built on the corner of King and Preston streets, Kitchener, Ont., will consist of 3 bays. The dimensions will be 124 x 164 ft. It will provide storage for 24 cars, besides containing paint shops, machine shop, conductors' and motormen's quarters; supply, storage and Master Mechanic's office. (Sept. pg. 479.)

Levis County Ry.—We are officially advised that the new car barn will be fire proof, a combination of steel, brick and concrete. The dimensions and layout have not been definitely decided, neither has the location been finally fixed upon.

Moncton Tramways, Electricity and Gas Co.—We are officially advised that the new car barn to be built will be on Mechanic St. on the site of the old one which was destroyed by fire. It will be built of concrete blocks, and will be 40 x 70 ft., with capacity for 8 cars. A Wheeler, Moncton, is the contractor. (Sept. pg. 479.)

Montreal and Southern Counties Ry.—We are officially advised that a contract has been let to Nicholson Constructions, Ltd., Montreal, for the erection of an automatic substation building at South Kensington, Que. It will be built of cement, brick and steel, and its inside

dimensions will be 16 x 28 ft. and 14 ft. high. There will be installed in it a 500 k.w. rotary convertor, the contract for which complete, has been given to Canadian Westinghouse Co.

New Brunswick Power Co.—Track relaying on Prince William St., St. John, N.B., is reported to have been completed.

New rails are reported to have been ordered for relaying the track on Dock St., which will be done as soon as they are delivered.

The track on Mill St. and Main St., will, it is reported, be relaid next spring. (Sept. pg. 479.)

Quebec Ry., Light and Power Co. is we are officially advised, extending its line in Belvedere Ward, in the upper section of Quebec. The extension is a continuation of the line on Marguerite-Bourgeois Ave., and then westerly, towards the city limits, on Garvier St., a total length of about a mile. The company has undertaken to build an extension of its St. Valier St. line westerly towards Bell's Road, about half a mile, and negotiations are in progress for the construction of an extension, of about half a mile on Charlesbourg Road. All these extensions are single track. A press report, referring to the latter extension, states that the plans have been accepted, and that it will run from St. Frances d'Assisi Hospital to the Canadian Northern Ry.

We are further advised that work on the installation of the loop at Parent Square, at the foot of the railway trestle leading from Palace Hill, has been completed, and that a curve has been placed at the intersection of Crown and St. Josephs Streets. With the installation of this loop and curve, the company is in a position to give a direct service from the three railway stations and to and from the exhibition grounds without transferring. (Sept., pg. 479.)

Three Rivers Traction Co.—We are officially advised that an extension of the line on Norman Boulevard and Bellefeuille and St. Phillippe Streets, Three Rivers, Que., is under consideration, but it is doubtful if it will be done this year. (Aug. pg. 429.)

Toronto and York Radial Ry.—The Ontario Railway and Municipal Board has approved tentatively of plans for terminal facilities at Glen Echo Ave. and Doncliffe Drive, Yonge St., for the Toronto and York Radial Ry. and the Toronto Transportation Commission. The facilities for the latter are described in another column. The T. and Y. R. Ry. will have a joint interest in the passenger station, and will own the spur line connecting with the facilities, and a freight shed on Glen Echo Ave.

The question of the improvement of the T. and Y. R. Ry. track is reported to be under consideration, and it is said that a survey is being made from the new terminus at Toronto city boundary, for a new right of way on private property to beyond Newmarket, where the railway leaves the road for a private right of way to Sutton.

Windsor, Essex and Lake Shore Rapid Ry.—A press report states that work has been started on a new terminal at Oak St., Leamington, Ont. We were advised in April that a siding was to be built into the terminal for which 3,000 oak ties were being purchased. (May, pg. 259.)

Winnipeg Electric Ry.—The extension

of the Broadway West Ave. to Alma Road, has been completed and an experimental service was put in operation Sept. 1. The first cars leave Alma Road at 6.15, 6.28, 6.40 and 6.50 a.m., and every 10 minutes thereafter, the last cars for the day leaving at 11.41 p.m., 12 midnight and 12.26 a.m. on week days. On Sundays the first car starts from Alma Road, at 8.15 a.m., and five other cars are run to 10 a.m., after which the service is a 12 minute one, until night when the cars leave at 11.01, 11.11, 11.25 and 11.51 p.m.

Toronto's Purchase of the Toronto Suburban Railway.

At the Toronto municipal elections on Jan. 2, the voters by 16,087 to 13,850 approved of a bylaw authorizing the city to acquire from the Dominion Government, the Toronto Suburban Ry., at present operated as part of the Canadian National Rys. The consideration for the sale consists in the payment by the city, of \$202,000 for such of the lines as are within the city limits and on which the franchise has expired, and the taking over of the company's bond issue of \$2,628,000. The bylaw also authorized the city to issue \$150,000 of debentures for betterments to the lines within the city, which are to be linked up with the city's lines, and operated by the Toronto Transportation Commission. The other lines are to be handed to the Hydro Electric Power Commission of Ontario for operation, the city being responsible for any deficits on their operation, and any surplus would be disposed of at the H. E. P. Commissioners' discretion.

In the closing days of its last session the Ontario Legislature authorized the city of Toronto to acquire the Toronto Suburban Ry. Owing to the numerous matters necessary to be looked into in connection with the Toronto electrical clean-up deal, the proposed taking over of the line has been kept in the background. Nevertheless, some progress is said to have been made, and a conference is reported to have been held in Toronto, Sept. 14, between the Hydro Electric Power Commission of Ontario and the city board of control to discuss various matters in connection with the taking over of the line and the finding of the money to pay for it.

Air Brake and Electrical Equipment, Toronto Transportation Commission Cars.

The article, "Additional Cars for Toronto Transportation Commission," in Canadian Railway and Marine World for September, pgs. 473-475, contained the following sentence: "The electrical equipment will include 35 h.p. motors, and both electrical and air brake equipment will be furnished by Canadian General Electric Co."

We are officially advised that both the air brake equipment, and the electrical equipment, of the 100 motor cars and 100 trailers ordered recently, will be furnished by Canadian Westinghouse Co., and not by Canadian General Electric Co., as stated erroneously, a mistake which we regret, and which, in pursuance of our invariable policy when mistakes do occur in our paper, which is not often, we hasten to correct.

Trackless Trolley Operation, Toronto Transportation Commission.

Canadian Railway and Marine World for January contained a thorough description of 4 trackless trolley buses ordered by Toronto Transportation Commission, an illustration of one of which is being given herewith, (fig. 1.) The first bus arrived in Toronto on June 17, and was placed in operation June 19. The remaining three were received shortly after. Prior to their delivery, the over-

between the trolley wires and the poles at each side of the street, as shown in fig. 2, at A and H, to protect workmen in case the span wires should become alive.

The buses are turned on Y's, and not on loops. While looping them would be the most natural method, it was impossible to build a loop at the Yonge St. end of the run without acquiring an area

the trolley will follow the proper wire. The cross-over used, designed by the Commission's wiring officers, consists of the standard 33 degree fixed cross-over, arranged with suitable side-guards, and with 4 plugs inserted to act as keepers. This arrangement confines the trolley wheel to a narrow channel, the keepers not permitting the wheel to swivel out of line. It is felt that the elimination of the use of springs will prove to be a decided advantage. In fig. 4 the negative wiring is indicated by solid lines, and the positive wiring by broken lines. Fig. 5 is a general view of a portion of the overhead work at the Mount Pleasant Road and Eglinton Ave. intersection.

When operation with the trackless trolley buses was begun, they were equipped with the single pole current collection device, the pole being equipped



Fig. 1. Trackless Trolley Omnibus, Toronto Transportation Commission.

head wiring construction had been completed under the supervision of J. F. Neild, Electrical Engineer, the route being along Merton St. east from Yonge St. to Mount Pleasant Road, thence north on Mount Pleasant Road to Eglinton Ave. the total one-way distance being 1.3 miles. In the overhead construction, all material used is standard, with the exception of the crossovers, which are adapted to suit conditions. Standard 30 ft. cedar poles are used for span support. Two double lines of wire are strung, a positive and negative wire in each. The lines are strung 9½ ft. centers, and while the positive and negative wires in each line were spaced at 18 in.

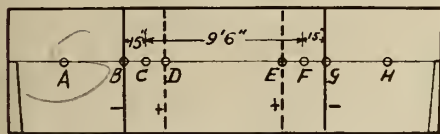


Fig. 2. Wire spacing and insulation location.

for single pole operation, it is contemplated that this spacing will be changed to 30 in. when the wire spacing will be as in fig. 2, in which the two inside wires are the positive and the two outside ones the negative. The line is triply insulated, as shown in fig. 2. In addition to the wire support insulators, at A, B, D, E, G, fig. 2, standard 504 porcelain insulators are cut in between the positive and negative wires of each line, as at C and F. On straight line construction, standard straight line hangers are used with 12 in. trolley cars, and on the curve construction the cap and cone method of insulation and support is used. The straight line support is shown in fig. 3, upper drawing, and that used on curves in fig. 3, lower drawing. The third point of insulation is provided by porcelain insulators, cut in

of valuable land, and at the other end of the run looping would have required the paving of streets not justified by existing vehicular traffic. Fig. 4 shows the Y at the intersection of Mount Pleasant Road and Eglinton Ave. In operating around the Y, the bus is driven in the direction indicated by the arrows, with

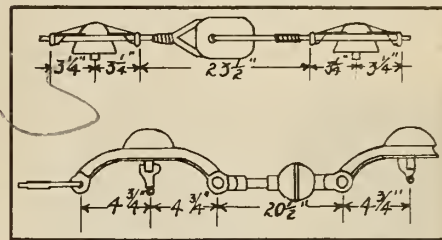


Fig. 3. Upper—Standard street line hangers for tangent. Lower—Cap and cone suspension for curves.

with equalized arms, spaced at 18 in., carrying the trolley wheels. A great deal of trouble was experienced in keeping the wheels on, particularly in operating around the Y's. Experiments with one bus, equipped with a double pole installation, showed that the double pole would be more satisfactory, no trouble being encountered in keeping the wheel to the wire in Y'ing, or in swinging out to avoid traffic on the road, and the result has been that double pole current

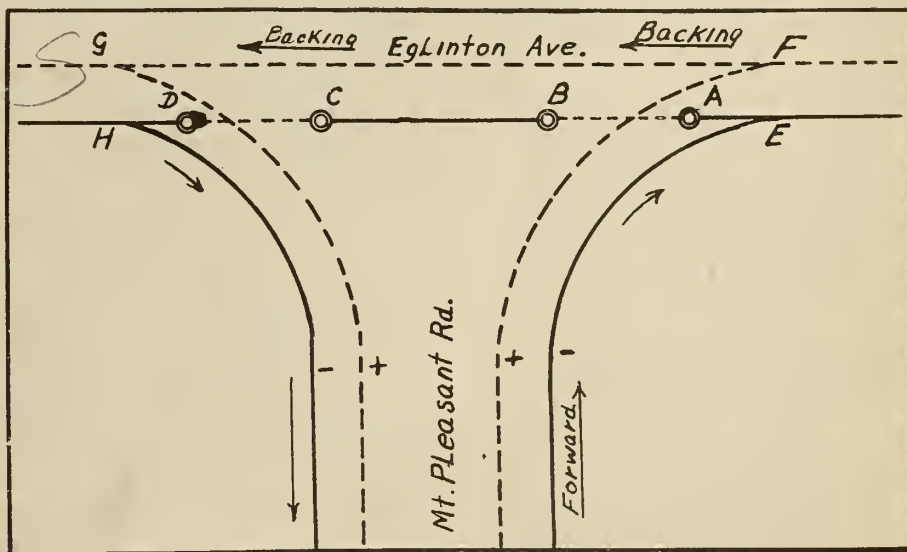


Fig. 4. Arrangement of wiring at Mount Pleasant Road and Eglinton Ave. Y.

no interference, and with power on. In backing up, it is necessary to throw off the power, and coast from A to B, a distance of 4 ft., between the two sectional insulators used to separate the wires of different polarity. Similarly, from C to D, the gap must be coasted over, two section insulators being also located at C and D. At E, F, G and H are spring switches, arranged so that

collection is now installed on all 4 buses. The illustration accompanying the description of the buses in Canadian Railway and Marine World for Jan., showed the bus equipped with but one pole, but in the Dec., 1921, number, an illustration of a bus tried in Detroit, very similar to those operating in Toronto, and equipped with two poles was given. Other details of the current collection appara-

tus include 2 standard bases, modified somewhat to suit conditions, employed on each bus. Some of the buses are equipped with 15 ft. poles, and the others with 18 ft. poles, and the poles are equipped with special swivel harps, ball bearing. The harps are insulated, so that the poles and bases are not alive, and the wires are led through the inside of the poles, which are of seamless welded steel. Trolley cords are used and O-B trolley catchers.

Two buses operate on the run specified, throughout the day, with an additional one placed in service during the rush hours, and a fourth is held in reserve. The p.a.y.e. system being used, but one man is required on each bus. A trip consumes approximately 10 min. each way, the total mileage made by the buses operating being 333.6 daily. From July 1 to 10, the number of passengers carried daily averaged 1700. Pending the commencement of operation of T.T.C. cars on North Yonge St., 3-part tickets are being sold to bus patrons, at 4 for 25c, one part of the ticket being good on the bus, the second part on the



Fig. 5 Overhead work at Mount Pleasant Road and Eglinton Ave. intersection.

Toronto and York Radial Ry. Metropolitan Division cars operating on Yonge St. as far south as the Yonge St. line's northern terminus, and the third part on the T.T.C. lines.

The 4 buses were obtained by the Commission from Packard Ontario Motor Co., which assembled the chassis in Toronto. The bodies were built by Canadian Brill Co., Preston, Ont., and the electrical equipment was supplied by Canadian Westinghouse Co. We are informed by W. Forsyth, in charge of the Commission's bus operations, that the results secured to date in operating the trackless buses have been highly gratifying, particularly since they were equipped with the double pole current collection, and that the service is proving very popular with the residents of the portion of the city served by them.

Conductors and Conductors.—Mrs. Musichound: "Do you consider Wilhelm Mingleberg our greatest conductor?" Mrs. Newlyrich: "Well, really, I so seldom use the trolleys nowadays."

The International Ry., Buffalo, N.Y., offered rewards totalling \$100,000 for information of those responsible for the dynamiting outrages on its lines during the 10 weeks the strike of its employees had lasted to that date. A reward of \$20,000 is offered for the apprehension of those responsible for the outrage on the Niagara Falls line on Aug. 17, and rewards of \$10,000 each are offered in 8 other cases of outrage.

Montreal Tramways Co's Operations for Year Ended June 30.

The Montreal Transportation Commission has issued its report on the Montreal Tramways Co's operations for the year ended June 30, from which the following is extracted:—

Receipts.	
Passengers	\$11,466,383.92
Freight	148,218.32
Car advertising	35,238.11
Freight car rental	1,804.30
Mail service	121.21
Prison cars	3,372.72
Miscellaneous	57,386.53
	\$11,712,525.11

Operating Expenses and Taxes.—The allowance for operating expenses was fixed at 26.62c a car mile for motor cars and 19.43c for trailers, at a density of 8.5. The company, having satisfactorily complied with the conditions laid down in regard to mileage and density, is entitled to receive the allowance granted.

Motor cars	20,916,979 car miles
Trailers	630,366 "
Total car miles	21,547,345
20,916,979 × 26.62c =	\$5,568,099.81
630,366 × 19.43c =	122,480.11

Plus 2½% authorized by contract....	\$5,690,579.92
	142,264.50

Total..... \$5,832,844.42

Actual Operating Expenses and Taxes.

Car service	\$3,034,566.24
Car house expense	234,801.83
Tracks, cleaning and sanding	88,824.91
Removal of snow and ice	212,510.30
Motive power	1,058,467.62
Salaries, general officers	75,500.00
Office salaries and expenses	166,260.98
Stationery and printing	23,425.83
Stores expenses	59,213.82
Stable expenses	13,923.10
Miscellaneous expenses	140,998.14
Injuries and damages	128,358.90
General legal expenses	14,838.17
Insurance	111,576.48
Mutual Benefit Association	21,408.55
Freight expense	66,774.43
Taxes	317,908.90
	\$5,769,403.20

Difference between allowance and actual expenditures \$ 63,441.22

Operating Profit.—The company, having kept its expenditures within the allowance, is entitled to its operating profit, \$47,959.98, being ½ of 1% of the average value of the capital during the year, \$38,367,983.68.

Maintenance and Renewals Fund.—The Commission fixed the allowance for this fund at 12.01c a car mile for motor cars and at 10.64c for trailers.

20,916,979 × 12.01c =	\$2,512,129.19
630,366 × 10.64c =	67,070.94

Total allowance \$2,579,200.13

Actual Expenses.

Maintenance track and roadway	\$375,109.88
" electric line	113,046.50
" buildings	64,573.21
" steam plants	51,454.50
" stations and platforms	9,522.93
" electric plants	33,843.29
" cars, body and trucks	496,963.52
" cars, electric equipment	312,740.63
Miscellaneous equipment	42,079.57
Shop expense	68,946.59
Renewals (part chargeable to this fund)	611,660.45
Value of properties and material discarded and scrapped	158,294.36
	\$2,368,235.33

Credit to the maintenance and renewal fund \$ 210,964.30

In the year 1920-1921, the company exceeded the allowance by \$381,521.88. The company was allowed by the Commission to appropriate this amount from the gross receipts. The city appealed from this ruling, on the ground, that this over-expenditure could not be appropriated from the gross receipts, and, in case that argument was not admissible,

that, at any rate, the maintenance and renewals fund could not be overdrawn and that any deficit would have to be paid by the company, with a possibility of being reimbursed in the following fiscal year. The Public Service Commission disallowed the city's appeal, and declared that there was no other means but to authorize the company to charge these expenditures to gross receipts, that it would not be sound administration to carry this deficit to the following fiscal year and that such expenditures must be paid out of the receipts of same year, being shown as such in the annual report, which must be an exact financial statement of the year.

Operations from July 1, 1921, to June 30, 1922.
Gross receipts \$11,712,525.11

Operating expenses and taxes	\$5,769,403.20
" profit	47,959.98
Maintenance and renewals fund	2,579,200.13
Interest on capital value	2,177,177.70
" 7% on additions	145,683.77
" 6% on working capital	6,596.10
Financing expenses	181,431.47
City's rental	500,000.00
Contingent reserve fund, 1% of gross receipts	117,125.25
	\$11,524,577.60

Surplus.....\$ 187,947.51

In the previous years there were deficits and the interested parties, in order to avoid an excessive rate of fare, have agreed not to exact immediate payment of the amounts due them.

General Statistics.

Total length of tracks	267,355 miles
Length of tracks in operation	249,116 miles
Gross receipts per mile of total tracks	\$43,808.89
Gross receipts per mile of tracks in operation	\$47,016.34
Gross receipts	\$11,712,525.11
Operating expenses and taxes	\$ 5,817,363.18
Maintenance and renewal expenses	\$ 2,579,200.13
Percentage of gross receipts devoted to operating expenses and taxes	49.67%
Percentage of gross receipts devoted to maintenance and renewals	22.02%
Percentage of gross receipts devoted to total operating expenses	71.69%

Transportation

Passengers (total number of)	262,053,226
Revenue passengers	188,201,367
Transfers	73,851,859
Percentage of transfers to number of revenue passengers	39.24%
Gross receipts per passenger (total) ..	4.47c
Gross receipts per revenue passenger ..	6.22c
Receipts per passenger (transportation of passengers only)	6.09c
Total operating expenses and taxes per revenue passenger	4.46c

How Car Fares Are Disposed of.—The Winnipeg Electric Railway Public Service News says: The car rider in Winnipeg will be interested in knowing just how his car fare is portioned out. The average car fare in Winnipeg, taking into consideration the low rate children's tickets, and the 5c Sunday fare, is 5.86c. Taking the Price, Waterhouse report to the city on the Winnipeg Electric Ry's 1921 expense account and apportioning this average fare of 5.86c on the basis of this report, it shows this average fare to be disposed of as follows: Wages of motormen, conductors, etc., 2.60c; city percentages and taxes, .44c; interest on bonds, loans, etc., 1.25c; maintenance (wages and material), .72c; general expenses, .43c; power, .23c; depreciation, .19c.

The Port Arthur, Ont., Civic Ry. is reported to have carried 11,890 passengers on Sept. 13, the big day of the autumn fair, and to have maintained a 6-minute service during the rush hours. It is claimed that this proves that one-man cars, which were put into operation on the line, are efficient and adequate.

Marine Department

American Association of Port Authorities' Annual Meeting.

The American Association of Port Authorities' annual meeting held at Toronto, Sept. 14 to 16, was attended by some 75 members. The only Canadian ports represented were, St. John, N.B., Quebec, Montreal and Toronto. United States ports were represented by members from Alabama, District of Columbia, Florida, Illinois, Louisiana, Maryland, Massachusetts, Michigan, Missouri, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Virginia and Washington. The chair was occupied by the Association's President, Benjamin Thompson, Consulting Engineer, Tampa, Fla.

The following papers were read and discussed:—

Ships, ports and commerce. By E. H. Outeridge, Chairman, Port of New York Authority.

What are the factors at a port which will determine the kind and amount of freight handling machinery and equipment that is justified?, by B. F. Cresson, Jr., consulting engineer, New York, N.Y.

Control of waste fuel oil in harbors, by Bancroft Hill.

Teaching port facts in university schools of commerce, business colleges and high schools of commerce, by R. E. Lambert, New York University, New York, N.Y.

The New Orleans Navigation Canal, by J. H. Walsh, General Manager, New Orleans port.

Chicago's port, past and future, by J. B. Strauss, Strauss Bascul Bridge Co., Chicago, Ill.

Free ports for the United States, by Captain F. T. Chambers, C.E.C., U.S.N., Washington, D.C.

The port of San Francisco, by J. H. McCallum, Harbor Commissioner, San Francisco, Cal.

The port and its relation to production, by F. W. Cowie, Consulting Engineer, Montreal Harbor Commission.

Destructive action of marine borers, by H. Von Schrenk.

Rail freight rates and the development of lake ports, by W. H. Adams, engineer, Detroit, Mich.

British port methods, by Brysson Cunningham, D.Sc., editor Port & Dock Authority, London, Eng.

Public operation of port terminal facilities, by W. S. Lincoln.

Resolutions.—It was decided to have a standing research committee of three members, to be appointed by the President each year, and to solicit and disseminate such information as may be deemed beneficial to the Association, or as may be requested by the membership, and applied for through the executive committee, committee to perform also such other duties as may be designated by the President and executive committee.

The President was authorized to appoint a committee of three, to examine and consider legislation proposed in the United States respecting the pollution of rivers, harbors, etc., by oil, and to request a hearing before the U.S. Congressional committee dealing with such legislation.

It was resolved that the Association is of the opinion that an effort should be made to bring about greater co-operation

between those responsible for development of ports, with a view to determining economy that could be effected by greater uniformity in port design and equipment, the President to appoint a committee to communicate the substance of the resolution to port authorities throughout the world, with a view to determining how far international co-operation in design, equipment and expenditure, may be possible and the best methods of bringing it about.

The following officers, etc., were elected:—President, M. P. Fennell, Jr., General Manager and Secretary, Montreal Harbor Commission; Vice President, J. H. Walsh, New Orleans, La.; Second Vice President, B. F. Cresson,

Dominion Marine Association.

Honorary President, A. A. Wright, President, Tidewater Shipbuilders, and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

President, T. R. Enderby, Operating Manager, Canada Steamship Lines, Montreal.

First Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Second Vice President, G. J. Madden, George Hall Coal Co. of Canada, Ogdensburg, N.Y.

Executive Committee, The President, First and Second Vice Presidents, and W. E. Burke, Canada Steamship Lines, Montreal; Yvon Dupre, Sincennes-McNaughton Line, Montreal; M. J. Haney, Canada Steamship Lines, Toronto; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transports, Montreal; Honorary members, L. L. Henderson and A. A. Wright, Montreal.

Counsel, Francis King, K.C., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

Jr., New York, N.Y.; Third Vice President, E. L. Cousins, Chief Engineer and General Manager, Toronto Harbor Commission; Secretary, T. S. McChesney, Assistant General Manager, Assistant Secretary and Assistant Treasurer, Orleans Port Commissioners; Treasurer, F. C. Marron, Seattle, Wash. Directors:—B. C. Allin, Houston, Texas; Major-General L. H. Beach, Chief of Engineers, U.S. Army, Washington, D.C.; C. W. Francis, Chicago, Ill.; E. B. Hegardt, Portland, Ore.; A. G. King, Port Director, Norfolk, Va.; C. T. Leeds, Engineer, Orange County Harbor Commission, Los Angeles, Cal.; Brig.-Gen. T. L. Tremblay, Commissioner and Chief Engineer, Quebec Harbor Commission, Quebec, Que. Executive Committee:—J. N. Cole, Public Works Commissioner, Boston, Mass.; J. H. McCallum, Harbor Commissioner, San Francisco, Cal.; B. Thompson, consulting engineer, Tampa, Fla.

New Orleans, La., was selected as the next place of meeting, and it was recommended that the date be as late in the year as possible. In view of the rapidly increasing improvements of the

Mississippi barge line, which will be seen and discussed at the next meeting, and in view of the newly constructed terminals of that line at St. Louis, Mo., it was recommended that as the majority of the members can go via St. Louis to New Orleans, the executive committee arrange for a preliminary meeting of such members as may be able to be in St. Louis on the day previous to the opening of the meeting at New Orleans, so that the St. Louis terminals may be inspected, and the members may travel together from there to New Orleans.

The social features included a hotel luncheon, given by the Toronto Board of Trade; a dinner at the Toronto Harbor Commission's Sunnyside pavilion, given by the city, and a luncheon at the Royal Canadian Yacht Club, given by the Toronto Harbor Commissioners. The Board of Trade luncheon's chairman was the President of the Board, D. A. Cameron, Manager, Canadian Bank of Commerce, Toronto branch, the other speakers being B. Thompson, President of the Association, and Brysson Cunningham, D.Sc., editor, Port & Dock Authority, London, Eng. The City Council dinner's chairman was Mayor Maguire, the other speakers being T. L. Church, M.P., for North Toronto; B. Thompson, President of the Association; J. B. Strauss, Strauss Bascul Bridge Co., Chicago; Dr. W. L. McDougald, President, Montreal Harbor Commission, and J. N. Cole, Commissioner of Public Works, Boston, Mass. Mr. Church strongly advocated the construction of the proposed St. Lawrence deep waterway, which Mr. Cole as strenuously opposed. The Toronto Harbor Commission's luncheon was presided over by the Commission's chairman, R. Home Smith, the other speakers being B. Thompson, President of the Association; and J. H. Cohen, Counsel, New York-New Jersey Port and Harbor Development, New York, N.Y. After the Toronto Harbor Commissioners' luncheon the members made a trip on the Commissioner's yacht throughout the harbor and were given every opportunity to see the whole of the development work. The ladies accompanying the members in addition to being at the luncheon at the Royal Canadian Yacht Club, were entertained at a hotel luncheon, a theatre party and a golf club dinner.

A considerable number of the Association's members left Toronto, Sept. 16, by Canada Steamship Lines steamship, and arrived in Montreal on Sept. 17, spending Sept. 19 in an inspection of the port.

U.S. Wooden Steamships Sold.—The U.S. Shipping Board Emergency Fleet Corporation has sold 226 wooden steamships, comprising practically its entire wooden fleet, to G. D. Perry, an attorney, of San Francisco, Cal., for \$750,000, or a little over \$3,318 for each ship. One of the conditions of the sale was that they will not be operated as steamships and will promptly be dismantled as such.

Grain Shipments Through Vancouver.—Between Sept. 1, 1921 and Aug. 31, 1922, 7,552,044 bush. of grain were shipped through Vancouver, against 460,000 bush. during the previous 12 months.

Dominion Government Dredge No. 16.

Dominion Marine Association's Activities.

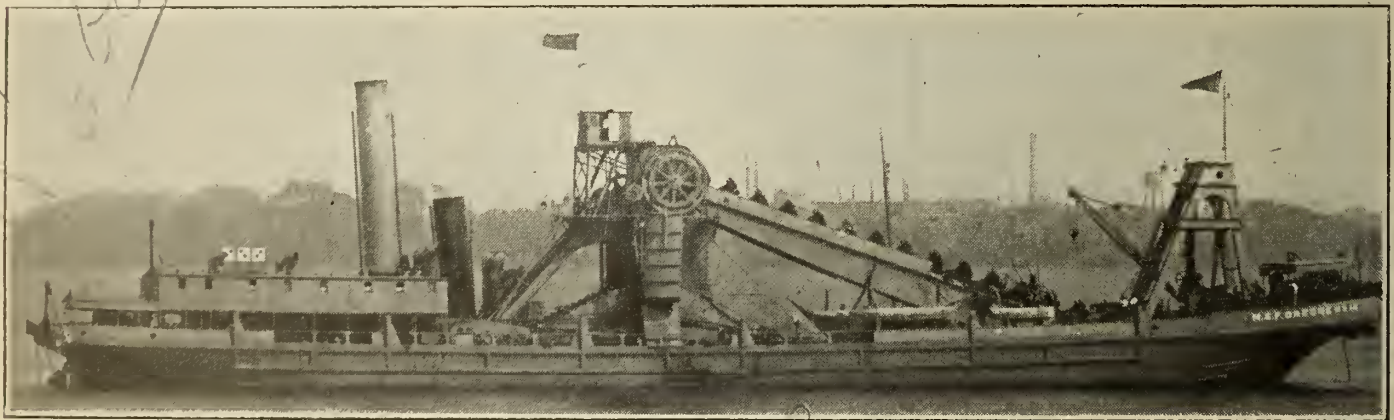
The twin screw hopper and barge loading dredge no. 16, which was completed for the Dominion Government, by Canadian Vickers, Ltd., in July, and which is illustrated herewith, was accepted finally by the Marine Department, Aug. 21, after having undergone a series of trials. It is one of the largest of its kind in the world, the dimensions being: Length overall, 292 ft.; breadth moulded, 48 ft.; depth moulded 20½ ft. It is of the self-propelling, center bucket ladder, self-loading, or barge loading, type, and is capable of dredging and discharging into barges on either side, at the rate of 1,500 tons of soft material an hour, or a proportionately less amount of gravel, stiff clay or other material. It is also capable of digging a channel to a maximum depth of 57 ft. below the water surface, and of cutting its own flotation through shoals, and discharging into its own hopper, or on barges. There are 2 complete sets of 43 buckets each, one for soft material, each of 54 cu. ft. capacity, and the other for stiff clay and hard material, each of 30 cu. ft. capacity. The hull is of steel, and the dredge throughout is built and equipped, under Lloyd's special survey, to class 100 A1, and also

The bucket ladder, with its string of buckets, is suspended from the main frame at the top end, and is free to hinge about same. The lower end is raised and lowered to the necessary dredging depth, by a steam driven hoisting gear, with winding drum and wire rope, led to top of forward frame on forecastle deck. The steam gear is in the forward hold, with control levers on the upper deck. The hopper well is of 1,500 tons capacity, and is stiffened by internal cross divisions and longitudinal girders. The mooring arrangements are very complete, consisting of bow and stern winches, steam driven, together with bow and stern fair leads, all of special design and rugged construction, and capable of moving the ship when at dredging station, either forward or aft, or port or starboard, as required. The forward bow winch also acts as a windlass, to operate the 2 bower anchors used for ordinary navigation purposes. There are also 4 powerful warping capstans. A combined steam and hand steering gear, of the chain barrel type, is installed in the engine casing, with control rods to the wheel house on the navigating bridge. There is accommodation for a crew

The revision of the grain shipping contract has been under active discussion recently, with a view to the inclusion of a demurrage clause. The matter has been referred to a sub-committee of the Association, to negotiate with special parties, but no final action in the proposed direction has been taken.

The Association's efforts to secure a reduction in the grain shovelling charges at terminal elevators, has met with success, a reduction of 35c per 1,000 bush. having been arranged at the railways' elevator and at other eastern terminals, except Port Colborne and Montreal, effective from June 1. Later, a proportionate reduction of 25c per 1,000 bush. was agreed upon by the Montreal Harbor Commissioners, effective from July 1.

The Association has interested itself in various improvements in navigation channels between the head of the lakes and Montreal, aids to navigation throughout the route have been under consideration, and recommendations have been made to the Lighthouse Board and the various departments concerned. Particular attention has been devoted to the dam under construction in Cedar Rapids, at of Isle aux Vaches; the middle ground at



Dredge 16, built for Marine and Fisheries Department, by Canadian Vickers, Ltd., Montreal.

to Canadian Government inspection. The propelling machinery consists of 2 sets of triple expansion, surface condensing, engines, with cylinders, h.p. 17 in., i.p. 27 in., and l.p. 43 in. diam., by 27 in. stroke. The main engines are so arranged that either can drive the dredging gear. There are 2 boilers, each 15½ ft. diam. by 11½ ft. long, of the single-ended marine type, supplying steam at a working pressure of 180 lb. a sq. in., and built to Lloyd's and Canadian Government Steamboat Inspection rules. The dredging machinery consists of a train of spur wheels and pinions, forming reduction gear, with friction wheels for driving top tumbler on bucket ladder. The transmission gear consists of a clutch gear, coupled to crank shaft of each main engine, arranged for two speeds of 12 small, or 18 large, buckets a minute, from thence by shafting and bevel gearing to the main gear already mentioned. All gear wheels are of cast steel, with double helical teeth and shafting of fluid pressed steel, the whole being of extra massive construction. The main frame amidships is a piece of extra strong structural steel work, supporting the dredging gear, bucket ladder and navigating platform, and on it are also the mud shoots and doors for directing the flow of soil overboard to either side, or to the dredge's own hopper, to either side, fore and aft.

about 40, the officers and engineers being berthed in rooms on the bridge deck, and the seamen and firemen on the lower deck amidships, with separate mess-rooms. The dredge is steam heated throughout, and has complete electric lighting, sanitary and ventilating arrangement. It was designed by Wm. Simmons & Co., Renfrew, Scotland. A more complete and illustrated description of it was given in Canadian Railway and Marine World, for January, pg. 48.

Vancouver Drydock Etc.—Hon. J. H. King, Minister of Public Works, is reported to have stated at a luncheon given him by the Vancouver Board of Trade, Sept. 16, that a drydock for Vancouver is not an early possibility, and to have said,—"When you go to the people of eastern Canada and try to tell them, at a time when the government is reaching out for new revenues and new taxation, that it is necessary to start two drydocks on the Pacific coast, you have some explanation to make." He considered in any event that the development of the grain trade through Vancouver should come first. That the greatest lack in the port at present is not grain storage facilities, but appliances for cleaning and drying grain, and that it was this shortage which caused the congestion at the port.

Port Huron; the shoals below the lock at Sault Ste. Marie; the Port Colborne breakwaters, etc.

Regarding the proposal for a suspension of the coasting laws on account of a slightly lower grain rate to Buffalo prevailing, as against the rate to Georgian Bay ports, the Association has had considerable correspondence and some interviews with the Minister of Trade and Commerce, and the Association's statements as to the position of Canadian ships, and the advantage enjoyed by U.S. tonnage, as well as with reference to the whole movement of export grain, were accepted by the authorities as a sufficient answer to the claims made by certain shippers, and no action was taken toward the proposed suspension. Attention was particularly called to the provisions of the statute, which permits the suspension of the coasting laws by order in council, only when reciprocal privileges are extended in a foreign country.

Wheat Shipments Through Vancouver, B.C.—During July, wheat was shipped through the Dominion Government elevator at Vancouver, as follows: To United Kingdom, s.s. Gladiator, 74,666 bush.; s.s. Mongolian Prince, 108,445 bush.; to Japan, s.s. Africa Maru, 16,566 bush.; s.s. Hawaii Maru, 33,083 bush.; total, 232,760 bush.

Canadian Government Merchant Marine Ltd., Operation, Etc.

The s.s. Canadian Commander completed her repairs at Canadian Vickers Ltd. yard, Montreal, during September, after running ashore at Plate Point, Little Miquelon, July 3, when she sustained considerable hull damage. She was released, after stranding, by the Quebec Wrecking & Salvage Co's s.s. Lord Strathcona and barge G.T.D., assisted by the steam trawler Sadie Mac and the s.s. Sable, the refloating being accomplished by duplex and Gwynne pumps. She was then taken to St. Pierre, Miquelon, where temporary repairs were effected, and afterwards proceeded to Montreal.

The s.s. Canadian Pioneer, which, as mentioned in our last issue, collided with an iceberg, about 9 miles east of Belle Isle Strait, towards the end of July, and afterwards put into North Sydney, N.S., had several shell plates buckled, causing considerable leaking in the starboard bow, forward of the collision bulkhead. While at North Sydney, a diver was requisitioned and the leaks were plugged from the outside, and the damaged part cemented inside, and further reinforced by cross timbers, in place of partially distorted beams, stringers and frames. She left North Sydney, July 29, on her voyage to the United Kingdom, where permanent repairs were made.

The s.s. Canadian Transporter, while on her route between Canada and New Zealand, in the early part of July, received a wireless call from the French steel sailing ship France, asking for help, the ship being a wreck off the coast of New Caledonia, in the southern Pacific, and the crew being in grave danger. Though she was some 220 miles away, the Canadian Transporter proceeded immediately at full speed for the wreck, but after having covered over half the distance, she was advised by the Brisbane wireless telegraph station, that the crew, who had abandoned the ship, had landed, without any loss of life, at New Caledonia, on which the Canadian Transporter resumed her voyage.

The Canadian Transporter was docked at Esquimalt, Aug. 31, to have a new propeller blade fitted, and later went to Chemainus to load lumber for Australia, and sailed Sept. 12.

The s.s. Canadian Trooper has been awarded \$25,000 by the Admiralty Court at Montreal, as salvage for towing the Norwegian s.s. Otta into St. John's, Nfld., in Oct., 1921, when she was in danger of foundering, about 600 miles from Newfoundland. The amount has been apportioned as follows: Owner, \$17,000; master, \$1,500; first officer, \$700; second officer, \$500; chief engineer, \$800; second engineer, \$500; wireless operator, \$500; the balance of \$3,500 to be divided between the other officers and crew, according to their rating. The owners of the Otta, who had offered \$12,500 in settlement of all claims, were also taxed the costs of the action. The Otta, with a crew of 30, was outward bound from Montreal, for Denmark, with grain, and on Oct. 8, when about 500 miles from Belle Isle Strait, sent out a wireless call for help, as her rudder stock was broken, and she was helpless. The Canadian Trooper, inward bound to Montreal, changed her course, and went to the Otta's assistance. The parties, for the purpose of the case, agreed that the value of the Canadian Trooper was \$150,000, and her freight and cargo, \$5,533.17, and the value of the Otta, \$105,000 and her freight and cargo, \$141,142. On the

Trooper's arrival, the Otta was rolling heavily, and in a critical condition, having sustained considerable damage, some of her deck equipment having been washed overboard. She was then, and continued until near the Newfoundland coast, in great peril. Both ships were in great peril during the tow, as tempestuous weather, intermittent gales, and high seas continued throughout. Lines, ropes and wires used in towing, parted almost daily, and both ships, in renewing these, were exposed to imminent risk of collision. The Trooper sustained considerable damage to her equipment and lines, and devoted 10 days to the salvage services. The master and officers displayed great skill and courage of a high degree in the services rendered. The total distance travelled from the time the Trooper went alongside the Otta, until both ships reached port, was over 600 miles. The court considered the amount offered by the Otta insufficient, the cost of operating the Trooper while rendering the service, and the repairs necessitated thereby, being \$6,095.48.

Officers of Steamships.—The following appointments of chief engineers have been made since those mentioned in previous issues.—Canadian Aviator, J. Still; Canadian Commander, F. C. Brown; Canadian Constructor, J. J. R. Pringle; Canadian Navigator, S. Evans; Sheba, J. Hoey.

Pacific Coast Steamship Services.—A Vancouver press dispatch states that the Canadian Government Merchant Marine's local officials have received no word that would indicate the intended disposal of the coastwise ships, but that they have issued a statement, that in the event of the ships being sold, their places will be taken by larger ships; that there is no intention of abandoning the coastwise service, which is said to be one of the most satisfactory of the entire fleet. Larger ships on the California run would mean more space for cargoes, and at present all ships are loaded to full capacity including deck, when they sail south from B.C. ports, and more freight could be taken if there was more space.

Coal Shipments from Australia.—The steamships Canadian Britisher, Canadian Highlander, Canadian Traveller, Canadian Transporter and Canadian Scottish, which are taking lumber to Australia, have been chartered to the Canadian Trading Co., Vancouver, B.C., for their return trips, to load about 7,500 tons of coal at Newcastle, New South Wales, about 4,000 tons of each cargo to be unloaded at Honolulu, and the balance at some U.S. mainland ports.

Burial Ritual by Wireless.—A press report says: There have been many stories of the strange uses to which wireless communication has been put on the high seas, but the Cunard liner Carmania, brought in a new one on her arrival at Liverpool from New York, recently. While off the Irish coast the liner's operator picked up a message asking that the ritual for burial at sea be sent in full. The strange request came from the Canadian Government Merchant Marine s.s. Canadian Trooper.

Montreal Sailings.

Liverpool Service.—Canadian Ranger, Oct. 11; Canadian Spinner, Oct. 25; Canadian Mariner, Nov. 8; Canadian Ranger, Nov. 22.

London Service.—Canadian Leader, Oct. 11; Canadian Constructor, Oct. 25;

Canadian Commander, Nov. 8; Canadian Cruiser, Nov. 17.

Glasgow Service.—Canadian Squatter, Oct. 21; Canadian Carrier, Nov. 18.

Cardiff and Swansea Service.—Canadian Runner, Oct. 14; Canadian Navigator, Oct. 28; Canadian Otter, Nov. 11.

Australia and New Zealand Service.—Canadian Miller, Oct. 26; Canadian Planter, Nov. 23.

Barbadoes, Trinidad and Demerara Service.—Canadian Beaver, Oct. 11; Canadian Logger, Oct. 25; Canadian Coaster, Nov. 8; Canadian Harvester, Nov. 22.

Bermuda, Bahamas, Jamaica and British Honduras.—Canadian Forester, Oct. 5; Canadian Fisher, Oct. 26; Canadian Forester, Nov. 16.

St. John's, Newfoundland, Service.—Canadian Sapper, Oct. 18, Nov. 2, Nov. 18.

Vancouver Sailings.

Australian Service.—Canadian Britisher, Oct. 22; Canadian Highlander, Nov. 1; Canadian Skirmisher, Nov. 20; Canadian Traveler, Dec. 20.

Oriental Service.—Canadian Prospector, Oct. 25; Canadian Winner, Nov. 30.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

46. July 28.—129, British Columbia, Vancouver Island, west coast, Alberni Canal, Port Alberni, lighthouse destroyed. 130. British Columbia, Strait of Georgia, Vancouver harbor entrance, First Narrows, inner beacon established. 131. British Columbia, Smith Sound, Browning Passage, entrance to Takush harbor, uncharted rocks.

47. July 31.—132, Quebec, St. Lawrence River, between Quebec and Montreal, above Three Rivers, gas buoy to be placed temporarily, caution. 133. Newfoundland, north coast, Jacques Cartier Island (Noble Island), light discontinued.

48. Aug. 3.—134, Ontario, Lake Huron, Cape Hurd channel, range day beacon established. 135, Ontario, Lake Superior, Mission River entrance, buoy placed.

49. Aug. 9.—136, British Columbia, Vancouver Island, Victoria harbor, dredging. 137, British Columbia, Burrard Inlet, Vancouver harbor entrance, buoys discontinued. 138, British Columbia, Seaforth channel, Raven Cove, uncharted rocks.

50. Aug. 12.—139, British Columbia, Vancouver Island, Esquimalt harbor, beacon erected. 140, British Columbia, entrance to North Arm of Fraser River, inner beacon destroyed. 141, British Columbia, Queen Charlotte Islands, Darwin Sound, Amur Rocks, buoy established.

Vancouver Harbor Commissioners.—The newly appointed harbor commissioners held their first meeting Sept. 1, when the new members, R. E. Beattie and S. L. Prenter were sworn in. Lieut.-Col. Kirkpatrick, who was chairman of the old board, is continuing in that position.

British Shipbuilding.—A London press dispatch says that the revival of shipbuilding in Great Britain is indicated by the fact that the largest month's output this year was recorded in August, during which month Clyde shipyards launched 14 ships, aggregating 53,000 tons.

Atlantic and Pacific Oceans.

Manchester Liners Ltd. announce that its steamship service between Manchester, Eng., and Canadian ports, which has hitherto been a fortnightly one, has been made a weekly one, since the addition of the s.s. Manchester Regiment.

The Head Line s.s. Bengore Head, 1,512 tons net, arrived at Montreal, Sept. 6, on her maiden voyage. She was built for the company's Baltic trade, but on account of the depressed condition of the trade in that region, was transferred to the Montreal service.

Furness Withy and Co's s.s. Comino, outward bound from Montreal to Hull, Eng., was reported ashore about 2 miles below Pointe aux Trembles, near Montreal, Sept. 15. The channel at that point is between 400 and 500 ft. wide, and it is reported that there was ample depth of water.

On the arrival of the Head Line's s.s. Melmore Head at Belfast, Ireland, from Canada, recently, presentations of a piece of plate for the ship and medals and diplomas for the crew were made on behalf of the Norwegian Government, for services in rescuing the s.s. Mod's crew last January.

The White Star-Dominion Line announced recently that owing to increased demand for freight accommoda-

tion in the Canadian service, the s.s. Darian, launched at the end of August, at Glasgow, Scotland, for the Leyland Line, will be operated by the White Star Dominion, and that she would sail from Glasgow, for Montreal, Sept. 23, with a cargo of coal. Her dimensions are,—length 425 ft., breadth 52 ft., depth 29½ ft.; tonnage, 6,425 gross.

The Cunard Line's s.s. Ausonia, the fifth new steamship placed on the St. Lawrence route this year, by the company, arrived at Montreal, Sept. 11, on her maiden voyage from Liverpool, Eng. She is 15,000 tons gross, and a sister ship of the Andania and Antonia. Her dimensions are,—length 540 ft., breadth 65 ft., depth 43 ft. She is equipped for oil burning, and has accommodation for 600 cabin and 1,200 third class passengers. She sailed from Montreal, on the return trip, Sept. 16.

The s.s. Baluchistan, registered as owned by the Hindustan Steamshipping Co., Newcastle, England, outward bound from Montreal, ran ashore near White Islet, Aug. 26, during a storm. The Quebec Wrecking and Salvage Co's s.s. Lord Strachona was dispatched to her, and it was necessary to unload her before refloating. White Islet, on Hare Island north reef, is about in the middle of the St. Lawrence River, between Cacouna Island and Cape Dogs. It is small and sandy, with trees about 40 ft.

high, and at low water, when the reef is showing, it appears only as a clump of trees on the reef. A light vessel is moored in 8 fathoms of water about 3¼ cables northeastward of the north-eastern end of White Island reef.

Manchester Liners' s.s. Manchester Regiment arrived at Montreal, Sept. 6, on her maiden voyage. She is under the management of Furness, Withy and Co., who entertained a number of shippers on board. She was built by Furness Shipbuilding Co., Haverton Hill-on-Tees, Eng., and was especially designed for the requirements of the service between Manchester and Montreal, via the Manchester Ship Canal and the St. Lawrence River. On her recent trials she maintained a sea speed of 15.5 knots an hour, which makes her the fastest cargo steamship on the St. Lawrence route. She is of the 'tween deck type. Owing to the arrangement of decking, she has a total cargo stowage capacity of 618,800 cu. ft., increased by 20,000 cu. ft. when oil is used as fuel. The hull is divided into 7 watertight compartments. There are 4 large cargo holds, each served by a hatch 20 ft. wide. The propelling machinery consists of geared turbines driving a single screw through single reduction gearing. The high pressure turbine is placed on the starboard side and the low pressure turbine on the port side, and they are designed for a maxi-

Ships Registered in Canada During June and July, 1922.

In compiling the following lists of ships registered, steamboats and motorboats operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, n.h.p. etc.	Owner or Managing Owner
103565	Aube (1)	Montreal	Newcastle, Eng. ....1896	214.3	40.2	18.5	1,638	923	160 Sc.	D. H. Mapes, Jr., Montreal.
141676	Berryton (2)x	Toronto	Loraine, Ohio .....1908	480.0	52.0	25.6	6,221	5,023	181 Sc.	Mathews Steamship Co., Toronto.
141678	Charles Dick	Toronto	Collingwood, Ont. ....1922	244.0	43.2	18.9	2,015	651	150 Sc.	National Sand & Material Co., Welland, Ont.
144625	Gaspesia x	Quebec, Que.	Rosbeck .....1909	214.6	32.1	13.7	1,014	520	1,000 Sc.	E. Bouchard, Quebec, Que.
150701	Gemma (3)x	Montreal	Fort William, Ont. ....1918	135.6	22.6	12.7	321	149	95 Sc.	G. E. Humble, Montreal.
141580	Grace Hankinson	Weymouth, N.S.	Montreal .....1917	84.0	19.2	10.0	123	59	24 Sc.	Weymouth Transportation Co., Weymouth, N.S.
150561	Grifco x	Victoria, B.C.	Seattle, Wash. ....1920	220.0	40.1	18.6	1,426	812	151 Sc.	Coastwise Steamship & Barge Co., Vancouver, B.C.
116575	Jas. P. Donaldson	Fort William, Ont.	Marine City, Mich. ....1880	160.0	30.0	13.6	504	275	66 Sc.	N. M. Paterson Co., Fort William, Ont.
138185	John Jr.	Collingwood, Ont.	Byng Inlet, Ont. ....1922	62.0	16.0	5.8	46	7	13 Sc.	W. E. Bigwood, Byng Inlet, Ont.
150236	La Plante	Midland, Ont.	Midland, Ont. ....1922	60.5	15.0	7.4	55	7	17 Sc.	W. J. Bell, Sudbury, Ont.
150298	Mac Hincry	Sydney, N.S.	Montreal .....1917	81.2	19.2	10.5	108	35	24 Sc.	W. E. Clarke, Sydney, N.S.
150654	Norsal xx	Vancouver, B.C.	Vancouver, B.C. ....1921	122.4	19.2	10.6	168	95	26 Sc.	Powell River Co., Vancouver, B.C.
150702	Powerco	Montreal	Hull, Eng. ....1918	75.1	15.1	6.7	71	5	20 Sc.	Montreal Light, Heat & Power Co., Montreal.
150451	Ruby L. II.	Annapolis Royal, N.S.	Margaretsville, N.S. ....1921	106.2	24.0	8.7	201	118	21 Sc.	J. A. Balcom, Margaretsville, N.S.
141677	Screamer	Toronto	Callander, Ont. ....1922	71.0	16.0	7.8	67	17	24 Sc.	J. B. Smith & Sons, Toronto.

(1) Formerly Rosemount. (2) Formerly B. F. Berry. (3) Formerly Eureka. xEquipped with wireless. xxMotorboat.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owner or Managing Owner
141848	Bernon L. (1)	Quebec, Que.	Barge	Three Rivers, Que. ....1919	195.1	40.4	15.4	990	932	Transportation & Shipping Co., Quebec, Que.
150668	Dredge P.W.D. No. 311	Vancouver, B.C.	Dredge	Nakusp, B.C. ....1912	70.7	30.0	6.2	178	178	Minister of Public Works, Ottawa.
141849	Fredon L. (1)	Quebec, Que.	Barge	Three Rivers, Que. ....1919	196.1	40.1	15.3	983	926	Transportation & Shipping Co., Quebec, Que.
98552	Garthgarry (1)	Montreal	Barque	Dumbarton, Scotland ....1891	237.5	36.2	21.5	1,416	1,309	Marine Navigation Co. of Canada, Montreal.
99207	Garthpool	Montreal	Ship 4 masts	Dundee, Scotland ....1891	310.0	45.0	25.1	2,842	2,652	" " "
93850	Garthway	"	Ship	Workington, Eng. ....1889	264.0	39.0	23.6	1,937	1,791	" " "
150791	L.B.S. & G. Co. No. 10	Winnipeg	Scow	Winnipeg ....1922	92.0	32.0	4.0	220	220	Lake Bar Sand & Gravel Co., Winnipeg.
150530	L.B.S. & G. Co. No. 20	"	Scow	"1922	131.0	32.6	7.6	242	242	" " "
150259	L.B.S. & G. Co. No. 21	"	Scow	"1922	131.0	32.0	7.6	242	242	" " "
141850	Laureon L. (1)	Quebec, Que.	Barge	Three Rivers, Que. ....1919	196.0	40.3	15.4	1,123	1,089	Transportation & Shipping Co., Quebec, Que.
150663	M.B.D. No. 3	Vancouver, B.C.	Scow	Vancouver, B.C. ....1922	90.0	30.0	7.7	174	174	J. K. McKenzie, Vancouver, B.C.
141222	Maid of Scotland	Weymouth, N.S.	Schr.	Grosses Coques, N.S. ....1919	142.4	32.5	12.3	422	371	F. K. Warren et al, Halifax, N.S.
150513	R. F. No. 7	New Westminster, B.C.	Barge	Marpole, B.C. ....1922	88.0	32.9	9.0	179	179	R. Fenton, New Westminster, B.C.
141360	Ridea u	Ottawa, Ont.	Dredge	"	72.0	24.7	5.0	192	137	Minister of Railways and Canals, Ottawa, Ont.
135293	Sir J. J. L.J. No. 12	Vancouver, B.C.	Barge	Victoria, B.C. ....1913	90.0	33.3	8.9	225	225	Northern Construction Co., Vancouver, B.C.
72964	Stuart H. Dunn (2)	Toronto	Barge	South Marysburg, Ont. ....1877	164.8	26.8	12.7	484	458	John E. Russell, Toronto.
150379	Swapping Scow No. 2	Montreal	Scow	Twin Falls, Ont. ....1919	60.5	23.7	4.8	132	132	Abitibi Power & Paper Co., Montreal.
150667	V. T. B. No. XII	Vancouver, B.C.	Scow	Vancouver, B.C. ....1922	89.5	32.9	9.0	222	222	R. F. Marpole, Vancouver, B.C.

(1) Formerly a steamship. (2) Recovered wreck.

mum of 5,000 h.p. Steam is supplied by 4 cylindrical, single ended, multitubular boilers, fitted with smokebox superheaters and forced draft, with oil burning apparatus. The cargo handling equipment is of the most modern type for easy and rapid handling. Her dimensions are,—length over all 471½ ft., length b.p. 450 ft., breadth extreme 58 ft., depth moulded to upper deck 31 ft., height of shelter 'tween decks 10 ft., height of main 'tween decks 10 ft., tonnage, 7,390 gross, 4,947 net, 11,600 d.w.

Maritime Provinces and Newfoundland.

The Cape Pine Shipping Company Ltd., St. John's, Nfld., has gone into liquidation, with T. Cook and W. R. Neal as liquidators.

The Dominion Government s.s. Lady Laurier sailed from Halifax, N.S., Aug. 31, on a supply trip to light stations between Halifax and St. Paul Island.

The Newfoundland schooner L. Morton, was reported to have been lost at Port Manvers, on the Labrador coast, Aug. 27, during heavy westerly weather. The crew were landed safely.

Heavy shipments of fish from Newfoundland to Mediterranean ports were reported during September. It is stated that approximately 165,000 quintals were shipped during the month.

The revenue from the St. John, N.B., ferry service for August, decreased \$881.16 from August 1921. A general falling off in traffic is reported, there being a decrease of 44,766 in passengers and 2,148 in vehicles for Aug. 1922, compared with Aug. 1921.

The steam yacht Ewayea has been bought by V. Bacha, Curling, Nfld., from S. A. Williamson, St. John, N.B. She was built in 1912 for pleasure trips on the St. John River and is to be used for towing in the Bay of Islands, on the Newfoundland west coast.

A French steam trawler, operating out of St. Pierre, Miquelon, when returning to port, from the Banks, towards the end of August, ran ashore at Langley, and was expected to be a total loss. She ran on the rocks, during a dense fog, while going at full speed, and sustained considerable bottom damage, there being little likelihood of refloating her.

The schooner Maid of Canada, owned in La Have, N.S., bound from a U.S. port to Halifax, N.S., with bituminous coal, sank near Halifax, Sept. 4, after collision with the s.s. Sadie Mac. The crew were saved and taken to Halifax on the Sadie Mac. The Maid of Canada was 330 tons net, built at Weymouth, N. S., in 1918, and owned by Zwicker Bros., Mahone Bay, N.S.

The s.s. Convallaria, a wooden steamship registered as owned at Gardentown, Banffshire, Scotland, was libelled at Chatham, N.B., recently, by Eastern Stevedores Ltd., as guarantee for an action for \$1,780 against the owners for breach of contract. It is claimed that an agreement was made by the ship owners to engage the stevedores, which engagement it is said was made by cable.

The Newfoundland Government's estimates for the current year include subsidies for steamship services as follows,—Ocean, Port aux Basques, Nfld., and North Sydney, N.S., \$30,000; occasional service \$5,000; Postal Union, \$5,000; Coastal,—Bay of Islands, \$8,200; Bell

Island, \$5,000; Fogo District, \$40,000; Fortune Bay District, \$15,000; Labrador \$80,000; northeast coast, \$40,000; Port aux Basques and Placentia, Nfld., and Sydney, N.S., \$40,000; Notre Dame Bay, one steamship, \$35,000; Placentia Bay, \$32,760; St. George's Bay \$17,500; Battle Harbor and Humbermouth, \$35,000; Bonavista and Trinity Bays, \$35,000.

The Dominion Coal Co., as charterer of the British s.s. Lord Strathcona from the Lord Curzon Steamship Co., of Liverpool, Eng., has obtained judgment in England on a claim for loss of services of the steamship while under charter. The ship was chartered by the Dominion Coal Co. in April, 1914, for 10 years, for the St. Lawrence coal service, and she was twice requisitioned for war work. The judgment was that the Lord Curzon Steamship Co. pay the charterers two-thirds of the difference between the hire they would have received from the chartered party, and the money they had received in the course of the government requisition.

The Reid Newfoundland Co's s.s. Home, ran ashore, Sept. 11, at Barge Point, on the Labrador coast, a few miles east of Amour Point, where H.M.S. Raleigh was wrecked during August, and she is reported to be a total loss. She had been engaged in the company's freight and passenger service, between Bay of Islands, Nfld., and Labrador points, for some years. She was built at Pointhouse, Scotland, in 1900, for the Newfoundland service, was screw driven by engine of 99 h.p. Her dimensions were, length 154.7 ft., breadth 25.1 ft., depth 12.6 ft.; tonnage, 439 gross, 200 net. Barge Point, which is on the southwest side of Barge Bay, is low, and Barge Bay, the northeast point of the entrance of which is about 2½ miles southwest of Wreck Bay, is about 1½ miles wide at the entrance, and about ¾ of a mile deep. There is a temporary shelter for small ships, from westerly winds, and a small village at the head of the bay.

The s.s. Bassan owned formerly by the United States Shipping Board, which was wrecked about a year ago at St. Pierre, Miquelon, was floated from the blocks at Huntley's shipyard, Parrsboro, N.S., Aug. 23. She was built at Portland, Maine., in 1916, and trouble with her commenced immediately she was put in service for war transport purposes. She was in trouble in France, which delayed her return to the U.S., at the close of the war, and on her homeward

trip she ran ashore at Newfoundland, and after being released she again ran ashore at St. Pierre, Miquelon, when she was seriously damaged. She was then sold to a French firm at St. Pierre, and after being refloated, was sent to Halifax, N.S., for examination and later was sent to Parrsboro, N.S., where she was repaired. The repairs were delayed for a considerable time, owing to the owners' shortage of funds, and the crew with other creditors libelled her for their claims, and she was sold as she lay to Piper and Paige, of Maine. She lay on the blocks at Parrsboro during the winter, filling and emptying with each tide, and in the spring of this year, work proceeded on the completion of the repairs, and on being floated off the blocks, she was towed to Portland, Me., by her new owners.

Province of Quebec.

It was reported at the end of August, that the cattle exports out of Montreal, for this current season, were greater than during the whole of last season, the number, to Aug. 23, being 32,358 head, compared with 31,217 for the 1921 season.

The Montreal Harbor Commissioners are reported to have bought 5,000,000 ft. of lumber in British Columbia, for shipment this year. It is stated that the C.P.R. s.s. Monteagle has been secured for carrying half of it from Vancouver to Montreal, via the Panama canal.

From the reopening of navigation to the end of August, 80,248,953 bush. of grain were handled in the port of Montreal, or some 5,000,000 bush. more than in the entire season of 1914, which was the best year in the history of the port, prior to 1921. The bulk of the grain was U.S. wheat.

Work is proceeding on the addition to the 1,000-ft. piers in Montreal harbor, and it is expected that about two-thirds of it will be completed before winter. The addition of 300 ft. to the Alexandra pier is also well under way. The contractor, Atlas Construction Co. is required to have the crib work and structure completed by Oct. 31, and the lower half of the superstructure by Dec. 15. The balance of the work is to be finished by May 31, 1923.

Canada Steamship Lines s.s. Rapids Prince, which went ashore off Heron Island, below the Lachine Rapids, July 30, was released Sept. 9. A cable was stretched from the ship to a small island

Ships Added to and Deducted from the Canadian Register During June and July, 1922.

Added.	Steam.—Tonnage—			Sailing.—Tonnage—		
	No.	Gross	Net	No.	Gross	Net
Built in United Kingdom.....	1	71	5	.....	.....	.....
Built in British Possessions.....	8	2,453	877	7	1,718	1,612
Built in Canada.....	32	955	485	14	1,313	1,313
Other ships.....	1	321	149	.....	.....	.....
Bought from foreigners.....	12	10,089	7,199	.....	.....	.....
Transferred from U. K. ports.....	1	1,014	520	3	6,195	5,752
Registered anew.....	6	219	199	5	3,167	3,017
Other ships.....	.....	.....	.....	1	484	458
Added on remeasurement.....	.....	110	77	.....	.....	.....
Totals.....	61	15,232	9,511	30	12,877	12,152
Deducted.						
Wrecked or otherwise lost.....	6	369	225	7	3,019	2,833
Broken up or unfit for use.....	7	1,898	737	10	1,107	1,098
Sold to foreigners.....	3	4,739	2,993	.....	.....	.....
Transferred to U. K. ports.....	1	2,234	1,349	.....	.....	.....
Transferred to British Possessions.....	.....	.....	.....	2	169	149
Other ships.....	1	5,757	4,199	.....	.....	.....
Registered anew.....	5	3,437	1,993	6	909	793
Deducted on remeasurement.....	.....	35	10	.....	447	447
Totals.....	23	17,969	11,506	25	5,651	5,326

where a hauling winch was located, and the ship was hauled into mid channel, after which she proceeded to Montreal under her own steam. Considering the position in which she was, and the necessity for hauling her over the rocky bottom, the damage sustained was comparatively slight. The propelling gear is stated to be seriously damaged, as well as both propellers. The hull has been buckled to some extent, and the oak sheathing badly torn. It is stated that she is insured for \$180,000.

Ontario and the Great Lakes.

The U.S. Government is erecting a modern coast guard station at Whitefish Point, Lake Superior, at an approximate cost of \$30,000.

An order in council has been passed approving regulations for the operation of a ferry service across the St. Lawrence River, between Morrisburg, Ont., and Waddington, N.Y.

The Dominion Government is reported to have awarded a contract to Frontenac Dredging Co., Kingston, for dredging the approaches to Cobourg harbor, to facilitate the operation of car ferries.

The Canada Atlantic Transit Co's s.s. Kearsage ran aground off Yoe Island, Depot Harbor, at the end of August, while inbound with a cargo of mill feed, which had to be lightered before she could be refloated.

The Northern Navigation Co's s.s. Noronic left Port Arthur, Sept. 13, on her last down bound trip for this season. She was bound for Detroit, Mich., and returned thence to Sarnia, where she will go into winter quarters.

Two cargoes of Welsh coal arrived at Toronto, Sept. 15. The coal was transhipped from ocean ships at Montreal into the steamships John F. Morrow and Mapleheath, the latter being the first to arrive with 2,400 tons, and the former with 1,900 tons. Other ships arrived at Toronto with Welsh coal later in the month.

A Kingston press report states that arrangements are being made for the reopening of the Montreal Transportation Co's grain elevator there, to assist in relieving the grain congestion at Port Arthur, Fort William and Montreal. The elevator, which has about 850,000 bush. capacity, is now owned by Canada Steamship Lines.

The grain elevating ship Robert L. Fryer, operating in Port Arthur harbor, collided with the Northern Navigation Co's s.s. Hamonic, Sept. 10, damaging several plates above the water line. The sailing of the Hamonic east was delayed for several hours, while the damage was being repaired by Port Arthur Shipbuilding Co.

The Kirkwood Line, which is operating the s.s. Greypoint between Montreal and Toronto, in the freight trade, has placed the following class rates in effect between the two points, including insurance,—1st. 61c.; 2nd. 52c.; 3rd. 44c.; 4th. 36c.; 5th. 29c. A weekly sailing takes place every Wednesday from Montreal, and every Saturday from Toronto.

The freight handlers' strike at Port Arthur and Fort William, was ended Aug. 31, the men returning to work on the company's terms, i. e., an increase of 5c. on hour, without the signing of an agreement. The companies objected to signing an agreement, on the ground that it was compiled and fostered by the so-called One Big Union, which they declined to recognize.

The United States Lake Survey reports the stages of the Great Lakes in feet above mean sea level, for August, as follows,—Superior 602.63; Michigan and Huron 580.56; St. Clair 575.23; Erie 572.50; Ontario 246.56. Compared with the average August levels for the past 10 years, Superior was 0.09 ft. below; Michigan and Huron 0.40 ft. below; Erie 0.28 ft. below, and Ontario 0.02 ft. below.

The wreck of the steam yacht Guinilda, which sank in Lake Superior, near Rossport, during the summer of 1912, has been located by the Dominion Towing and Wrecking Co., and it is expected that an attempt will be made next spring to salvage the ship. She was owned by W. C. Harkness, of Imperial Oil Ltd., and struck a rock near Rossport, after which she slipped off and sank in 200 ft. of water. It is stated that a number of personal valuables belonging to the party on board, were lost. She is said to be lying with her stem 225 ft. below the surface, and her stern about 240 ft. below. She was valued at about \$200,000.

The s.s. Joyland, which was wrecked at Little Round Island, near Brockville, some time ago, abandoned by Canada Steamship Lines to the underwriters, and sold later to John E. Russell, contractor, Toronto, has been sold to D. H. Mapes, Jr., Montreal. She was built at Detroit, Mich., in 1884, and was originally named William A. Haskell. Her dimensions are,—length 250 ft., breadth 37 ft., depth 14.3 ft.; tonnage, 1,845 gross, 1,070 net. She was owned formerly by Montreal Transportation Co., and was taken over by Canada Steamship Lines, on the acquisition of that company's property. After being wrecked near Brockville, she was taken to Kingston, by John E. Russell, for temporary repairs, and later to Port Dalhousie, where she was completely overhauled.

British Columbia and Pacific Coast.

On the closing of the Alaska tourist season, the C.P.R. s.s. Princess Louise was placed in night service between Vancouver and Victoria.

The s.s. Fred Baxter, in going up the Fraser River to Vancouver, Sept. 7, struck a wing dam, which had been reported as washed away.

The Vancouver Harbor Commissioners have invited tenders for the supply and erection of the following mechanical equipment: semi portable electric crane,

electric freight elevators and escalators or inclined conveyors, electric capstans, tractors and trailers.

The C.P.R. s.s. Princess Maquinna, which struck a reef at the entrance to Esperanza Inlet, while bound from the west coast of Vancouver Island, recently, had a number of plates damaged amidships, 14 of which were replaced by Victoria Machinery Depot Co.

The Consolidated Whaling Corporation's s.s. Gray ran aground on Java Reef, six miles from Lyall harbor, Saturna Island, Haro Strait, Aug. 29, and was floated later in the day without assistance and proceeded to Esquimalt, under her own steam, where she was hauled out at Yarrow's Ltd. plant, for examination and repairs.

H. A. Stevenson, Vancouver, has been appointed receiver for Canadian Western Steamships Ltd., owner of the s.s. Margaret Coughlan, on the application of debenture holders, following non-payment of interest. Bonds were issued originally for \$850,000, and have since been reduced to \$510,000. It is stated that the action is a friendly one to facilitate the company's reorganization.

The C.P.R. British Columbia Coast Steamship Service reports a very successful tourist season in the Alaska service, the new s.s. Princess Louise, built at North Vancouver, having proved a great success, and the two steamships Princess Alice and Princess Louise, having run to capacity during the entire season. The overhauling of the coast steamships during the winter, will be of a general character, consisting of repainting, re-carpeting, etc., and will be chiefly carried out in the company's own shops.

The Pacific Salvage Co., Victoria, has bought the s.s. Leebro, owned formerly by Crescent Shipping Co., and has changed her name to Salvor. She is to be used in coastwise salvage operations. She was built at the Turpel shipyard, Victoria, in 1908, and is screw driven by engine of 22 h.p. Her dimensions are,—length 123.5 ft., breadth 28.8 ft., depth 11.1 ft.; tonnage, 323 gross, 198 net. For some time past, she has been under charter to the Dominion Government, as a lighthouse tender. She has been equipped with powerful pumps and salvage gear.

The s.s. Henriette, which is reported to be aground near Suva, Fiji Islands, was at one time owned by S. F. Mackenzie, Vancouver, and operated as a barge in the freight and cattle trade to Skagway,

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during August, 1922:

Articles	Canal	Canadian		U.S. Canal	Total
		M. ft. B. M.	Canal		
Lumber	Eastbound	1,397	36,979		38,376
Flour	"	508,430	694,720		1,203,150
Wheat	"	1,302,575	7,914,457		9,217,032
Grain, other than wheat.....	"	2,347,000	11,390,825		13,737,825
Copper	"	846	5,597		6,443
Iron Ore	"	26,854	8,909,523		8,936,377
Pig Iron	"	88			88
Stone	"	3,500	4,400		7,900
General Merchandise	"	15,253	20,715		35,968
Passengers	"	6,433	4,778		11,211
Coal, Soft	Westbound	720	184,501		185,221
Coal, Hard	"				
Iron Ore	"		23,184		23,184
Manufactured Iron and Steel..	"	4,144	2,342		6,486
Salt	"	1,219	8,545		9,764
Oil	"		27,377		27,377
Stone	"		146,340		146,340
General Merchandise	"	37,663	41,318		78,981
Passengers	"	5,834	4,995		10,829
Summary					
Vessel Passages	Number	612	2,431		3,043
Registered Tonnage	Net	737,226	8,539,554		9,276,780
Freight—Eastbound	Short tons	188,944	9,619,617		9,808,561
Westbound	Short tons	43,746	433,607		477,353
Total Freight	Short tons	232,690	10,053,224		10,285,914

Alaska. In 1906 she was converted into a twin screw steamship, and was the first ship of that type to be fitted out at Vancouver. She was continued in the Skagway trade, and was in 1910 bought by the Grand Trunk Pacific Coast Steamship Co. and operated by it until 1917, when she was sold to a purchaser in Seattle, Wash., and later to a San Francisco firm, when she was reconverted into a sailing ship, and placed in the Fiji Island trade. She was originally built at Havre, France, in 1872.

Mainly About Marine People.

Arthur Carfrae Dicks, civil engineer, last surviving son of the late Jas. Dicks, for many years Dominion Inspector, Marine & Fisheries Department, died at Vancouver, B.C., Sept. 17.

J. C. Johnson, formerly in the passenger Department, Canadian Pacific Steamships Ltd., Montreal, died at Outremont, Que., Aug. 30, aged 61.

D. J. Perrault, a local pilot, and a member of the Montreal Pilots Association, has been appointed deputy harbor master, Montreal, vice Capt. J. F. Symons, appointed harbor master early in the year, on the retirement of Capt. T. Bourassa.

F. Percy Smith, Secretary, Canada Steamship Lines Ltd., Montreal, has resigned on account of ill health. He has been suffering from insomnia and nervous dyspepsia for some time. He is spending a holiday in the mountains, and will later take a trip south.

R. Brock Thomson has been appointed Secretary, Canada Steamship Lines Ltd., Montreal, vice F. Percy Smith, resigned on account of ill health.

Brig.-Gen. T. L. Tremblay, one of the Quebec Harbor Commissioners, has been appointed the Commission's Chief Engineer, succeeding St. George Boswell.

Engineer-Commander G. A. Vine, R.N.R., Superintendent Engineer, Canadian Pacific Steamships Ltd., Liverpool, Eng., arrived in Canada, by the s.s. Montclare, at the end of August, on a visit.

Norman A. Yarrow, of Yarrows Ltd., Victoria, B.C., returned to Canada at the end of August, after spending six months in Great Britain.

The Detroit and Cleveland Navigation Co. has ordered two of the largest side wheel steamships in the world, for its Buffalo-Detroit Division. They will be 544 ft. long with 100 ft. beam, with 650 staterooms for the accommodation of 2,000 passengers, of a single class. The hulls will be of mild steel, which will be carried up to the promenade deck rail. All the deck house and paddle wheel housing will be of the same material. The hold will be divided into numerous watertight compartments, by steel bulkheads extending from the keel to the main deck, and a double bottom will be provided, also divided at the center line and athwartships, into several compartments, all arranged to carry water ballast. Powerful pumps will be installed to enable the water ballast to be discharged quickly as desired. They will be equipped with modern safety devices and fully fitted out for the comfort and pleasure of passengers. They will cost approximately \$3,500,000 each, including furnishings, and it is stated that they are to be ready for the opening of navigation in May 1923, on the 70th anniversary of the commencement of the company's passenger steamship service between Detroit and Cleveland.

Ship Building and Ship Repairing Throughout Canada and Newfoundland.

B. C. Marine Engineers and Shipbuilding Ltd., Vancouver, B.C., has a contract from the Dominion Public Works Department for overhauling and repairing dredge 305 (King Edward), for \$8,986, and unit prices for any additional work which may be required.

Canadian Vickers, Ltd., Montreal.—Canadian Railway and Marine World for August contained an illustrated description of a 38½ ft. sea sled, built by this company for demonstration purposes. We are advised that at the trials, held in August, a speed of 40 miles an hour was obtained, though the sled is not intended as a racer, but as a fast cruiser. The sled proceeded subsequently up the St. Lawrence and Lake Ontario to Toronto, where it was demonstrated during the Canadian National Exhibition. The selling price of this sled is about \$25,000. The company is building 2 more 38½-ft. sleds, and six 25-ft. sleds. The latter are being equipped with one marine type, Hall-Scott, 100 h.p. engine, driving 2 propellers, will carry 8 to 10 people, at speeds of from 30 to 35 miles an hour, and will sell at between \$7,000 and \$8,000. It is also building a number of sea sled dinghies, of which it has sold several.

The company is building a steel pontoon lock gate lifter for the Railways and Canals Department. Repair work was done during August, on the following ships,—Canadian Government Merchant Marine, s.s. Canadian Challenger, Canadian Commander, Canadian Ranger, Canadian Runner; C.P.R., s.s. Empress of Australia, Essex County, Metagama, Minnedosa; Canada Steamship Lines, s.s. Mapleton, Edmonton, Glenellah; Imperial Oil Ltd., s.s. Vancolite, Calgarolite, Montrolite; Cunard Line, s.s. Velavia, Taranta; International Waterways Navigation Co., s.s. Aragon; George Hall Coal Co., s.s. Brignogan; Runciman and Co., s.s. Elswick Park; Clarke Steamship Co., s.s. Gaspesia; Navigazione Liberia, s.s. Isomzo; C. Salveson and Co., s.s. Katanga; D. S. Noulson, s.s. Sarmatia; U.S. Shipping Board, s.s. Hoven; Anchor-Donaldson Line, s.s. Cabotia; Harrowing Steamship Co., s.s. Ethelwolf; Ornis Steamship Co., s.s. Dront; Ropner Shipping Co., s.s. Somersby; National Navigation Co., Fordonian.

Thos. Cantley, of New Glasgow, N.S., Chairman, Nova Scotia Steel & Coal Co., and formerly a Canadian National Rys. director, bought some little time since the German steel schooner Alda, which was ashore at Miramichi, N.B. She is 103 ft. 7 in. long, 22¼ ft. broad and 9¼ ft. deep, and was built at Hammelwarden in 1889. He is entirely rebuilding her at the Nova Scotia Steel & Coal Co.'s yard at New Glasgow, where a number of steel steamships were built during the war. She has been cut in two and is being lengthened by 7 frame spaces, or say 12¼ ft., and is having added to her a raised quarter deck and poop aft, also a forecastle forward, 22 ft. long. We are advised that, if she is not sold in the meantime, she will probably be run between the Maritime Provinces, Newfoundland, and the West Indies, in the winter.

Halifax Shipyards Ltd., Halifax, N.S., did the following work during August,—H.M.C.S. Patriot, scraped and painted, and miscellaneous engineering work; Canadian Government Merchant Marine, s.s.

Canadian Constructor, 7,177 tons, scraped and painted, new pin for ballast pump, opened air pump for inspection, also main condenser, and general repairs; s.s. Canadian Gunner, 2,415 tons, scraped and painted, tail shaft drawn, jacked up furnaces, opened sea valves for inspection, new key for propeller shaft and miscellaneous hull work; s.s. Canadian Miller, 5,439 tons, scraped and painted, dynamo repairs, tail shaft drawn, miscellaneous engine and hull repairs; s.s. Canadian Warrior, 2,409 tons, scraped and painted propeller removed, tail shaft disconnected etc., sea connections opened for inspection, and general repairs; s.s. Sheba, 2,268 tons, scraped and painted, and tail shaft drawn and replaced; Canadian National Rys., car ferry Scotia II, 1,859 tons, scraped and painted, tail shaft drawn and replaced, and miscellaneous hull work; G. S. Campbell and Co., s.s. Titan, 5,134 tons, temporary repairs.

The contract for repairing the U.S. s.s. Bennington, which ran ashore at Seal Island, Cape Sable, in August, was awarded to this company, in competition. The work was completed during September.

Nickson Construction Co., Vancouver, B.C. The transfer barge which this company is building, at Nelson, B.C., for the C.P.R. Kootenay Lake service, is expected to be completed shortly. It will have a depth of frame at side, between bottom planking and covering board, of 7½ ft., width of frame inside of planking 41½ ft., width over planking 42 ft. and over nosing amidships 42½ ft. Its length on deck outside of crown piers will be 224 ft. and length over all 225 ft. 4½ in. The crown of the deck in 41½ ft. will be 6 in. and the bow corners will draw in 5 in. to the side in a 16 ft. run aft.

Reid Newfoundland Co., St. John's, Nfld.—Repairs have been completed at this company's drydock on the s.s. Sagona, several plates having been replaced, owing to damage received in ice. Repairs have also been completed on the schooner Union Jack, practically the whole of the bottom of the hull having been replaced.

Shelburne Shipbuilding Co., Shelburne, N.S. launched the schooner Edwina, 119 tons net, recently, for Harvey & Co., St. John's, Nfld. She is of the semi knock-about type and will be operated out of Belleoram, Nfld., in the Banks fishing service. Another ship of similar type is being built for the same owners at River-ton, N.S.

Victoria Machinery Depot Co., Victoria, B.C. did the following repair work during July,—Canadian Government Merchant Marine s.s. Canadian Traveller, 5,500 tons, docked at Esquimalt drydock, painted, and hull and engine repairs; C.P.R. s.s. Princess Maquinna, 1,777 tons, docked, painted and hull and engine repairs; s.s. Princess Patricia, 1,158 tons, docked, painted and hull and engine repairs; Consolidated Whaling Corporation s.s. Gray, 707 tons, docked and painted; s.s. Green, 102 tons, docked, painted and repairs; Capt. A. Berquist, s.s. Santa Cruz, 511 tons, deck and hull repairs.

Wallace Shipbuilding and Drydock Co., North Vancouver, B.C. has a contract from the Dominion Public Works Department for overhauling and repairing dredge 303 (Fruhling) for \$10,592.50, and unit prices for any additional work which may be required.

Canal Statistics for July.

The Dominion Bureau of Statistics, Transportation Branch, has issued the following summary for July:—

Sault Ste. Marie.—Total traffic through the Canadian and U.S. locks at Sault Ste. Marie increased over 26% over July, 1921, and also over June, 1922. The large increases were in wheat and iron ore, the latter totaled 8,942,659 tons, compared with 4,356,760 tons in July, 1921; 9,235,086 in July, 1920, and 8,912,609 in July, 1919. Wheat shipments for the month were 17,177,377 bush., against 7,838,878 in July, 1921; 7,838,470 in July, 1920, and 7,100,008 in July, 1919. Coal shipments continued light.

Welland.—Total traffic showed a slight decrease from July, 1921, the main factor being decreases in soft coal shipments and in U.S. corn. Wheat shipments increased 191,291 tons, or 6,376,000 bush. and barley, iron and steel and pulpwood also showed increases.

St. Lawrence.—There was an increase in passenger traffic of over 44% compared with July, 1921. Freight traffic increased 23,256 tons or 4% despite large decreases in coal shipments and in corn and oats. Wheat, iron and steel, pulpwood, lumber and timber all showed good increases.

Great Lakes Grain Freight Rates.

Following are Cleveland, Ohio, press dispatches:—Sept. 4.—The Lake Superior grain shippers are taking little early loading tonnage, but they are in the market for future loading capacity and another big carrier was placed on Sept. 2 to load at the head of the lakes the last ten days of November to hold in Buffalo at 4c. More storage capacity for that period is wanted, but some owners will not charter that far ahead. Three cents was bid from head of the lakes to Buffalo for the last half of October. A big ship was placed to load in South Chicago for Georgian Bay at 1½c and a small carrier will take a cargo of oats from Chicago to Buffalo at 2c.

Sept. 8.—Little future chartering has been done this week, and indications are there will not be much more tonnage placed ahead without a dispatch guarantee, as shipping men feel satisfied that grain carriers will spend considerable time in port at the lower end of the route when the movement gets started in good shape. Shippers at the head of Lake Superior are in the market for October and November capacity, and are bidding 4½c for ships to load the last half of November at Buffalo. Ore carriers are arriving about as fast as they are being worked out, and all the big docks have a good line-up. There is a shortage of cars at some ports, and ore carriers that arrive Saturday will be held over Sunday.

A steamship of medium size was placed to load at Fort William early next week for Buffalo at 2¼c and a cargo for Buffalo was taken in Duluth at that figure. Two big carriers were chartered to load in Duluth for Buffalo at 2c. Lake Michigan rate holds steady at 2c and 2 big ships were placed in South Chicago at that figure. One cargo will be delivered at Port Colborne and the other will go to Buffalo.

Sept. 10.—Grain tonnage is in fair demand and some chartering was done Sept. 9 for prompt and future loadings.

Handy ships that are close by are wanted and better rates were paid for tonnage of that class in the Lake Michigan trade and at the head of the lakes. A steamship of medium size was placed to load at South Chicago for Buffalo at 2¼c and on a cargo to load at South Chicago for Port Colborne, 2¾c was paid. A steamship of medium size was chartered to load at Fort William at 2¼c to Buffalo and two ships that will report for cargoes by end of this week will load at the head of the lakes for Buffalo at 2½c.

Sept. 19.—Grain is offered freely, but most of the tonnage for early loading has been taken and little chartering was done. A big steamship that will be ready the first of next week was placed to load at Fort William for Buffalo at 3c, but some owners are holding for a better rate. Shippers are in the market for future loading capacity and are bidding 4½c from the head of Lake Superior for late November loading and storage at Buffalo. There is some tonnage on the market for that loading period at 5c. Some ship owners will not charter very far ahead, and not many storage cargoes have been taken.

Marine Public Works Contracts.—The Dominion Public Works Department has awarded contracts as follows: Aug. 8, overhauling and repairing dredge 303 (Fruhling), Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., \$10,592.50 and unit prices for additional work which may be required; Aug. 9, overhauling and repairing dredge 305 (King Edward), B.C. Marine Engineers & Shipbuilding Ltd., Vancouver, B.C., \$8,986 and unit prices for additional work which may be required; Aug. 17, repairs to breakwater at Port Burwell, Ont., W. Birmingham, Kingston, Ont., unit prices; Aug. 19, repairs to wharf at St. Laurant d'Orleans, Que., L. Lemieux, O. Roberge and E. Lemieux, Levis, Que., unit prices; Aug. 16, repairs to superstructure of eastern and western breakwaters, Port Colborne, M. J. Hogan, Port Colborne, Ont., unit prices; Aug. 21, dredging eastern entrance channel, Toronto, Randolph Macdonald Co., Toronto, class B 45c a cub. yd. scow measure; Aug. 22, repairs to wharf at Melford, N.S., T. D. Morrison, D'Escousse, N.S., 12½c a cub. ft.; Aug. 26, dredging water berths at St. John, N.B., St. John Drydock and Shipbuilding Co., St. John, N.B., class B 34c a cub. yd. scow measure.

The s.s. Narrangansett, which was bought by Canada Steamship Lines, from the U.S. Government, last year, is being rebuilt by Davie Shipbuilding & Repairing Co., Levis, Que., and is expected to be ready for service by May 1, 1923. She was built at Wilmington, Delaware, in 1913, for service in Long Island Sound, and we are informed she was not operated until bought by the U.S. Government in 1917, when she was sent overseas and used as a channel transport between England and France. On the close of the war, she was returned to the U.S., where she was laid up until sold to Canada Steamship Lines in 1921. Her dimensions are: Length b.p., 320 ft.; breadth, 48 ft.; depth moulded, 21 ft., and she is equipped with 2 triple expansion engines, 4,000 i.h.p., for a speed of from 20 to 23 knots an hour, driving twin screws. It is said that, when completed, she will have 220 cabins, 16 with tub baths and 16 with showers, that every cabin will be an outside one, and that she will run between Montreal and Saguenay ports, stopping at Quebec both ways.

Montreal Warehousing Co's Elevator.—It was stated in Canadian Railway and Marine World for March that the Montreal Warehousing Co. was going to add a 1,000,000 bush. storage annex to its elevator B at Windmill Point, which would increase the elevator's storage capacity to 3,000,000 bush.; that it would instal a car dumping machine for unloading by air shovels; that a second carrier would be built for delivering grain into ocean steamships; that the car dumping machine and additional loading facilities would be in operation at the re-opening of navigation last spring and that the additional storage capacity was expected to be ready a month or two thereafter, and in plenty of time for handling this year's grain crop. We were advised Sept. 15 that nothing had been done in regard to the additions, with the exception of the installation of a car dumping plant.

British Columbia Pilotage Association Ltd. has been incorporated under the Dominion Companies Act, with \$25,000 authorized capital and office at Vancouver, B.C., to carry on a pilotage service in B.C. coastal waters and to own and operate ships of all kinds; to fix charges for pilotage and to amend same from time to time; to make enquiries into applications for appointments of pilots in the company, as may appear necessary, and to maintain a competent body of pilots; to appoint examiners and prescribe examinations for all applicants for positions as pilots, and to grant certificates of qualification. The incorporators are,—R. A. Batchelor, G. W. Roberts, T. S. Guns, pilots, Vancouver, B.C., I. Harris, and W. D. Owen, pilots, Victoria.

Welland Canal Lock Gate Accident.—The steam tug Joseph L. Russell, owned by John E. Russell, harbor contractor, in Toronto, while proceeding up the Welland Canal, Sept. 11, struck and carried out the two upper gates of lock 15. The ship had a line out, and was apparently stopped in the lock chamber, when a speed ahead order was given her. As she went, stern first, out of the lock, she carried out the two lower gates, which had been partially closed. The water released from the reach above partially washed out the rear slopes of the banks at the upper end of lock 14. Four spare gates were placed in position and navigation was resumed early the following morning, a few ships have been delayed about 17 hours. The estimated cost of effecting repairs is \$12,000. The tug received only minor injuries.

Great Lakes Seamen Threaten Strike.—Detroit, Mich., Sept. 18.—(Press dispatch).—Sailors on the Great Lakes will go on strike, Oct. 8, unless their demands for an 8-hour day and the institution of the three watch system are acceded to by the Lake Carriers' Association. Announcement to this effect was made here tonight by W. Donnelly, business manager of the Detroit local, who received official notice of pending walkout from K. N. Nolan, Chicago, of Great Lakes Sailors' Union. The official notice says: "On Oct. 1, all wheelmen, watchmen, boatswains, able seamen and ordinary watchmen on vessels of the Lake Carriers' Association, will demand the three-watch system, or 8-hour day, and will refuse to sail on any association vessel which does not establish the new watch system for the deck crew." It is estimated the strike notice will apply to 10,000 sailors.

Eastern Stevedores Ltd., a Dominion incorporated company, has had its name changed to Blair, Eaton, Blair, Limited.

Wreck Commissioners' Enquiries and Judgments.

Enquiries have been held and judgments delivered in connection with the following casualties:—

Grounding of s.s. John B. Ketchum 2nd.

Held at Montreal, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Lapiere and T. R. Coffin, as nautical assessors, into the cause of the George Hall Coal Co's s.s. John B. Ketchum 2nd, touching ground, or grounding momentarily, in the Saguenay River, Que., July 1, causing damage to the ship. The evidence showed that the pilot, G. E. Koenig, on joining the ship at Quebec, did not appear to be in a social frame of mind, the master, Capt. B. A. Sullivan, stating that his replies to questions throughout the trip were curt, and though he had been informed of the time that the ship would be ready, he did not arrive on board until an hour later, and gave no reason for the delay. It was stated that the ship steers well ordinarily, but the master took the wheel and steered until the grounding, after which it was given over to the wheelman. Throughout the trip, there appeared to have reigned an atmosphere of ill feeling between the pilot, master and officer. Prior to the mishap there were four men in the wheel house, the master at the wheel, the pilot, first officer, and wheelman. At a certain stage, the pilot ordered the officer to shut up, the reason given for the rather rude order was that the conversation interfered with the giving of orders. When the officer made a remark about the close proximity to a buoy, which the officer stated was struck by the propeller, the pilot replied with an epithet which is unprintable. Then the striking of the ship occurred, which the pilot claimed was due to the master's dilatoriness in performing the orders given. On the other hand, the master stated that the orders were so numerous that it was with difficulty that they could be complied with, but, however, they were executed as given. The court expressed the opinion that the bad temper exhibited by the pilot affected his judgment and his perception of objects. Why was the master at the wheel instead of the wheelman, who apparently was qualified? The master explained that he generally steered the ship in narrow waters, a practice which the court did not condone, but admitted that he was at liberty to adopt that procedure. The court found that the pilot, G. E. Koenig, was to blame for the grounding, and fined him \$100, to be paid by Sept. 15. As to his misconduct in arriving later than advised, and using vile epithets, unworthy of any man, especially a pilot, to an officer of a ship, the court left the matter in the hands of the Deputy Minister of Marine, to deal with as he may deem fit.

Indochine-Sarmatia Collision.

Held at Montreal, Aug. 22 and 23, and continued at Lauzon, and Quebec, Que., Aug. 24, into the collision and subsequent grounding of the s.s. Indochine, owned by the French Indochina Government, and the s.s. Sarmatia, owned by Peter Bow, Copenhagen, Denmark, in the St. Lawrence River, near buoy 596, opposite Three Rivers, Aug. 11. The evidence of those on the Indochine, as to the cause of collision, hinged on the smoke or fumes from the pulp works at Three Rivers, which spread over the harbor, hiding objects from view, and preventing those on duty from seeing the Sarmatia's lights, except at a very short distance. There

was a striking difference of opinion as to the density of the vapor, and the distance at which objects were visible, the pilot stating that the Sarmatia's mast-head light was visible at a distance of 1,500 ft., others stating that the vapor was very dense. The evidence from the Sarmatia, on this point was that the Indochine's lights were seen at about a mile, which was confirmed by independent witnesses, such as the s.s. Quebec's master and pilot and the pilot of the s.s. Cabotia, the ship astern, the close proximity of which, it is said, prevented the Indochine from coming astern after the collision. The question arose, if the chemical fumes were obscuring objects to the extent said by some of the witnesses of the Indochine, why were the engines at full speed, which, under such conditions, was a violation of articles 16 and 29. The preponderance of evidence as to the range of visibility apparently justified the full speed. Why were not the Sarmatia's lights seen at a greater distance if a good lookout was kept? When the Sarmatia appeared, noting the position of both ships, it was the Indochine's duty to remain on her own side of the channel: If, as stated, she was under the impulse of a starboard helm and swinging to port, it was the pilot's duty to immediately order full speed astern and helm apart. The pilot knew well that at the position he saw the Sarmatia's lights, and he being about 350 ft. from the wharves, the former could not attempt to pass between him and the land, and he was consequently, in duty bound, to swing to starboard in order to take the center line of the channel, or its southern boundaries. There was no justification whatever for sounding a 2-blast signal; a 3-blast signal was obligatory, for two reasons,—first it was the Indochine's duty to maintain her right side of the channel, and second, if the Sarmatia had not begun to turn when her lights were seen, she was reasonably expected to do so, and there is a constant current running east, whose velocity is retarded or accelerated according to the state of the tide, which is well known to all pilots. On such occasions the duty of the ascending ship is also well known to all navigators. Therefore regulation 14, which must be read in its general sense, and articles 23 and 25, were violated. When two blasts were given, it was in direct violation of article 28, as it signified a course absolutely unauthorized under the circumstances. Another violation of article 28 was, when backing out from the wound, the Indochine omitted the sounding of 3 blasts. While this contravention did not contribute to the collision, it indirectly affected the subsequent grounding. In view of the foregoing, it follows that article 29 was also disregarded. The examination of the exhibits as to the position of each ship at the moment of contact, which was obliquely toward the bow of the Sarmatia, indicated that the helm of one of the ships was not operated as given in evidence. If the Indochine's helm was hard to starboard, and the Sarmatia's helm hard to port, the angle of impact would have been obliquely toward the Sarmatia's stern. This was referred to to show that the evidence and the exhibits did not stand favorable comparison. The master's evidence was unimportant, as he only came on the bridge when the impact took place. The placing of a lookout on the bridge is, it is said, a custom on French ships, upon which, the court

refrained from commenting. It was stated by a witness, that the pilot, first officer and lookout man, were together on the starboard side of the bridge, and the court surmised that their attention was drawn to the magnificent display of lights around the pulp works, and they failed to see the Sarmatia's lights, until a slight starboard helm was given.

The evidence from the Sarmatia showed that she was moving at slow speed, and gradually rounding the buoy on a port helm. The Indochine's red light was seen on her port bow, at 250 ft. below the buoy, and everything was clear. When about 1,000 ft. below the buoy, two separate one blast signals were given, and a hard to port helm, and in blowing the first one blast, it was noticed that the Indochine also sounded a signal. The court was impressed with the straightforward way in which the pilot and first officer gave their evidence, and only found one flaw in their actions, which was the failure to sound a 3 blast signal when the order full speed astern was sent to the engines, but this did not contribute to the collision, nor would its sounding have evaded it. As the Sarmatia had been going astern by her machinery for only 20 seconds, she had no time to gather sternway, hence the contention that if both ships had been under the helm stated, the impact could not possibly have happened in the manner indicated by the exhibits. The trend of the whole of the Sarmatia's evidence was such that no criticism could be launched against her for the collision. Her subsequent grounding was unavoidable under the circumstances. The court therefore found that the s.s. Indochine was solely to blame for the collision, and that the pilot, J. B. Angers, was in default, and suspended his certificate for six months of navigation, from Aug. 24, 1922, to July 24, 1923. As he had in a recent instance shown lack of ordinary judgment, and had various mishaps within the last three years, he was warned that should he again appear before the court, and be found in default, the question of revoking his license would be considered seriously. The court stated that it will not permit the good reputation of the pilots as a whole, to be besmirched by the actions of one of its members, nor will it countenance any actions on the part of pilots and navigators generally to damage the good repute of Canadian waters, or place the shipping in position to incur serious damages and endanger lives. With respect to the Indochine's master, the court refrained from criticizing the custom of the country in which the ship is registered, in regard to the placing of the lookout, but wondered, if the visibility of objects was obscured to the extent stated, why the master was not on the bridge. For the subsequent grounding of the ship, the master was exonerated, as the pilot was the one to direct or suggest, but it questioned the seamanship in withdrawing from the wound, thus cutting off from the Sarmatia's crew the only means of escape for the moment. Further, when going astern, no signals were given which would have served as a warning to the s.s. Cabotia, and have permitted the Indochine to evolve to a place of safety, instead of running into danger and grounding. While the direct cause of the collision and subsequent grounding was not attributable to the chemical fumes, the court expressed the opinion that they constituted a nuisance

and a serious obstacle to safe navigation on account of the two converging courses which ships have to follow in passing up or down Three Rivers harbor, the width of safe navigable water being but 1,500 ft., and the varying velocity of current, besides the occasional fogs or natural vapor at certain times for which no remedy can be suggested. There are so many navigational and natural difficulties which the mariner has to encounter, that any artificial embarrassment or obstacle to navigation, for which the court contends a remedy of elimination can be applied, should not be tolerated. The court therefore suggested that engineers and chemists combine to find a means for an immediate cessation of this menace to navigation. The s.s. Sarmatia was found not at fault, and the pilot, D. Paquette, was exonerated from blame.

Loss of Schooner Rose M.

Held at St. John's, Nfld., Aug. 31, into the loss of the Newfoundland schooner Rose M. at Feterras, Fayal Island, Azores, Jan. 15, before F. J. Morris, Commissioner, assisted by E. J. English and C. S. Marshall, as nautical assessors. The ship, which was 169 tons gross, 147 tons net, was built by Norris Arm Ship building Co., Norris Arm, Nfld., in 1918, and was fully equipped and manned. After leaving Fogo, Nfld., ordinary winter weather and heavy winds were met, during which the ship was strained considerably, and as she began to leak, a portion of the cargo had to be jettisoned. This, with the loss of the ship's fresh water, and damage to sails, compelled the master to make for the nearest port, Fayal Island, Azores. He passed the semaphore station at the western end of the island, Jan. 13, and kept his ship tacking back and forth inside a radius of 10 miles from the semaphore station and Horta breakwater, until she struck on Jan. 15. Though the court appreciated the difficulty of entering Horta breakwater, owing to the ship's waterlogged condition, and the baffling winds, it was clear from the evidence that no serious effort was made to reduce the water in the ship's hold below 4 ft. In neglecting to display distress signals, the captain was negligent, and he did not use the ordinary means at his disposal to get assistance. The evidence showed that he must have observed the ship drawing nearer to land on each tack, and he should have let go the anchor, with all his chain, in much less time than 15 or 20 minutes. He was again at fault in not sounding to get the depth of water, and finding if the ship was dragging, all of which showed great lack of seamanship. The ship was about 400 ft. from the breakers when the anchors were let go, and before she was brought up, she was on the rocks, and nothing could be done to save her. The court expressed the opinion that in abandoning the voyage, and bearing up for Fayal Island, the captain had acted in the best interest of all concerned, as he could not have continued the voyage to Gibraltar under the conditions existing. He held no certificate, either of competency or service.

Navigation Aids by Radiotelegraph.—A list of radiotelegraph stations distributing messages as aids to navigation, given in Canadian Railway and Marine World for September, contained the station at Barrington Passage, N.S., which, it was then stated, was to be closed shortly. We have since been officially advised that it was closed Aug. 11, and the transmission of weather and ice reports from there ceased on that date.

Longshoremen's Wages at Montreal.

An agreement between the shipping companies and the longshoremen at Montreal, was signed Sept. 7, providing for a general decrease of 10c an hour from rates in force last year. The new rate is 50c an hour for day work, and 60c for night work, with double time for Sunday work, and higher rates for handling certain commodities. The agreement provides that each of the men shall sign a personal contract with the company engaging him, when commencing work each season, whereby he will undertake to work in accordance with the existing agreement until the close of navigation in 1923, the companies agreeing to give work to the men signing such personal contracts, when they are available, in preference to men who have not so signed, and the union contracts to supply from the men under its jurisdiction, a sufficient number to perform the work required during the term of the agreement. Mails and baggage shall be handled on Sundays, holidays and week days, at prevailing rate of wages, pay to commence at the time for which the men are ordered. The rate for handling nitrate and bulk sulphur is 65c an hour for day work, and 75c for night work, and the same rate applies to grain trimming and bagging. Coal handling on general cargo ships will be paid 55c an hour for day work and 65c for night work.

Canadian Pacific Railway Ocean Steamship Services.

A few days after the arrival of the s.s. Montclare at Montreal, recently, on her maiden trip, the company entertained about 150 members of the Montreal Publicity Association, on board.

The s.s. Scotian, which was chartered by the British Government, to convey troops between India and England is reported to have again been chartered, for a similar purpose, and is being refitted in England.

The s.s. Grampian which was burnt, and which afterwards sank in the harbor at Antwerp, Belgium, about a year ago, will, it is stated, probably be raised and rebuilt by the underwriters, when the time is considered opportune. The hull is said to be in good condition. The Grampian saw considerable war service, chiefly in transporting British crews to the mouth of the Euphrates River, Mesopotamia, where they were transferred to shallow draft boats for transport into the interior.

Capt. R. G. Latta, master of the s.s. Montclare, commenced his sea service on the sailing ship Arden Craig, sailing between South Shields, England, and San Francisco, Cal. He later entered the service of James Gardiner and Co., ship-pers, Glasgow, Scotland, and sailed to ports in all parts of the world. He entered C.P.R. steamship service in 1905, and served on the steamships, Montezuma, Montreal, Mount Royal, Lake Erie, Montrose, Missanabie, Milwaukee and Metegama. His first command was on the s.s. Monmouth, from Liverpool to Archangel, and he holds the record for having taken C. P. R. ships farthest north and farthest south. He was later on the steamships Scotian, Grampian, Sicilian, and Scandinavian, and after shore duty at Antwerp, Belgium, he took charge of the s.s. Minnedosa, and was later placed in charge of the C.P.R.

steamship service between Southampton, Eng., and Hamburg, Germany.

The s.s. Montclare, which arrived at Montreal on her maiden trip recently, while on her trials before sailing from England, made 17.8 knots an hour, and maintained an average speed in an endurance trial, of 17.3 knots. Oil fuel is used, as in the other ships of the same type, and on the Empresses. Apart from the relative cost of coal and oil as fuel, there is a material reduction in labor cost, with economy of bunker space, better accommodation for the crew, and shortening of time in port, all factors which have an important bearing on traffic costs, especially with passenger ships. After the s.s. Empress of Britain was converted into an oil burner last year, there was an elimination of labor in the handling of 30 tons of ashes a day. With the use of oil fuel there is also an increase in boiler efficiency of 7%, and, owing to the higher calorific value of oil, the evaporation is considerably increased, so that the weight of oil for equivalent evaporation is about 2 to 3.

Furness, Withy & Co's report for the year ended April 30, presented at the annual meeting of shareholders, recently, shows that the profits, after providing for taxation, and including balance brought forward, were £858,554 19s. 4d., which was appropriated as follows: 5% dividend on preference shares, £52,500; 5% dividend on ordinary shares, £200,000; 5% bonus on ordinary shares, £200,000; transferred to general reserve, £200,000; balance carried forward to current year's accounts, £206,054 19s. 4d. The year was one of serious depression in the shipping industry, and only a small portion of the profits were derived from earnings of steamships, the main portion being from other branches of the company's business, and from investments. The total reserve account stands at £2,000,000.

Transportation Conventions in 1922.

Oct. 2 to 6.—American Electric Railway Association, Chicago, Ill.; J. W. Welsh, 8 West 40th St., New York.

Oct. 10, 11.—American Association of Passenger Traffic Officers, Louisville, Ky.; W. C. Hope, Central Rd. of New Jersey, 143 Liberty St., New York.

Oct. 17 to 19.—American Railway Bridge and Building Association, Cincinnati, Ohio; C. A. Lichty, 219 North Waller Ave., Chicago, Ill.

Oct. 17 to 20.—American Association of Dining Car Superintendents, San Francisco, Cal.; L. A. Stone, Chicago and Eastern Illinois Ry., Chicago, Ill.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities—Canadian Counsel, W. D. Lighthall, K.C., Montreal.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—D. N. Gill, Comptroller, Ottawa Electric Ry., Ottawa, Ont.

Canadian Freight Association (Eastern Lines)—G. C. Ransom, Chairman, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—F. W. Thompson, acting Chairman, 805 Boyd Block, Winnipeg.

Canadian Passenger Association—Eastern Lines, G. H. Webster, 54 Beaver Hall Hill, Montreal; Western Lines, E. J. Stone, 306 Union Station, Winnipeg.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club—W. A. Booth, 53 Rushbrooke St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

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Rates under other headings and for display advertisements on application.

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Canadian Traffic League—R. J. Fitzgerald, 93 Wright Ave., Toronto.
Dominion Marine Association—F. King, K.C., Counsel, Kingston, Ont.
Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.
Engineers' Club of Toronto—R. B. Wolsey, 84 King Street West, Toronto.
Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.
Express Traffic Association of Canada—C. N. Ham, Montreal.
Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.
Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.
International Water Lines Passenger Association—M. R. Nelson, Des Moines, Iowa.
Niagara Frontier Summer Rate Committee—James Morrison, Canadian National Rys., Montreal.
Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.
Railway Association of Canada—C. P. Riddell, General Secretary, 263 St. James Street, Montreal;
Western Operating Committee, E. J. Stone, 306 Union Station, Winnipeg.
Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacramento Street, Montreal.
Transportation Club of Toronto—W. J. Hotrum, 595 Runnymede Road, Toronto.
Transportation Club of Vancouver—C. A. Dorffler, 450 Hastings St. West, Vancouver, B.C.
Winnipeg Traffic Club—A. J. Barber, 114 Dominion Bldg., Winnipeg, Man.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertisin contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Canadian Ingersoll-Rand Co., Montreal & Sherbrooke, Que., has issued a general products catalogue, containing 228 pages, in which there are over 300 half tone illustrations. It is in loose leaf arrangement form, and conveniently indexed.

Canadian Locomotive Co.—Following are extracts from the directors' report for the year ended June 30: "The company has been without locomotive orders for the whole of the current year. A few repair orders is all the work we have had. The outlook, however, we feel is by no means unpromising. The shortage of motive power on Canadian railways is very pronounced and we doubt if they are in a position to handle the increased traffic that the settlement of the railway and coal strikes will throw upon the roads, which, with the accumulated requirements for locomotives for maintenance purposes, bids fair to give us, at no distant period, work to keep our plant

going for some time. Under these circumstances, we have only received the income from our investments to meet our current expenses, interest and sinking fund on bonds, and dividends on the preferred and common stock. The current loss for the year has been \$76,299.89; this, added to payments of interest, sinking fund and dividends, reduces our surplus to \$1,089,975.45. We still own Victory bonds to the extent of \$1,242,950.00, and have \$241,996.99 cash in the banks. Of our accounts payable, amounting to \$78,650.69, only \$1,030 represent trade accounts. The balance is composed of reserves for income tax, sinking fund, workmen's compensation and other items." On Sept. 8 the directors declared the regular dividend at the rate of 7% per annum on preferred stock, but cut the quarterly dividend on common stock from 2% to 1%, for the three months ending Sept. 30.

Metal and Thermit Corporation, New York, N.Y., recommends that in order to compensate for the lower melting of cast iron, as compared with steel, that in preheating cast iron sections, preparatory to Thermit welding them, the sections be heated only a little more than necessary to show color, such as a dull red heat. If this advice is followed, a quieter pour will be obtained and the fusion will be just as perfect. This practice is said to have been tried successfully in numerous cases, the most important case being a Thermit weld on a large cast iron press head, which required 1,100 lb. of Thermit. The weld was absolutely perfect, with good fusion to the extreme edge of the collar, although the cast iron section was heated only to a dull red heat. It is believed that this point is very important to bear in mind, and that operators will find that it will overcome possible difficulties which they may be experiencing in cast iron welding. One might suppose that as the cast iron of the parts being welded is not quite fully expanded at this lower temperature, there might, therefore, be a slightly greater tendency for hair line cracks to appear in the Thermit steel collar perpendicular to the line of break. In actual practice, however, this has not been found to be the case, probably because the expansion curve is much greater up to a red heat than it is from the red heat to the white heat, and that the sections are, therefore, practically fully expanded at this dull red heat. The Thermit steel at first heats and expands the sections with which it comes in contact, and, therefore, the slight difference in preheating is negligible.

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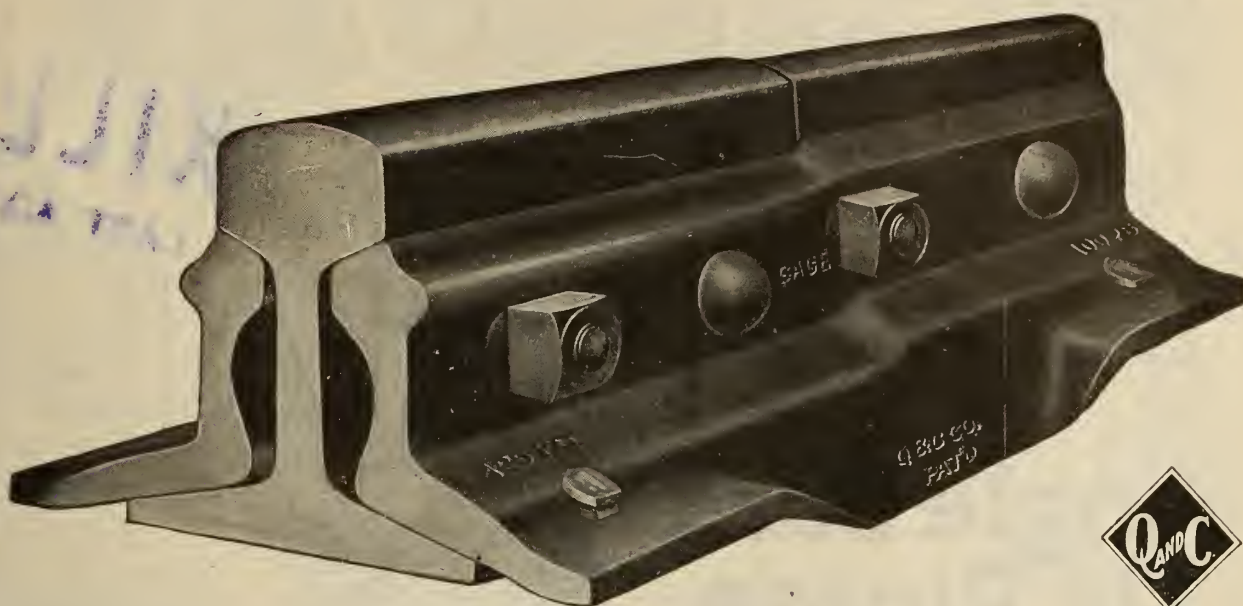
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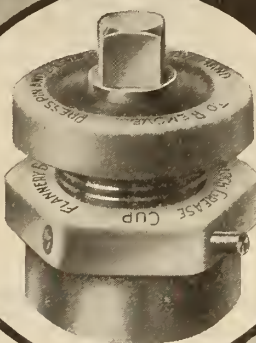
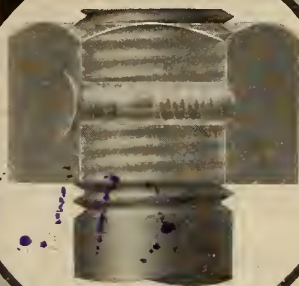
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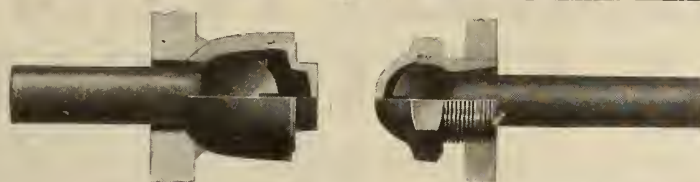


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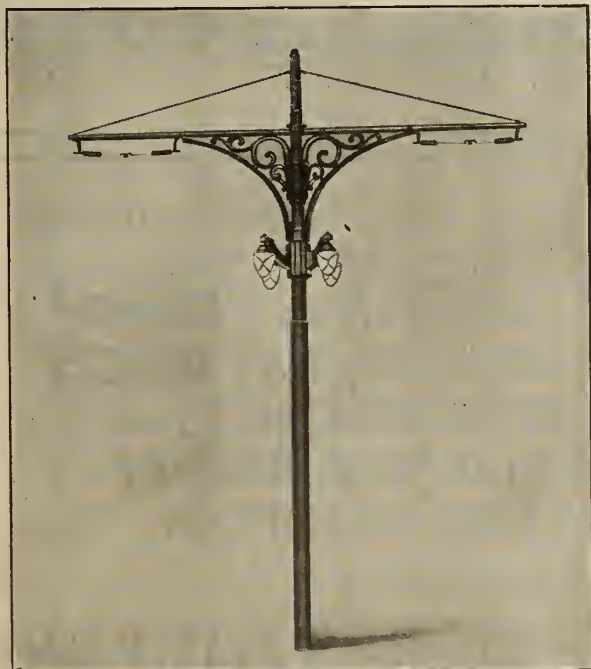
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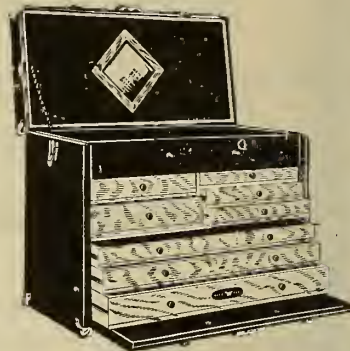
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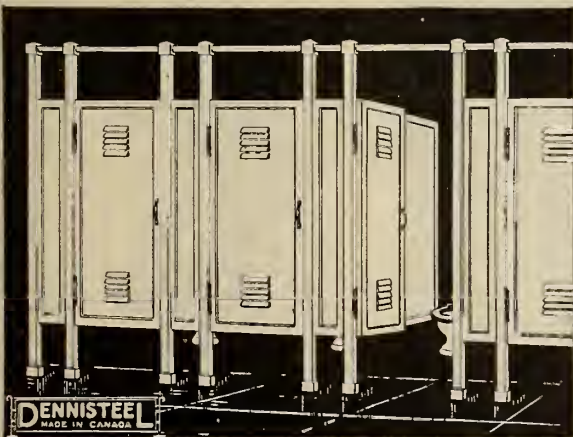
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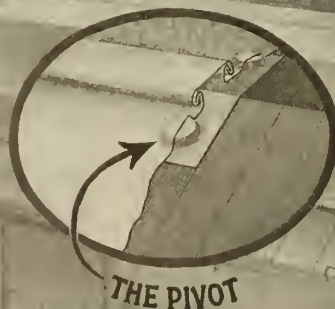
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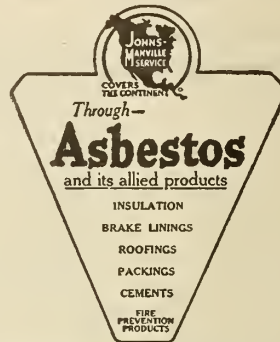
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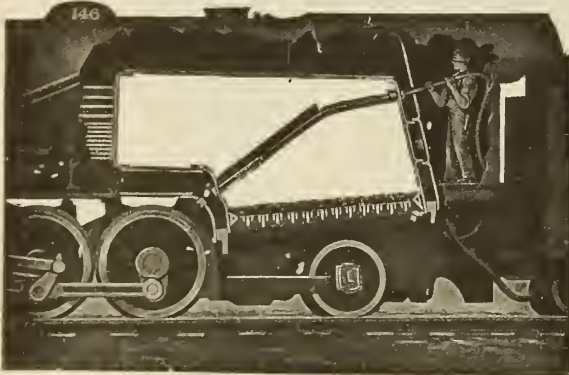
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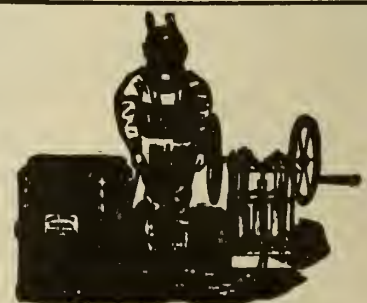
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General Supply Co.
Lundie Engineering Corporation
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General Supply Co.

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Canadian Steel-Tire & Wheel Co.

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Pratt & Whitney Co.**TOOLS, TRACK**John Bertram & Sons Co.
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F. H. Hopkins & Co.
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PF		OJ	
PG		OK	
PH		OL	
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PJ		ON	
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PL		OP	
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PN		OR	
PO		OS	
PP		OT	
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PV		OZ	
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Founded in 1898 by Acton Burrows.

Number 297.

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TORONTO, CANADA, NOVEMBER, 1922

See page 559 for
Subscription Rates

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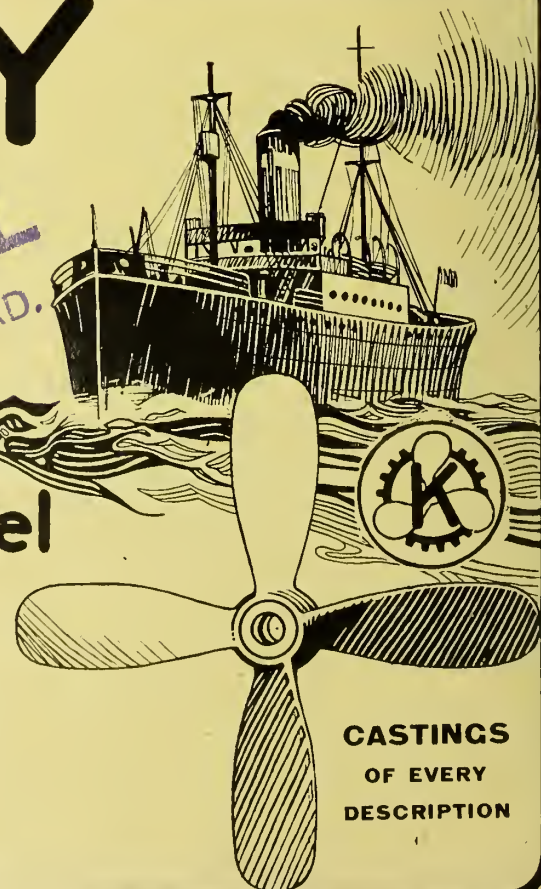
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CANADIAN RAILWAY AND MARINE WORLD

Toronto

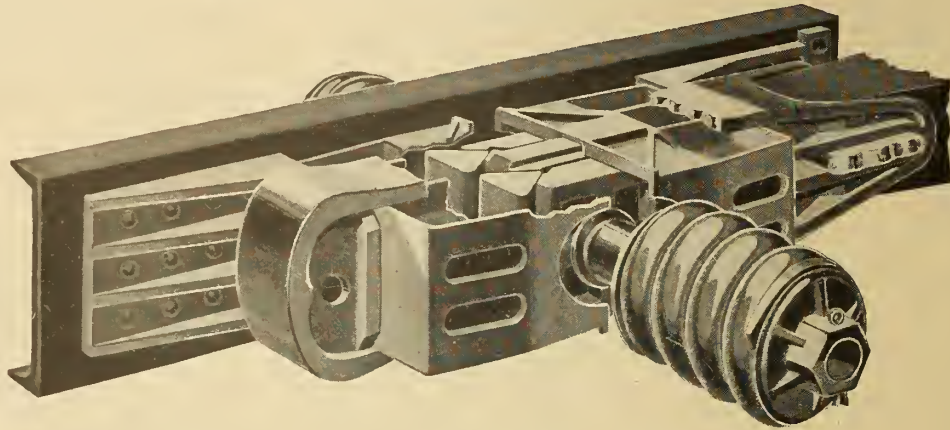
Canada

Acetone.
Acids.
Air brake material.
Angle bars.
Axes.
Axles.
Babbitts.
Batteries.
Blankets.
Belting.
Boilers.
Boiler compound.
Boiler lagging.
Bolts (various kinds).
Ballast unloaders.
Brake beams and heads.
Bolsters.
Brake shoes.
Brass sheets, rods, tubes, etc.
Brooms.
Brushes.
Bumping posts.
Carbide.
Carpet.
Car replacers.
Car movers.
Cars, passenger, sleeping, freight, etc.
Cars, hand and push, "dump."
Castings (brass, grey iron, malleable and steel).
Cement.
Chain.
Charcoal.
Cotton.
Coal.
Coke.
Couplers and parts.
Cranes.
Culverts.
Curtains.
Ditchers.
Door checks.
Drills of various kinds.
Drugs and disinfectants.
Dynamite.
Dynamos.
Emery wheels.
"powder and paper."
Fence posts.
Fencing.
Ferrules.
Files.
Fire brick and clay.
"extinguishers."
Forges.
Foundry supplies.
Furniture.
Fusees.
Gaskets.
Gauges.
Generators.
Grain doors.
Grindstones.
Gasoline engines.
Hammers.
Headlights.
Hose and rubber goods.
Injectors.
Interlocking and signal apparatus.
Iron (bars).
" (staybolts).
" (pig).
Jacks.
Journal boxes.
" bearings.
Ladders.
Lamps.

Lamp burners.
Leather.
Locks.
Locomotive and parts.
Lumber.
Lubricators.
Machine tools.
Motors.
Nails.
Nuts (iron and steel).
Oil storage equipment.
Oils (various kinds).
Packing.
Paints.
Paper.
Photo supplies.
Patterns.
Picks.
Pile drivers.
Pipe fittings.
" covering.
Plaster.
Pulleys.
Punches.
Pumps.
Putty.
Radiators.
Rails.
Rail braces.
Reamers.
Rivets.
Roofing.
Rope.
Sand.
Salt.
Saws.
Seals.
Screws.
Shafting.
Shovels.
Snow ploughs.
Spikes.
Springs.
Stationery.
Staybolts.
Steam shovels.
Steel and iron sheets and plate.
Spring steel.
Tool steel.
Structural steel.
Stocks and dies.
Stoves.
Stove pipe.
Superheaters.
Switches.
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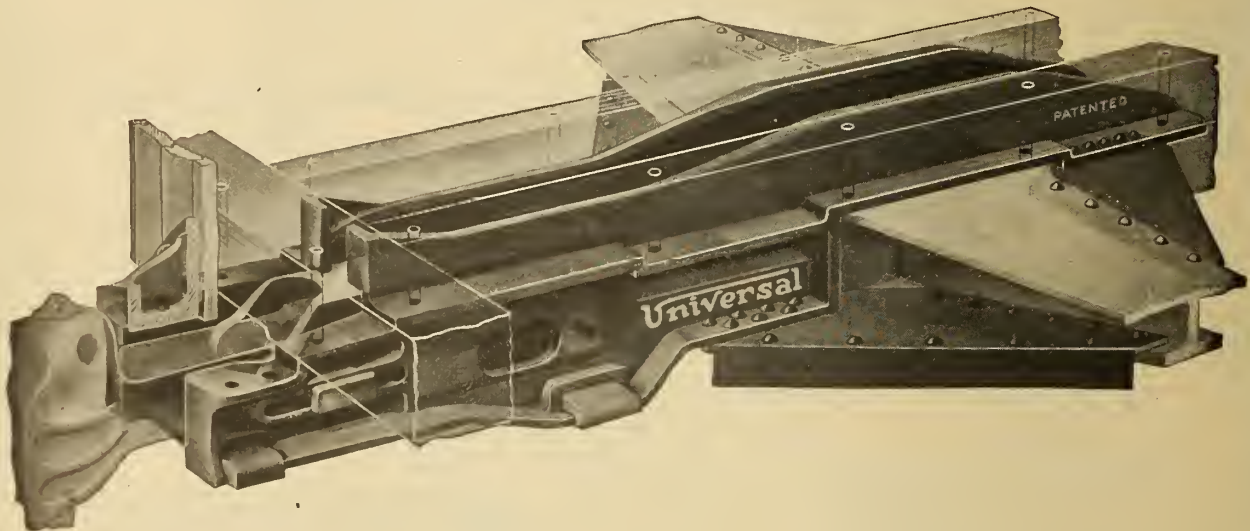
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To get good bonding and keep it

Good bonding is a first essential of economical operation of an electric railway. And O-B AW-7 and AW-8 are the economical ways to get good bonding that stays good.

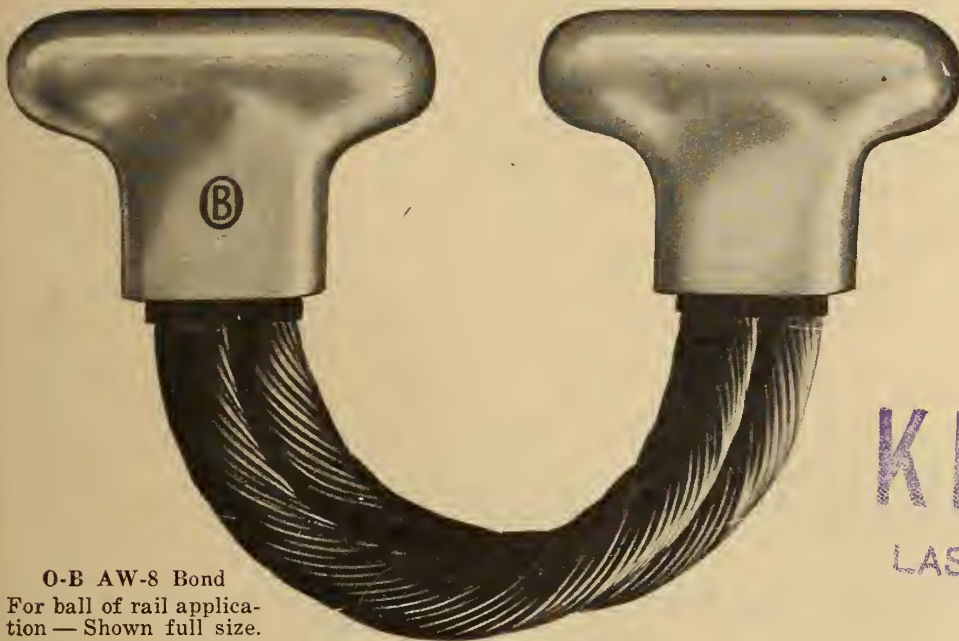
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Copper strands are thoroughly welded, at the factory, into a heavy steel terminal which protects the copper during welding, which adds strength to the weld and which provides "steel to steel with steel" welding on the job.

O-B AW-7 and AW-8 Bonds have a wide angle

welding scarf which makes good welding possible and which gives room for an adequate volume of metal.

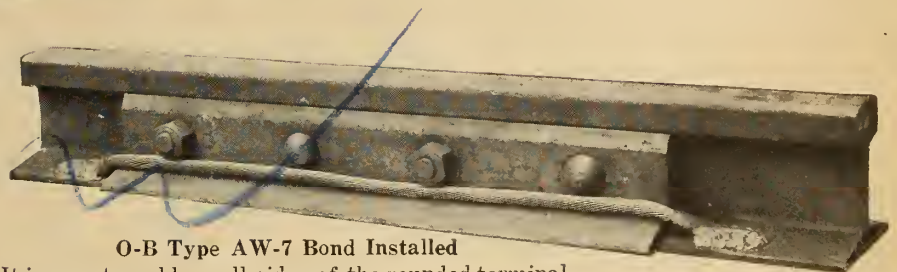
A copper sleeve, around the strand where it joins the terminal, absorbs and damps vibration.



O-B AW-8 Bond
For ball of rail application — Shown full size.

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It is easy to weld on all sides of the rounded terminal.

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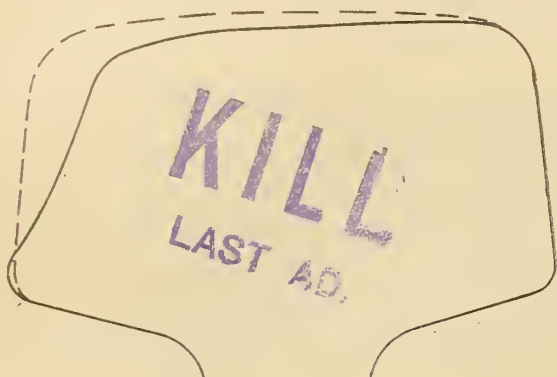
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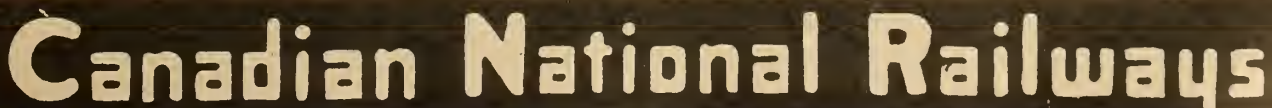
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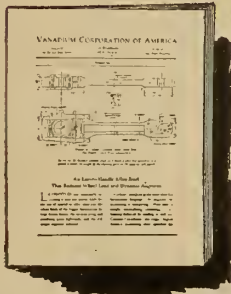
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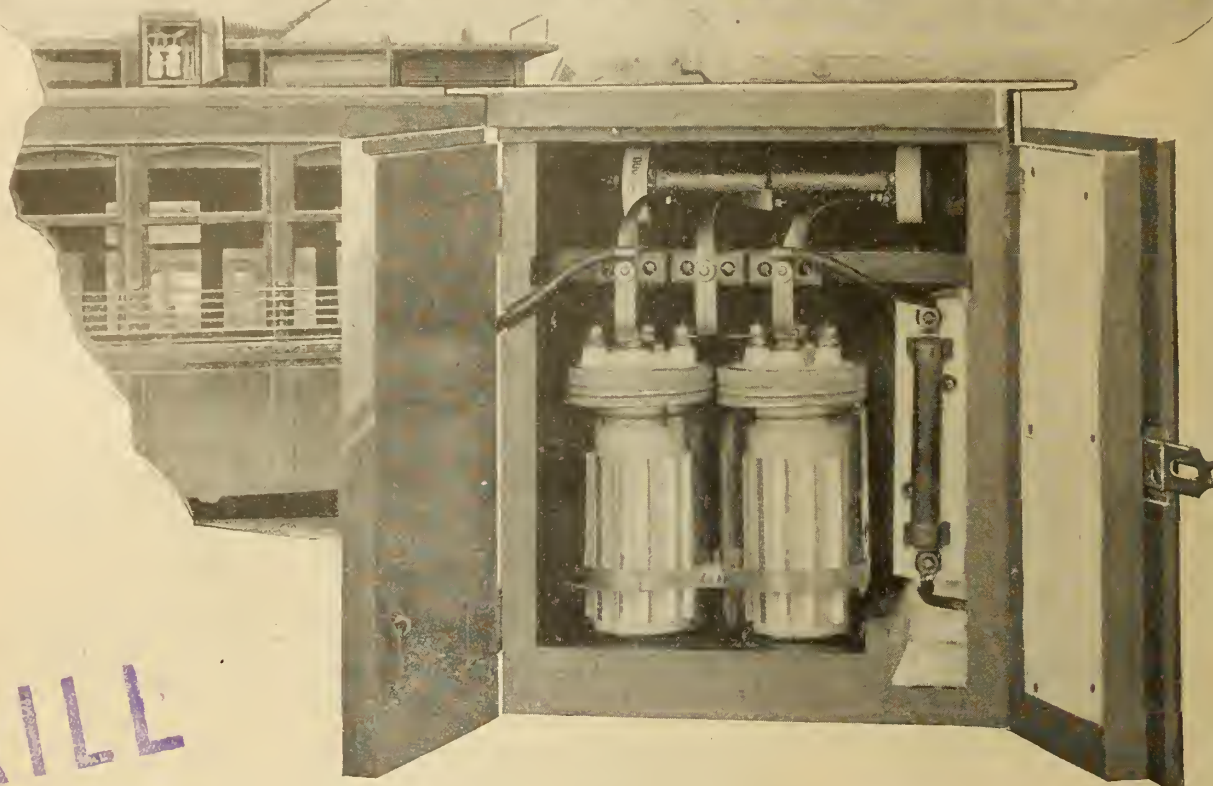
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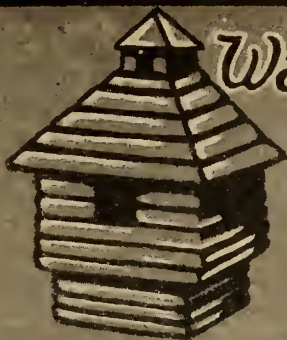
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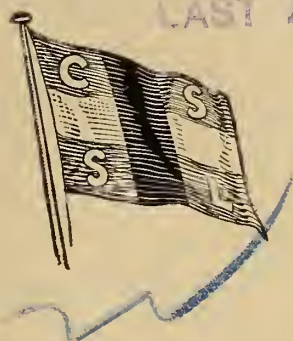
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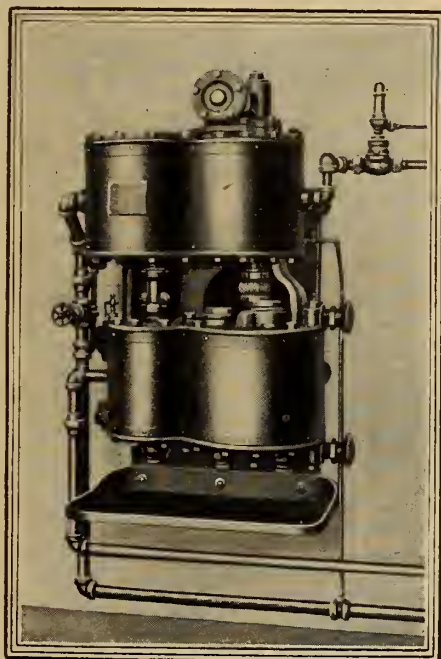
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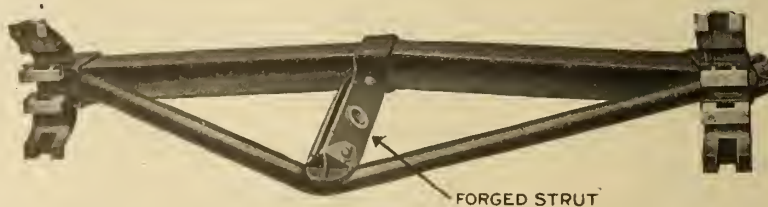
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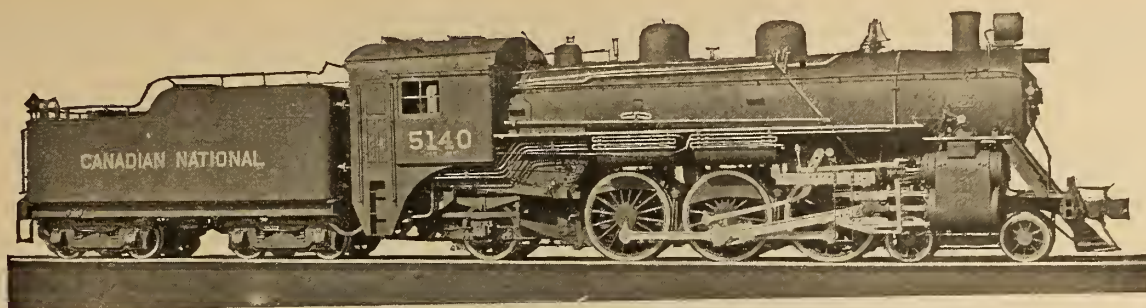
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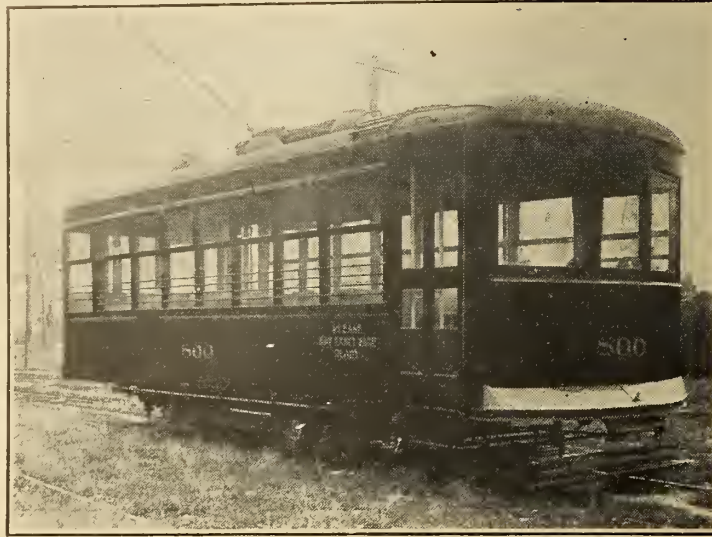
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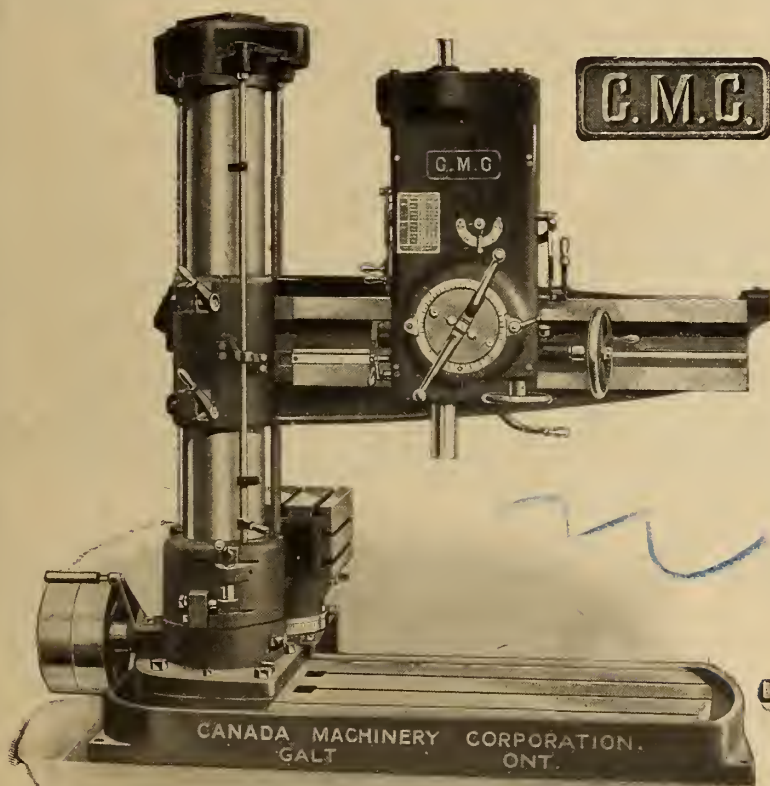
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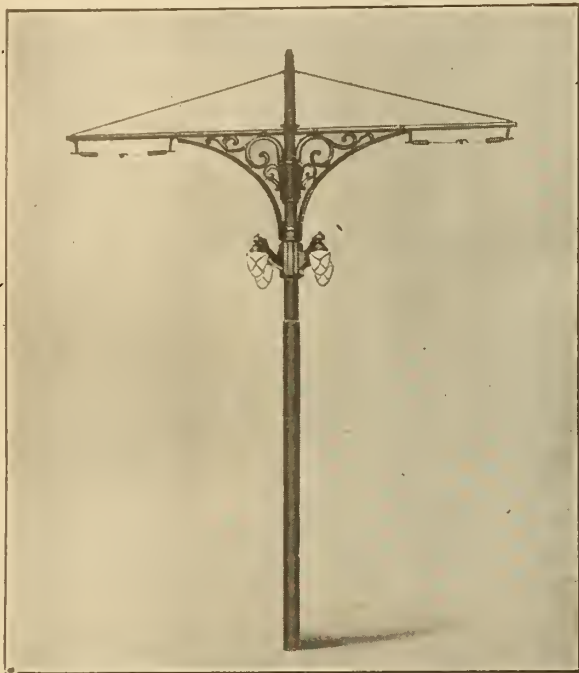
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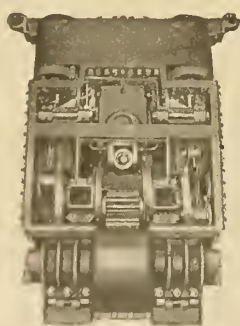
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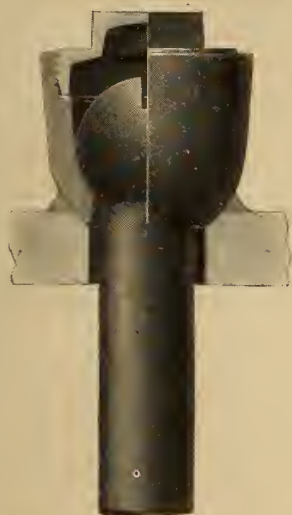
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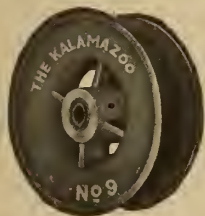
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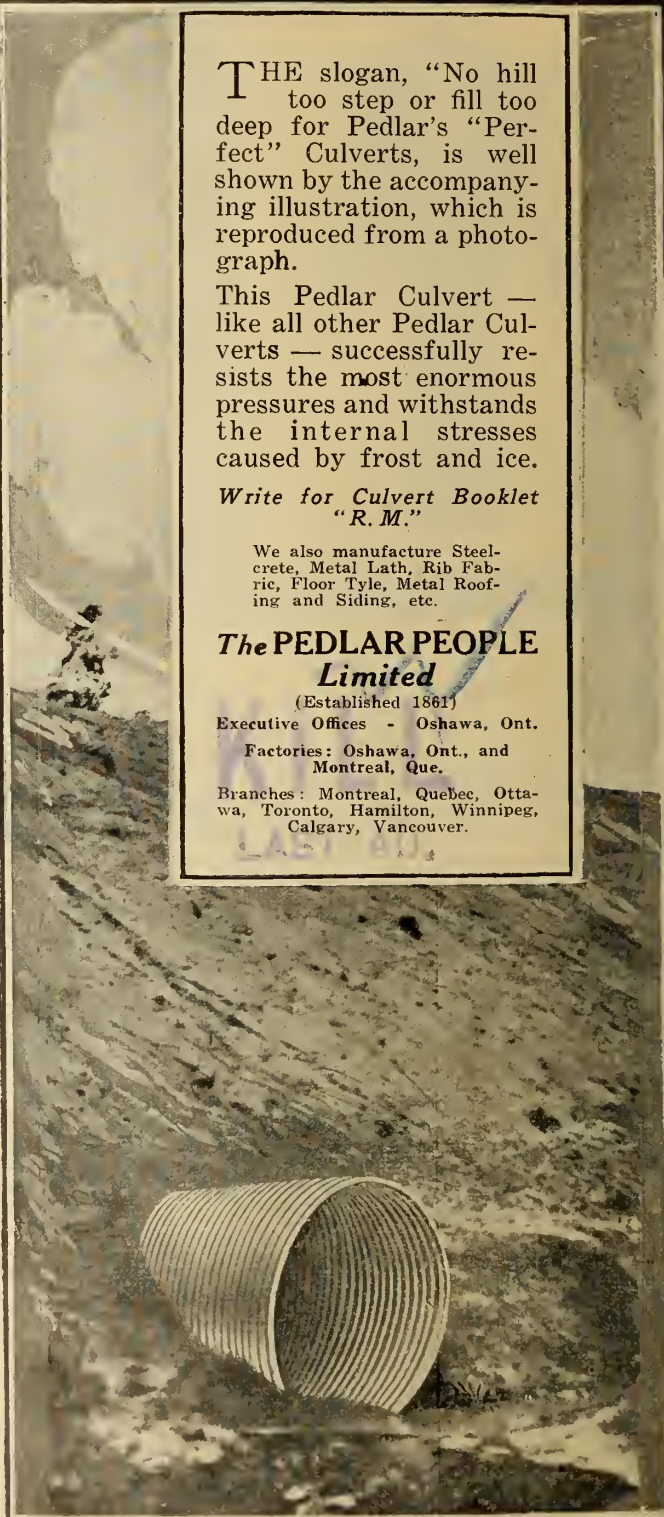
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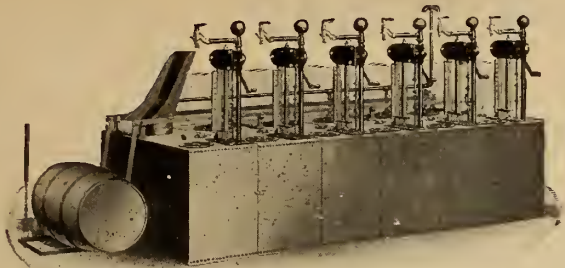
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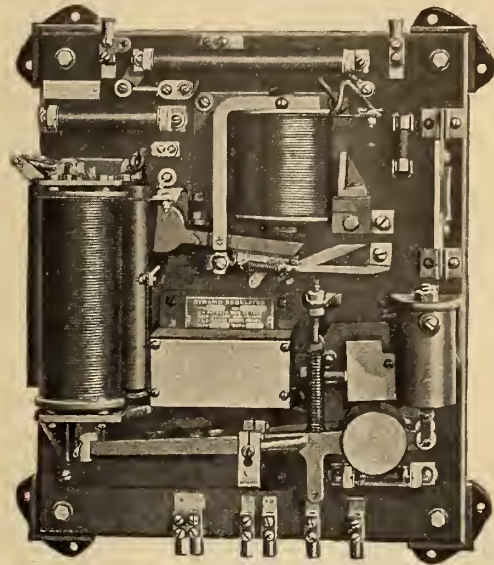
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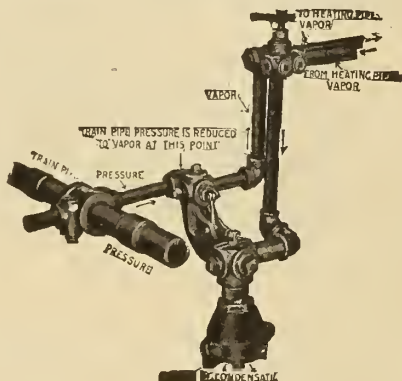


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Canadian Railway and Marine World

November, 1922

The Pacific Great Eastern Railway's Position and Prospects.

The Pacific Great Eastern Ry. was promoted to give a connection between the Grand Trunk Pacific Ry. at Prince George, B.C., and the city of Vancouver. The British Columbia Legislature guaranteed the company's bonds and during the construction period was forced to take over the line owing to the original guarantees having been exhausted. The government then gave a contract to the Northern Construction Co. for the completion of the line to Fort George but as the cost of construction continued to mount up in excess of estimates, and the deficits in operation to increase, the question was raised as to whether it was wise to continue. With a view of arriving at a conclusion on this matter the Government was authorized at the Legislature's session to obtain reports on the railway as laid out, its operation, and the prospects of the country through which it passed. Acting on the advice of Lord Shaughnessy, and D. B. Hanna, the British Columbia Premier invited J. G. Sullivan, Consulting Engineer, Winnipeg, and formerly Chief Engineer, C.P.R., to report on the physical condition of the line; W. P. Hinton, formerly Vice President and General Manager Grand Trunk Pacific Ry., to report on operating matters and Col. J. S. Dennis, Chief Commissioner of Colonization and Development, C.P.R., to report as to the possibilities of development of the territory through which the line passes. Their reports have now been issued by the government.

J. G. Sullivan's Report says it is evident that the principal object in building the line was to make a rail connection between Vancouver and the Grand Trunk Pacific Ry. The route chosen was to start from North Vancouver, where practically no terminal facilities were provided, follow the seashore for 42 miles to Squamish, at the head of Howe Sound, and then strike northeasterly. After describing the route followed, and suggesting that it might have been better to go through the old town of Lillooet, instead of building a long bridge to a new townsite, and that the best route at Quesnel was 1, 3 or 4 miles back from the Fraser River, which had never been considered by the original locating engineers or by the Government engineers on the relocation of this section, Mr. Sullivan says: "The locating engineers of this line are to be complimented in their successful locating of a line to fit the contour of the country. I have never been over a line the length of the P.G.E.Ry. where one could find so few points of detail in location to criticise. The curves of 2 degrees and over, are all spiralled and the line so located as to make excavation balance embankments, all of this tending to economic construction if it were not for the country's adverse physical features." These, he stated were all adverse to the economic construction of the line, and tended to make the cost of maintenance almost prohibitive.

The line is built from North Vancouver to Whytecliff, 12.7 miles and the

cost of the 42 miles thence to Squamish, is estimated at from \$3,500,000 to \$4,000,000. The line is built and in operation from Squamish to Quesnel, 350 miles; grading is completed to Prince George, approximately 80 miles, and track is laid thereon from Quesnel to Cottonwood River, 17.5 miles, and from Prince George to Red Rock Creek, 18 miles, leaving about 45 miles to be completed. The timber for the trestle work, and the rails and fastenings for this mileage are on the ground, and the steel for the superstructure of the Cottonwood River viaduct has been fabricated, but nothing has been done in putting in the foundations. The cost of completing the gap and putting it a state for operation, is estimated at from \$500,000 to \$600,000. The line is built in accordance with good branch line construction, with 70 lb. rails on gradients of 2 and 2.2 degrees, and 60 lb. rails at other places, and very liberally supplied with a good type of tie plate on curves. There are on the line 27 wooden bridges having a total length of 3,180 ft., in addition to 27,000,000 ft. b.m., wooden trestles and culverts, without taking into account the 8,400,000 ft. b.m. to go in to complete the Quesnel-Prince George gap. The timber structures, while standard for new construction in a lumber country, can only be maintained at a very heavy cost. The replacement of them with permanent ones of concrete and steel and in places with solid embankments would require at least \$8,000,000 of new capital expenditure. The track has been laid with too much expansion, and this is more apparent on the portion of the track laid since the B.C. Government took over the line. If the line is completed between Quesnel and Prince George extra equipment to the value of \$1,500,000 would be required. The total amount of new capital required to complete the line between North Vancouver and Prince George would be approximately \$6,000,000.

The total par value of the debt is \$44,226,403.12, of which \$5,925,125 is held by the company, leaving outstanding \$38,301,208.12, the interest charges for 1921 on which were \$1,911,913.14. The total investment as shown in the company's books at Dec. 31, 1921, was \$28,438,590.23, of which \$10,543,530.79 had been paid out in interest and deficit on operation during construction. If the line is completed from North Vancouver to Prince George, \$14,000,000, will have to be added, and if the line is completed from Quesnel to Prince George only, \$10,000,000 will have to be added, to the total investment, bringing the total interest charges to be borne up to \$2,611,913.14, and \$2,411,913.14 respectively. If no more construction be undertaken and the Quesnel-Prince George line be abandoned the total new capital required, allowance being made for salvage, would be \$6,250,000, bringing the total investment up to \$44,688,950, and the interest charges to \$2,224,413.14 for 360 miles of railway. It is therefore evident that whatever action is taken the owners are

faced with an ultimate minimum charge of \$5,500 a mile of railway.

During the year ended Dec. 31, 1921, the railway carried 15,290 passengers and 53,351 tons of freight, and earned from all sources \$484,326.88. The total gross corporate expenses were \$2,689,205.11, showing a net corporate loss, of which \$292,965.12 represented the operating loss and \$1,911,913.14 the interest charges. After discussing rates and ton mileage as a necessity in the production of ton mileage, Mr. Sullivan points out that the residents in the district served by the railway are not suffering from unreasonable freight rates, but from unfavorable location. The P.G.E. Ry. must depend almost entirely on business developed upon its own line, for revenue, as no business of any moment can be expected from the Canadian National Rys. which have a shorter line into Vancouver, and one cheaper to operate. After looking into the possibilities of increasing the traffic through development, Mr. Sullivan reaches the conclusion, "That as a local line between Vancouver or Squamish and Prince George the country will not produce enough traffic at any reasonable rate to pay operating expenses plus fixed charges."

In his letter of instructions to Mr. Sullivan, the Premier asked for an opinion on several distinct questions concerning the government's action upon the construction of the line. In regard to these, Mr. Sullivan finds that the Government was justified in making the revision at the crossing of the Cottonwood River, which effected a saving of 5 miles in distance, of 1,103 degrees in curvature and 137 ft. of rise against traffic in both directions, estimated to effect an annual saving in operation of \$31,777, as against the original line. The revision of the line at the crossing of the Quesnel River, which shortened the distance by one mile and saved 318 degrees of curvature, but added 67 ft. of rise against traffic in both directions, Mr. Sullivan considered as not justified. The saving effected in operation of the revised line into Quesnel would have justified a capital expenditure of \$439,215 on a revision, whereas the revision actually cost \$861,028.12. Regarding the question whether the construction work had been done economically after the Government took charge, Mr. Sullivan says, "If there is any criticism to make on the Government management's action, it would be for proceeding with the work when construction costs were from 50 to 100% higher than normal, and when the rates paid for money were at least 25% higher than normal, and at a time when practically all new industrial expansion was at a standstill." During the construction period there was a change in the terms of the contract, under which it was alleged that the contractors were paid \$700,000 more than they would have received had the original contract been adhered to. This allegation, Mr. Sullivan finds, is not in accordance with facts.

Mr. Sullivan discusses the proposals to

extend the line from Prince George, and shows that the traffic at present moving in the Peace River country will not justify the construction of a line either via Parsnip River and Pine River Pass, or to Grande Prairie. Regarding the Quesnel-Prince George section he points out that entrance into Prince George would have to be made over the Grand Trunk Pacific Ry. bridge, and that the territory through which the line would pass is undeveloped, and he expresses the opinion, the completion of the extension would impose a further burden on the railway and the province. He therefore recommends that the extension be abandoned and the track laid be salvaged. With regard to the proposal to extend the line from Clinton to Ashcroft there are, he says, "three principal objections. (1) The cost of building 46 miles of new line; (2) the necessity of making a division of revenues with another line; (3) making another break in the railway, which would increase the cost of operation. While there is no doubt that the proposed line would be far superior to the line built to handle business to Clinton and points north, the present development of the country will not warrant the construction of this line."

As to the possibility of leasing the line to any other railway, he points out that the line was originally projected to give the Grand Trunk Pacific Ry. an outlet to Vancouver, but with the amalgamation of the Canadian Northern Ry. and the G.T.P.Ry., it would now be of no value to that line, and possessed no strategic advantages which would make it attractive to any new line, except that if the craze for building railroads should ever demand a railway to Alaska it might become a link in it.

Mr. Sullivan concludes his report with seven recommendations, viz.:—(1) The building of the line from North Vancouver to Squamish cannot be justified on any grounds, therefore there should be some arrangement with the municipalities which granted concessions for its construction, and dispose of the line to Whytecliff. (2) Under present conditions no construction work of the Grand Trunk Pacific Ry. should be undertaken. (3) The line from Quesnel to Prince George should be abandoned. (4) Abandon the operation of steam trains in the rest of the line, and operate it by gasoline driven motor cars, selling some of the locomotives to provide these cars. Operate freight trains as business offers. Close down portions of the line during the winter. Raise both passenger and freight rates to all that the traffic will bear. Encourage the development of the country. Abandon the operation of the line between Dragon Lake and Quesnel, unless the municipalities inside of that point will pay maintenance costs in excess of \$1,250 a mile. If these suggestions are carried out the line should do better than pay operating expenses until such time as heavy renewals or replacements are required. 5. The engineers to keep in mind the possibility of abandoning the line south of Clinton, either by salvaging or selling it to the lumbering interests, with a view to the construction of the line from Clinton to Ashcroft if development warrants. 6. The province should not guarantee any more bonds for the construction of branch railways. 7. If the province is not prepared to continue paying \$2,000,000 to \$2,500,000 a year in interest and deficits the entire project should be abandoned and whatever salvage is possible should be recovered.

W. P. Hinton's report, first of all, deals with the present operating organization, which he finds both in numbers and remuneration sufficient for the bare operation of the various departments, but, with additional clerical assistance, sufficient to handle a much larger amount of business. He recommends that the North Vancouver-Whytecliff line be reduced to the status of a tramway and operated with motor cars, to reduce expenditure. There is no possibility of obtaining any net revenue from the operation of the line from Squamish to Clinton, to the abandonment of which consideration should be given when the Prince George connection is completed. If the Squamish-Clinton line is abandoned, the salvage could be used in the construction of the suggested line from Clinton to Ashcroft. In this way, the line would be preserved where there are traffic possibilities, and operating costs would be normal. It would connect the line most effectively with the outside to afford markets on a favorable basis with other competitors, so that colonization and the development of industries would be possible, and, furthermore, be the means possibly of making the property more attractive to other railway lines to lease and operate under suitable conditions, thereby relieving the people of the province to a very marked extent of an obligation which is bearing and must increasingly become intolerably burdensome. There can be no hope of effecting arrangements to relieve the province under present conditions and prospects, but if the connections are effected at Prince George and Ashcroft, the province only retaining the line, if any, north of Squamish, until it, too, can be entirely abandoned, then it should not be difficult to conclude arrangements that would meet with the general approval of the public as constituting a welcome relief from the present burden.

Col. J. S. Dennis concludes his report as follows. "From a careful and detailed inspection of the natural resources tributary to the P.G.E.Ry., and a careful study of the available reports relative thereto, I am forced to the conclusion that, while there is the possibility of materially extending the present development of the agricultural, lumber and mineral resources, through the medium of government assistance, there is no prospect that traffic can be created as a result of such development, at least, for many years to come, sufficient to provide for the heavy fixed charges resulting from the construction, maintenance and operation of this railway line." He suggests the creation of a colonization and development department of the railway's service, to study the area, and advise the government as to a development policy.

The Bad Order Car Situation.

The Railway Association of Canada reports the total number of freight cars on Canadian lines for the period ended Oct. 1, as 196,267. The allowance for bad order cars on the A.R.A. basis, which assumes a total of 7% of the cars in bad order, was 13,739, and the actual number in bad order was 13,797, an excess of but 58 cars on the 7% basis. The figure 13,797 represents 7.03% of the cars in bad order. The car surplus which has existed throughout the year to date has been replaced by a car shortage, the shortage as of Oct. 1 being 7,667 cars.

The American Railway Association's Car Service Division reports that the total number of freight cars on line on class 1 roads in the U.S. on Sept. 15, was 2,269,060. Of these, 304,548, or 13.4%,

were in bad order, compared with 14.1% on Sept. 1. Out of 1,046,439 box cars, 137,084, or 13.1%, were in bad order; out of 56,764 refrigerators, 7,418, or 13%, were in bad order; out of 948,427 gondolas, 134,714, or 14.2%, were in bad order; out of 81,858 stock cars, 9,827, or 12%, were in bad order, and out of 93,551 flat cars, 12,400, or 13.2%, were in bad order.

From the above figures showing the condition of Canadian cars, it is evident that Canadian railways have their equipment maintained well up to the 7% margin, which represents about the best possible condition which can be secured. There is, however, large room for improvement in the condition of the U. S. lines' equipment, and it is evident that if the percentage of bad order cars could be reduced from 13.4, where it stood on Sept. 15, to 7%, a large number of cars could be released to help to meet the car shortage which has developed and which threatens to become worse. Altogether apart from the shopmen's strike, the abnormal bad order car situation in the U.S. is a heritage from the period of Federal control, and the period following it, in which the majority of the U.S. lines had earnings which were very seriously restricted, when maintenance was necessarily cut to a minimum. It was an unfortunate thing that, coincidentally with an improvement in earnings, and a consequent increase in the roads' ability to expend sums for equipment maintenance, the shopmen's strike developed, for it prevented a speedy catching up with the deferred maintenance work. The American Railway Association's Car Service Division is in receipt of numerous communications calling attention to the enormous wastes that are taking place on account of car shortage, and it is to be hoped that good progress will in future be made on the U.S. roads in getting their freight equipment into shape. The condition of the U.S. freight equipment cannot fail to be reflected in the transportation situation in Canada, for the railway industry in this country is interwoven in every way with that in the U.S., and a car shortage in the U.S. is immediately felt in Canada. If the U.S. railways were supplied with 159,090 more cars, which is the number they would have if the number of cars in bad order were reduced from 13.4% of the total to 7%, there is no doubt that the Canadian car shortage would also be reduced.

Newsprint Paper Rates from Canada to Nashville.—The U.S. Interstate Commerce Commission, on June 13, suspended Maine Central Rd. tariffs I.C.C. C-3681 and C-3682, providing rates for the carriage of newsprint paper originating in Canada, to U.S. points, including Nashville, Tenn. On Sept. 15, it appearing that a hearing could not be completed before Oct. 13, the Commission passed a further order, suspending the operation of the schedules contained in the above tariffs until Nov. 12, or until permission has been given by the Commission to place them in effect.

Transportation of Mails by Steam Railways.—While the order in council of Sept. 13, as published in full in Canadian Railway and Marine World for October, providing rates of pay and regulations for transportation of mails by steam railways does not contain any time limit, it is probable that it will only be in effect for a year, viz., until May 31, 1923, and that before that time the railways will be called upon to give information, etc., as to the then costs of service, whether or not there is any decrease or increase, and that the rates to be paid thereafter will be based thereon.

All Steel Combination Mail and Baggage Cars, Canadian Pacific Railway.

Canadian Railway and Marine World for April gave some details of 15 combination mail and baggage cars built recently for the C.P.R., and an illustration of one of them was given. A floor plan of one of them is given herewith. Their chief dimensions are as follows:—

Length over buffers.....	82 ft. 10 1/2 in.
Length over posts.....	79 ft. 1 in.
Distance between truck centers.....	57 ft. 6 in.
Inside length, mail compartment.....	60 ft. 3/4 in.
Inside length, baggage compartment.....	18 ft. 1 1/4 in.
Truck wheel, base.....	11 ft.
Width outside over eaves.....	10 ft. 3/4 in.
Width between posts.....	9 ft. 1 in.
Width inside.....	9 ft. 3/4 in.
Height, top of rail to top of roof.....	14 ft. 1 1/2 in.
Height, top of rail to top of floor.....	4 ft. 5 3/16 in.
Weight, empty.....	160,600 lb.

The car underframe is built up of fish belly center sills, with 5/16 in. web plates, 9/16 in. cover plate and top and bottom reinforcing angles. The body bolsters are built up with 5/16 in. diaphragms, 1/4 in. top, and 11/16 in. bottom cover plates and reinforcing angles, and the side sills are 5 in. Z bars. The cars are of all steel construction, including the roof, 3-ply salamander insulation being used.

The truck frames, cross bolsters and center bolsters are of the cast steel Commonwealth type, and the wheels, 36 1/4 in. diam., have cast steel centers and Latrobe steel tires. The trucks are equipped with A.R.A. axles, with 5 1/2 x 10 in. journals, and McCord journal boxes with steel inserts, and the cars are equipped with the Coleman truck locking device. The elliptical springs have 6 leaves and 40 in. centers, and the triple coil springs are of 1 11/16 in., 1 1/2 in. and 11/16 in. material.

Air brake equipment is Westinghouse schedule L.N. 1812, simplex forged brake beam and Diamond S brake shoes are used, and geared type hand brakes are part of the brake equipment. The cars are fitted with Westinghouse schedule K air signal equipment, and American automatic slack adjusters, form K 1.

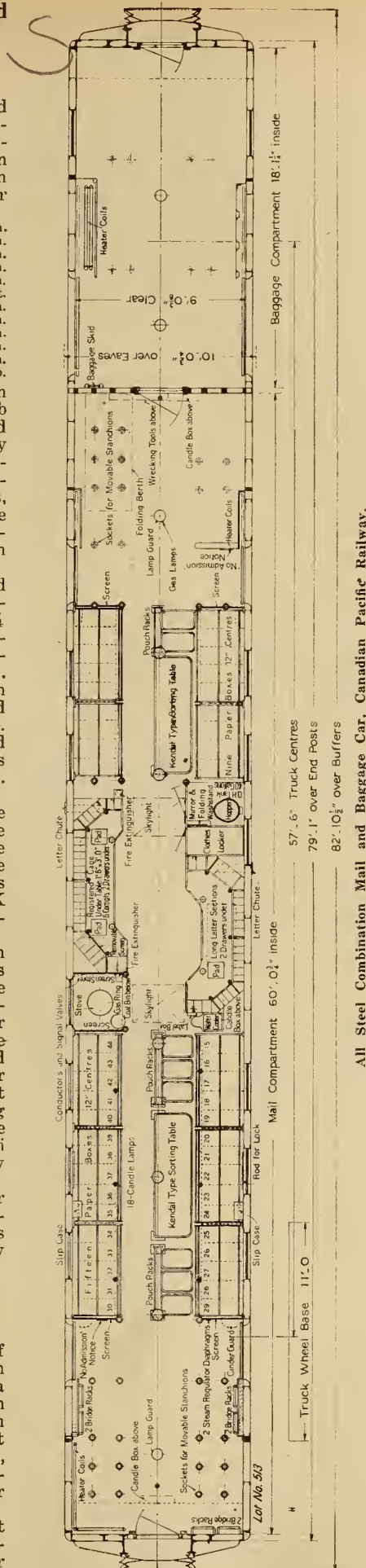
The draft gear is the Miner friction type, class A 5 P, passenger couplers with A.R.A. standard type D head are used, and Miner friction class B 10 buffers. The heating is the Vapor Car Heating Co's vapor system, and the lighting is the Safety Car Heating and Lighting Co's Pintsch gas system. Other specialties used in the cars' equipment include Holco improved type centering device, Acme diaphragms, Pyrene fire extinguishers, Rex pouch racks, Stucki side bearings, Gosso bunks, and utility exhaust honeycomb type ventilators.

The cars were built by Canadian Car and Foundry Co., Montreal. The couplers, truck center bolsters, truck cross bolsters and truck frames were made by the Canadian Steel Foundries.

The Hanna No Politics Order.

The Ontario Associated Boards of Trade and Chambers of Commerce, which met at Owen Sound recently, passed a resolution endorsing the position taken by D. B. Hanna, President, Canadian National Rys., that employees be not eligible for election to political offices, or take any part in the election of members for the Dominion Parliament or provincial legislatures.

Canadian National Rys. carmen, at their biennial meeting in Montreal recently, passed a resolution asking for the rescinding of Mr. Hanna's order.



Car Conversion Work, Canadian National Railways.

The Canadian National Rys. are converting, at the Moncton, N.B., shops, 200 flat cars into gondolas, for coal transportation, by boxing in the platforms with wooden sides and ends. They are to be used in handling coal from mines in the Maritime Provinces. The work was begun Oct. 1, about 7 cars a day being turned out, and it was expected that the 200 would be completed by the end of October.

The C.N.R. are also converting 4 baggage cars into mail cars at Moncton shops, and are fitting them with all modern conveniences for handling mail. Two of these cars were completed Oct. 4, and it is expected the other two will be completed before Dec. 31. In addition, 9 mail cars are being equipped with steel underframes, and having their interiors remodelled to conform to the latest specifications approved by the Board of Railway Commissioners and the Post Office Department. Four of them will be converted at the Moncton shops and the other five at Transcona, Man. The work is expected to be completed before Dec. 31.

Freight Car Location on Canadian Railways.

The Railway Association of Canada has issued a report on the location of freight cars on Oct. 1, based on returns from the following railways: Algoma Central & Hudson Bay; Canadian National, including Grand Trunk Pacific; Canadian Pacific; Central Vermont, in Canada; Dominion Atlantic; Edmonton, Dunvegan & British Columbia; Grand Trunk; Kettle Valley; Michigan Central, in Canada; Napierville Jet.; Pere Marquette, in Canada; Quebec Central; Quebec, Montreal & Southern; Timiskaming and Northern Ontario; Temiscouata; Toronto, Hamilton & Buffalo; Wabash, in Canada, as follows: Cars owned by reporting railways, 221,918; home cars on Canadian foreign lines, 18,071; home cars on U.S. lines, 49,271; home cars on home roads, 154,576; Canadian owned foreign cars on home lines, 16,465; U.S. owned foreign cars on home lines, 25,226; total cars on lines, 196,267; per cent. on lines to total owned, 88.4; deficiency on line to total owned, 25,651; home cars in bad order, 13,427; foreign cars in bad order, 372; total cars in bad order, 13,797; per cent. in bad order, 7; privately owned U.S. cars on lines, 2,032; privately owned Canadian cars on lines, 1,343.

The situation as concerns the number of Canadian cars on U.S. lines, and the number of U.S. cars on Canadian lines is dealt with on another page of this issue.

L. B. Howland, formerly General Manager, Irondale, Bancroft & Ottawa Ry., Irondale, Ont., subsequently of Toronto, and latterly living at Pasadena, California, in remitting his renewal subscription from the latter place, writes: "I always appreciate receiving Canadian Railway and Marine World, as it is an excellent medium in keeping me posted of the activities of many of my old railway pals, and reading its columns brings back many pleasant recollections."

E. G. Evans, Division Engineer, Canadian National Rys., Moncton, N.B., in remitting his renewal subscription to Canadian Railway and Marine World, speaks of it as a valuable publication, as still progressing, and as very useful for reference.

lines revenues only. Previous to this year they included water lines. Operating income items have been added. Freight and passenger train miles contain a proportion of mixed train miles, divided on the basis of freight and passenger car miles in mixed train service. In former years the total of mixed train miles were added to both freight and passenger train miles when computing averages. Total train miles include freight; passenger, with their proportions of mixed train miles; special train and non revenue train miles. The average freight revenue per freight train mile includes only rail line revenue. Average passenger train revenue per passenger train mile includes revenue from passenger, mail, express, excess baggage, parlor cars, etc., whereas previous reports gave an average per train mile of passenger receipts only. The number of employees is also a new feature of this year's reports.

The Railways' Operating Results for July.

The results secured by Canadian railways as a whole in July do not show a large change from those of June, 1922, or July, 1921, as concerns gross revenues, operating expenses, and operating ratio. The gross operating revenue for July, \$35,086,075, was \$1,732,882 more than that of June, but \$1,116,724 less than that of July, 1921. Freight traffic revenues in July were \$223,147 more than in June, 1921, and \$117,202 more than in July, 1921. The decrease in passenger earnings, however, combined with the falling off in revenues from other sources, made the July, 1922, gross earnings less than those of July, 1921, by the amount stated above.

Compared with June, total operating expenses for July for the railways as a whole increased somewhat greater proportionately than gross operating revenues as between the two months. Compared with July, 1921, total operating expenses decreased somewhat greater proportionately than the decrease in gross operating revenues, as between the two months. The result is that the operating ratio in July, 1922, was not quite as favorable as in June, 1922, but was a little more favorable than that in July, 1921. The change in either direction, however, was but fractional.

Regarding the classified items of operating expense for the railways as a whole, it is evident that maintenance of way and structures was well kept up, if the amount spent on the work is any criterion. Some reduction on the amount spent for maintenance of equipment is shown, while the reduction of \$1,039,651 in July, 1922, compared with July, 1921, in the expenditure on transportation account, is worthy of favorable notice. The wage reduction put in force on Canadian railways in 1921 did not take effect until July 16 of that year, so that in comparing transportation expenses for the two months, but two weeks of reduced wages can be considered as tending to make the July, 1922, expenses smaller. In view of this, and of the increased number of ton miles of revenue freight handled, and the increase in the number of passenger train miles operated, the reduction in transportation expense which was secured in July, 1922, must be considered satisfactory. Further, taking into consideration the amounts spent on maintaining the properties and their equipment, and combining this with our conclusion as to transportation expense, it may fairly be said that the railways in July accomplished as great a reduction in total operating expenses as could reasonably be looked for.

The railways as a whole handled 86,356,495 more ton miles of revenue freight in July, 1922, than in July, 1921, an increase of 5.1%. But due to the lower rates prevailing, caused chiefly by the reduction ordered by the Board of Railway Commissioners, effective Dec. 1, 1921, the gross revenue received from freight service increased only 0.53%. The lower rate scales prevailing are directly reflected in the figure for the average freight receipt per revenue ton mile, this being but 1.256c in July, 1922, compared with 1.313c in July, 1921. Extending our traffic comparison to the passenger service, it is seen that the lower gross passenger revenue secured by the railways as a whole was due, not only to the lower passenger rates, 2.756c per passenger mile in July, 1922, compared with 2.994c in July, 1921, but also to a decrease in the number of revenue passen-

gers carried (from 4,675,203 in July, 1921, to 4,454,055 in July, 1922), which more than counterbalanced the extremely slight increase in the average passenger journey, so that the number of revenue passenger miles was decreased materially.

In examining the number of units of transportation service which the railways found it necessary to furnish to handle the traffic offering, it is seen that the additional freight traffic handled (86,356,495 additional revenue ton miles) necessitated the operation of 79,906 additional freight train miles. This additional mileage was but a natural consequence of the additional freight traffic offered, and the increase in freight train mileage was not at all disproportionate to the increase in the revenue ton mileage handled. In applying the same examination to the passenger traffic figures, however, a different state of affairs is found. The railways' gross passenger revenues were derived from the operation of 11,494,501 less revenue passenger miles in July, 1922, than in July, 1921, but they found it necessary, or desirable, to furnish 37,498 more passenger train miles in July, 1922, than in July, 1921, while the number of passenger train miles was also increased, despite a slight decrease in the number of passenger cars per passenger train. It seems to be a characteristic of passenger business that service cannot be curtailed to accord with a falling off in traffic, to the same extent, or as quickly, as in freight service. A scheduled passenger train must operate, whether the cars are loaded to three-quarter capacity, or two-thirds. It is evident from these considerations that a falling off in passenger traffic means a clear loss to the railways, because expenses cannot be reduced to correspond. It costs the railway practically as much to operate the train loaded to two-thirds capacity as to operate the one loaded to three-quarters capacity.

The salient features of the railways' operating results for June, 1922, as compared with June, 1921, as reviewed in Canadian Railway and Marine World for October, viz., a greater traffic carried at less cost to the public, with railway operating expenses reduced so that a better net return was secured, are present in a comparison of the July, 1922, results with those for July, 1921, but not nearly to the same degree. The figures for operating revenue and operating expense per mile of road operated show better than any others, perhaps, the change which has taken place, and, considered in conjunction with those for traffic density, show that while an improvement was secured as between the two months, as concerns cost of railway transportation to the public and cost of railway operation, it was indeed slight.

The increase in the number of freight train miles operated by the railways as a whole was not disproportionate to the increase in the number of revenue ton miles of freight handled. The figures for loaded and empty freight cars per freight train mile show that more cars per train were operated, which tended to keep down the freight train mileage. On the other hand, though, the average number of tons per loaded freight car shows a decided falling off from July, 1921, but applied to revenue freight only, this falling off was not so great as to make the average revenue train load smaller than in July, 1921. Considering all freight, however, the July, 1922, train-

load was not quite so large on the average as that of July, 1921. A decrease in the average length of haul was an additional unfavorable feature. While, as pointed out, the additional freight traffic offered was handled with an increase in freight train miles which was not unreasonable, it is evident that with better car-loading the increase in the number of freight train miles would have been smaller than it was. However, while the railways can exert great influence toward heavier car loading, it must be borne in mind that this is a detail of railway operation which must be affected largely by commercial conditions and requirements.

Considering the results obtained by the three largest railways individually, it is seen that the Canadian National Ry.'s operating deficit increased from \$1,334,568 to \$1,633,001. Freight traffic and freight revenues were practically on a parity with those of July, 1921, but passenger earnings, due to lower rates, declined 8.6%, with an increase in passenger miles of 2.9%. Net freight train loading showed little change, but car loading declined 1.1 tons a car, and an additional car was added to each average train. Maintenance of way expense decreased 2.8%, but maintenance of equipment expense increased 15.8%, while total expenses increased 0.48%. While the increase in the number of employees was 4.5%, the pay roll decreased 1.6%.

Canadian Pacific freight traffic showed practically no change from July, 1921, but freight revenues declined 6.7%. Passenger traffic fell off 9.2% and passenger revenue decreased 15.6%. Total revenues for July, 1922, were 9% smaller than for July, 1921, but as operating expenses were 9.1% smaller, the operating ratio was improved very slightly, viz., from 87.04 for July, 1921, to 86.96 for July, 1922. Freight train miles increased 8.2%, the average trainload for all freight being 74.2 net tons smaller than in July, 1921. This was due to lighter loading of cars, as the average number of cars per train was practically the same as in July, 1921. Light movement of coal and grain this July undoubtedly helped to reduce the average load per car, which decreased 2.9 tons.

The Grand Trunk operating ratio of 79.7 for July is the best secured since the beginning of 1920. Net operating revenues were \$538,208 greater than for July, 1921. Freight traffic increased 31% and freight traffic revenue increased 19%, over July, 1921. Passenger traffic revenue was 11.7% less than in July, 1921. Total revenues increased 8.7%, while operating expenses increased only 0.67%. The railway situation in the United States, consequent on the coal strike and the railway shopmen's strike, undoubtedly served to increase G.T.R. traffic. It is noteworthy that the heavier traffic was handled with an increase in freight train miles of only 1.4%. The average net load per freight train was 531 tons, against 418.2 tons in July, 1921, and, with heavier loading of cars, the number of loaded cars per train was increased by 2.5, with a decrease of 2.1 in the number of empties. This improvement was effected, despite a light movement of coal, which would tend to decrease the average load per car.

A comparison of the July, 1922, results with those for July, 1921, shows, as stated above, but slight change. This means that but little progress has been made by the railways in their efforts to

get their operating ratio to where it should be, around 70 or 75. Results to date this year have amply demonstrated that all the advantages the railways have gained by reductions in wages and other items of operating expense have been passed on to the public in the form of lower freight and passenger rates. It remains to be seen how the last wage reduction is going to help matters for the railways. From the estimates made by railway traffic officers, as to the reductions in revenue which are going to be caused by the additional rate reductions, it is evident that the latest wage

and rate reductions are not going to help the railways much. Outside of an immediate upward revision in railway rates, or an immediate downward revision in railway wages and other expenses, both of which are extremely improbable, it is evident that the only way in which conditions in the Canadian railway industry can be permanently improved is by increased traffic, which at once gives increased emphasis to the fact, if, indeed, such be needed, that this country's primary need is greater population, increased industrial activity and greater production.

Birthdays of Transportation Men in November.

Many happy returns of the day to:—
J. O. Adams, General Eastern Freight Agent, Canadian National-Grand Trunk Rys., New York, born at London, Ont., Nov. 21, 1872.

J. O. Apps, General Agent, Mail, Baggage and Milk Traffic, C.P.R., Montreal, born at Tara, Ont., Nov. 9, 1877.

H. E. Beasley, General Superintendent, Esquimalt & Nanaimo Ry., Victoria, B.C., born at Hamilton, Ont., Nov. 10, 1862.

W. C. Blake, Divisional Accountant, Canadian National-Grand Trunk Pacific Rys., Winnipeg, born at Liverpool, Eng., Nov. 28, 1865.

C. C. Bonter, General Passenger Agent, Canada Steamship Lines, Montreal, born at Toronto, Nov. 13, 1884.

G. B. Burchell, Managing Director, Bras d'Or Coal Co., Little Bras d'Or, N. S., born Nov. 1, 1877.

J. R. Cameron, Assistant General Manager, Western Lines, Canadian National-Grand Trunk Pacific Rys., Vancouver, B. C., born at Truro, N.S., Nov. 5, 1865.

F. H. Clendenning, Foreign Freight Agent, C.P.R., Vancouver, B.C., born at Montreal, Nov. 9, 1881.

F. Conway, City Freight and Passenger Agent, C.P.R., Kingston, Ont., born at Ernestown, Ont., Nov. 19, 1850.

W. L. Crighton, General Advertising Agent, Canadian National Rys., Toronto, born at Derby, Eng., Nov. 9, 1871.

E. C. P. Cushing, Purchasing Agent, C.P.R., Calgary, Alta., born at Ottawa, Ont., Nov. 13, 1886.

W. R. Davidson, General Superintendent, Western Lines, G.T.R., Chicago, Ill., born at Everton, Mo., Nov. 8, 1871.

W. R. Devenish, C.E., General Superintendent, Ontario District, Canadian National Rys., Toronto, born in County Tipperary, Ireland, Nov. 21, 1882.

A. C. Douglas, Assistant General Purchasing Agent, C.P.R., Montreal, born there, Nov. 10, 1881.

W. Downie, ex-General Superintendent, Atlantic Division, C.P.R., now of Whitby, Ont., born at Rock Currie, Ireland, Nov. 12, 1850.

Jos. Dubrule, President, Prescott & Ogdensburg Ferry Co., and General Manager Canadian Pacific Car & Passenger Transfer Co., Prescott, Ont., born at Spencerville, Ont., Nov. 14, 1872.

R. L. Fairbairn, Assistant Passenger Traffic Manager, Eastern Lines, Canadian National Rys., Toronto, born at Stillwater, Minn., Nov. 24, 1880.

W. Fulton, District Passenger Agent, Ontario District, C.P.R., Toronto, born at Ballinderry, Count Antrim, Ireland, Nov. 13, 1870.

J. E. Gibault, Division Engineer, Canadian National Rys., Levis, Que., born at St. Jerome, Terrebonne County, Que., Nov. 16, 1887.

G. N. Goad, Superintendent, Nipissing Division, Ontario District, Canadian Na-

tional Rys., Capreol, Ont., born at Toronto, Nov. 26, 1884.

Grant Hall, Vice President, C.P.R., Montreal, born there, Nov. 27, 1863.

J. McMillan, General Manager of Telegraphs, C.P.R., Montreal, born at Liverpool, Eng., Nov. 2, 1866.

H. R. Mallison, Purchasing Agent and Secretary to President, Montreal Tramways Co., Montreal, born at Toronto, Nov. 14, 1873.

Oscar Masse, Terminal Inspector, Transportation Department, G.T.R., Montreal, born at Coteau, Que., Nov. 7, 1884.

R. C. Morgan, General Manager, Reid Newfoundland Co., St. John's, Nfld., born at Missisquoi Bay, Que., Nov. 12, 1864.

C. Murphy, General Manager, Western Lines, C.P.R., Winnipeg, born at Prescott, Ont., Nov. 20, 1865.

G. H. Nowell, Master Mechanic, Lethbridge Division, Alberta District, C.P.R., Lethbridge, born at Montreal, Nov. 13, 1885.

G. Pelletier, Assistant Superintendent, Canadian National Rys., Levis, Que., born at Isle Verte, Que., Nov. 28, 1872.

W. J. Quinlan, District Passenger Agent, Canadian National-Grand Trunk Pacific Rys., Winnipeg, born at Montreal, Nov. 21, 1883.

J. W. Reid, Inspector of Railway Safety Appliances, Board of Railway Commissioners, Calgary, Alta., born at Harvey, N.B., Nov. 12, 1872.

J. L. Roberge, General Manager, Levis Ferry Ltd., Quebec, Que., born at Burlington, Vt., Nov. 25, 1874.

J. J. Rose, Passenger Department, Robert Reford Co., General Agents, Cunard, Anchor and Anchor-Donaldson Steamship Lines, Toronto, born there, Nov. 22, 1878.

G. H. Shaw, ex-General Traffic Manager, Canadian Northern Ry., Toronto, born at Smiths Falls, Ont., Nov. 25, 1859.

P. D. Sutherland, General Agent, Passenger Department, Ocean Traffic, C.P.R., Hong Kong, China, born at Toronto, Nov. 2, 1879.

L. C. Thomson, General Storekeeper, Eastern Lines, Canadian National Rys., Toronto, born at Kingston, Ont., Nov. 25, 1882.

H. P. Timmerman, ex-Industrial Commissioner, Eastern Lines, C.P.R., Montreal, born at Odessa, Ont., Nov. 6, 186.

Guy Tombs, ex-Assistant Freight Traffic Manager, Eastern Lines, Canadian National Rys., now of Guy Tombs Ltd., Transportation Agents, Montreal, born near Lachute, Que., Nov. 22, 1877.

T. D. Utley, Car Foreman, C.P.R., Weyburn, Sask., born at Leytonstone, London, England, Nov. 1, 1890.

T. W. White, District Engineer, Canadian National Rys., Edmonton, Alta., born at Clinton, Ont., Nov. 29, 1880.

John Whitsell, Manager, Winnipeg Electric Ry., Winnipeg, born in Iowa, Nov. 30, 1868.

H. E. Whittenberger, General Mana-

ger, Western Lines, G.T.R., Detroit, Mich., born at Peru, Ind., Nov. 9, 1869.

W. A. Whyte, District Freight Agent, Canadian National Rys., Vancouver, B.C., born at Hornsey, Eng., Nov. 24, 1890.

Proposed Use of C.N.R. and G.T.P. R. Abandoned Lines for an Alberta Highway.

The Edmonton Automobile and Good Roads Association, is promoting the construction of a highway from Edmonton, Alta., to Vancouver, B.C., and favors the construction by Jasper Park, and the utilization of the abandoned right of way of the Canadian Northern Ry., and the Grand Trunk Pacific Ry., in that area as part of the route. Canadian Railway and Marine World for Sept. 1919, pg. 495, published a summary of the report of Alex. Fraser, engineer in charge of the track lighting operations in 1917 when the following mileages of track were lifted and sent over to France:—Grand Trunk Pacific Ry.—Between Imrie and Leaman Jct., 13.6 miles; between Obed and Pocahontas, 42.25 miles; between Geckie and Resplendent, 24.8 miles; total 90.65 miles. Canadian Northern Ry.—Between Leaman Jct. and Obed, 79.9 miles; between Snaring Jct. and Geckie, 22.5 miles; total 101.14 miles. Grand total, 192.60 miles. The remaining tracks of the two lines were then linked up.

The association mentioned has petitioned the Dominion Government for a transfer of the abandoned railway route to the Alberta government in order that the highway may be built. The petition stated, among other things, that in 1918, it was reported that unless the abandoned route was used for some purpose it would revert to its original wild state, and a recommendation was made that it be used as a link in the proposed Trans-Canada highway; that the Dominion Government did utilize 10.9 miles of the disused right of way for a highway from Libstick to Jeaman, at a cost of \$138 a mile; that since the 1918 report, 18 miles of the right of way has reverted to its original state and cannot now be used for highway purposes; that the route from Entrance to Pocahontas is now under from 8 to 20 ft. of sand; that the proposed highway could be built at a cost to the province of \$102,000 in addition to the Dominion highways grant to Alberta; and that the British Columbia Government, has promised to connect its transprovincial highway at the Alberta boundary with the proposed highway.

Accompanying the petition is a report of S. E. Braugh, who was assistant engineer on the work of lifting the rails in 1917, dealing with the abandoned right of way from Lobstick Jct., to the Jasper Park boundary, 121 miles. He says that the grade must be lowered so as to secure a roadway 18 ft. wide of solid material, graded round the existing railway bridges, and the ballast should be retained and spread over the new surface. It would be cheaper to build a road round the bridges than to lower, widen, floor and fence them. The estimated cost of the work varies, according to the route and plan of the work adopted, and to the mileage of the abandoned right of way included. The Grand Trunk Pacific Ry. right of way considered is between Imrie and Leaman Jct., and between Obed and Pocahontas, a total of 42.4 miles; and the Canadian Northern Ry. right of way involved, is 78.8 miles of the abandoned route between Leaman Jct. and Obed.

The Canadian National Railway and Grand Trunk Railway Directorates' Reorganization.

On Oct. 4, Prime Minister King announced in Ottawa that Sir Henry Worth Thornton, K.B.E., General Manager and Chief Engineer, Great Eastern Ry., of England, who had arrived in Ottawa that morning from England, had entered into a contract with the Dominion Government to be President of the Canadian National Rys., for three years, at a salary of \$50,000 a year, and that eight other members of the board, whose names are given below, had been appointed.

Prime Minister King, in announcing the appointments to the press, said:—"We have chosen our new board, and have secured the services of Sir Henry Thornton, General Manager of the Great Eastern Ry. in England, as our President. We have for some time been in communication with our own representatives in England, including High Commissioner Larkin, and we have been going over the field ourselves generally and thoroughly. We are persuaded that Sir Henry is the man we need, and the man who will give us the greatest satisfaction. Sir Henry arrived here this morning from New York, having, of course, full knowledge of what our business was with him. He has accepted our offer, and this afternoon cabled the directors of the Great Eastern Ry. that he had done so, and that he would, consequently, be obliged to sever his connection with them. Sir Henry has had a wide and thorough experience in railway, steamship and railway hotel business, and seems to possess just the qualifications that we so urgently needed. We have gone outside the country to choose a President, because if we took a man from a Canadian railway, or any other big Canadian corporation, with the requisite business capacity, he would necessarily be identified with some particular concern not helpful to his new work. If we chose a Grand Trunk or a Canadian Northern man we might be accused of showing special favor, or if we chose a man from the C.P.R., we would be immediately open to the charge of selling out to it. The man we have secured for the Presidency is trained in every department of railway work, and moreover, has had the full confidence of labor in his activities in England, so that he comes to us trained to act as a great, big umpire in a tremendous enterprise, where there are many interests to co-ordinate and compose."

The following orders in Council were passed on Oct. 4:—

Canadian National Rys. Board, No. 2,094:—"The committee of the Privy Council had before them a report, dated Oct. 4, 1922, from the acting Minister of Railways and Canals, referring to the Canadian National Railways Act, 1919, sec. 1, which reads as follows: '1. The Governor in council may nominate such persons as may be deemed expedient, not less than 5, nor more than 15, to be directors of the company hereby incorporated, and upon such nomination being made the persons so nominated, and their successors, and such other persons as may from time to time be nominated by the Governor in council as directors, shall be and are hereby incorporated as a company, under the name of Canadian National Railway Company, hereinafter called The Company. No stock ownership shall be necessary to qualify a director.' The Minister recommends that the following persons be nominated accordingly as directors of the said Canadian

National Railway Co., viz.: Major-General Sir Henry Worth Thornton, K.B.E., London, Eng.; John H. Sinclair, K.C., New Glasgow, N.S.; Richard P. Gough, Toronto; James Stewart, Winnipeg; Ernest R. Decary, Montreal; Frederick G. Dawson, Prince Rupert, B.C.; Tom Moore, Ottawa; Graham A. Bell, Ottawa; Gerard G. Ruel, Toronto. The committee concur in the foregoing recommendation and submit the same for approval."

Grand Trunk Ry. Board, No. 2,095:—"The committee of the Privy Council have had before them a report, dated Oct. 4, 1922, from the Minister of Railways and Canals, submitting that the directors of the Grand Trunk Railway Co. of Canada, viz.: Sir Joseph Flavelle, G. A. Bell, J. N. Dupuis, E. L. Newcombe and A. J. Mitchell, have submitted their resignations as such directors, the Minister recommends that the said resignations be accepted, and that there be appointed as directors of the aforesaid company the following persons, viz.: Major-General Sir Henry Worth Thornton, K.B.E., London, Eng.; John H. Sinclair, K.C., New Glasgow, N.S.; Richard P. Gough, Toronto; James Stewart, Winnipeg; Ernest R. Decary, Montreal; Frederick G. Dawson, Prince Rupert, B.C.; Tom Moore, Ottawa; Graham A. Bell, Ottawa; Gerard G. Ruel, Toronto. The committee concur in the foregoing recommendation and submit the same for approval."

Sir Henry Thornton, who came out from England on the s.s. *Majestic*, which left Southampton, Sept. 27, arrived in Ottawa Oct. 4, as stated above. He left there again on Oct. 5, for New York, and on the same day Canadian National Rys. business car 73 was sent from Toronto to New York for his use while paying some visits to several points in the United States, including Concord, N.H., where he went to school, and Newcastle, Pa., Lady Thornton's birthplace, before sailing for England on the s.s. *Olympic*, Oct. 14, his intention being to be back in Canada before the end of November. Sir Henry was accompanied to America by Lady and Miss Thornton. During his stay on this side of the Atlantic, W. H. Hobbs, Secretary to Vice President and General Manager Robb of the G.T.R., acted as his secretary.

Before leaving Ottawa, Sir Henry said, according to a press report:—"In the nationalization of railways the Canadian Government has embarked on an experiment and there is no reason why, with the right kind of administration, the experiment should not be successful. Certainly, there is every disposition on the part of those with whom I have come in contact to do everything in their power to make the National Railway System a success. I am coming here to serve the people of Canada to the best of my ability. The National Railways cannot be made a success as the sole result of one man's work. There must be loyal co-operation on the part of all those on the National Railways, from the highest to the lowest. We want to excite the feeling of loyalty to the Canadian National System and a feeling of pride on the part of all those connected with it."

Directors' Meetings, Appointments, Etc.—While Canadian National Ry. Co. directors were appointed, as detailed in order in council 2,094, given above, that company has as yet no railway or other property to administer, nor will it have

until some or all of the old Canadian Northern Ry. system, the Canadian Government Rys., the Grand Trunk Ry., and the Grand Trunk Pacific Ry., are transferred to it, by sale, lease or otherwise. It was therefore necessary to continue in the meantime to have a Canadian Northern Ry. board to function for the Canadian Northern Ry. system; for the Canadian Government Rys., which were put under that board's jurisdiction on Nov. 20, 1918; and for the Grand Trunk Pacific Ry., which the board has been operating for the receiver, the Minister of Railways and Canals, since July. 12, 1920; and also to continue to have a Grand Trunk Ry. board to function for that system.

The old Canadian Northern Ry. board, consisting of D.B. Hanna, President; A. J. Mitchell, Vice President; A. P. Barnhill, K.C., St. John, N.B.; Major Graham A. Bell, Deputy Minister of Railways and Canals; Robt. Hobson, President, Steel Co. of Canada, Hamilton, Ont.; Sir Hormidas Laporte, President, Laporte, Martin, Ltd., wholesale grocers, etc., Montreal; R. T. Riley, Managing Director, Northern Trust Co., Winnipeg; and E. R. Wood, President, Dominion Securities Corporation, etc., Toronto, tendered their resignations, at the Government's request, on July 20, but their acceptance was delayed while the Government was endeavoring to secure someone to appoint as President.

Following Sir Henry Thornton's appointment by the Government, the old Canadian Northern Ry. board met in Toronto on Oct. 10, all the directors, except Sir Hormidas Laporte and R. T. Riley, being present. President Hanna took the chair, but suggested that the Deputy Minister of Railways and Canals, Major Bell, should occupy it, which was acted on. Mr. Hanna then retendered his resignation, which was accepted by the remaining directors, and Sir Henry Thornton was elected a director in his place. The other old directors' resignations were also retendered, and as they were accepted one at a time, a member of the Canadian National Rys. board, as appointed by order in council 2094, given above, was elected in the place of each retiring director.

The newly elected Canadian Northern Ry. directors, of whom there were present, Major Bell, E. R. Decary, R. P. Gough, G. G. Ruel and Jas. Stewart, the absent directors being Sir Henry Thornton, F. G. Dawson, T. Moore and J. H. Sinclair, then confirmed the agreement made by the Dominion Government with Sir Henry Thornton, engaging him as President, for three years, at \$50,000 a year, and elected him President and Chairman of the Board of Directors. Major Bell was elected Vice President of the Canadian Northern Ry. Co. board, and also acting Chairman until Sir Henry Thornton takes up his duties, and he was also appointed Vice President of Finance, vice A. J. Mitchell, resigned.

The directors appointed S. J. Hungerford, heretofore Vice President, Operation and Maintenance, as ranking Vice President, with the title of Vice President and General Manager, and with jurisdiction over the Canadian Northern Ry. System, Canadian Government Rys. and Grand Trunk Pacific Ry. Until Sir Henry Thornton takes up the duties of the President's office, Mr. Hungerford will exercise the authority and perform

the duties heretofore exercised and performed by the President.

The directors also decided to make a trip of inspection over the Western Lines, as far as Edmonton, Alta., with the vice presidents and other general officers, starting from Montreal, Oct. 14. Other trips over the Eastern Lines, and over the G.T.R., will be made later.

The directors then sat as a Canadian National Ry. board and elected Sir Henry Thornton, President and Chairman of the Board of Directors; Major Bell, Vice President and Vice President of Finance and acting Chairman, and appointed R. P. Ormsby, Secretary, Canadian Northern Ry. Co., as acting Secretary, Canadian National Ry. Co. They appointed Major Bell, G. G. Ruel and R. P. Ormsby a committee to frame bylaws for the company, for submission to the directors.

The same directors, who, with others, were also appointed directors of the Grand Trunk Ry. Co., by order in council 2095,

as given above, then met as a G.T.R. board, and elected Sir Henry Thornton President and Chairman of the Board of Directors, Major Bell as Vice President and Vice President of Finance, and acting Chairman, and appointed R. P. Ormsby as acting Secretary. A number of daily papers stated that the directors confirmed the appointments of W. D. Robb, as Vice President and General Manager; C. G. Bowker, as Operating Manager, lines east of Detroit and St. Clair Rivers; W. R. Davidson, as General Superintendent of Eastern Lines, and R. H. Fish as General Superintendent, Ontario Lines, but these matters did not come before the board at that meeting, it not being necessary, Mr. Robb's appointment having been made by the old board, which was headed by Sir Joseph Flavelle; Mr. Bowker having been appointed by Mr. Robb; and Messrs. Davidson and Fish by Mr. Bowker.

After the meetings, Major Bell, as acting Chairman, issued the following

circulars:—

"Canadian National Railways, Grand Trunk Railway System, Canadian Northern Railway System; Grand Trunk Pacific Railway Co. At a meeting of the directors of the combined boards of the above companies, held Oct. 10, 1922, the following appointments were made: Sir Henry Worth Thornton, K.B.E., President and Chairman of the boards of directors; Graham A. Bell, Vice President and Vice President of Finance."

"Canadian National Railways; Canadian Northern Railway System:— The board of directors having accepted the resignation of D. B. Hanna as President and director, have, at a meeting held today, appointed S. J. Hungerford, ranking Vice President, with the title of Vice President and General Manager. Until Sir Henry Thornton, President, takes up the duties of his office, Mr. Hungerford will exercise the authority and perform the duties hitherto exercised and performed by the President."

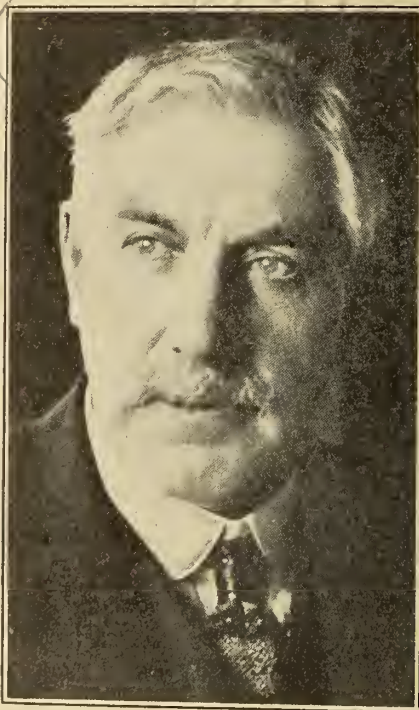
D. B. Hanna's Retirement from the Canadian National Railways' Presidency.

On Oct. 9, on the eve of retiring from the Canadian National Rys. Presidency, D. B. Hanna sent the following telegram to the general managers at Montreal and Winnipeg: "As I retire from the service tomorrow and as it will be a physical impossibility for me to personally bid goodbye to the officers and employes, I am taking the opportunity of sending you copies of a letter which I am issuing to express my grateful appreciation of the loyalty and support which has been extended to me, and I hope you will be good enough to furnish each officer with a copy and place same in the bulletin books at the different divisional points, in order that it may be read by employes."

The letter was as follows: "To officers and employes: Since the formation of the Canadian National Rys. in the autumn of 1918 by the amalgamation of the Canadian Northern Ry. lines and the Canadian Government Rys., I have had the honor of being presiding officer of the great system which has become the possession of the public and which has included since 1920 the Grand Trunk Pacific Ry. The time has now come for the Grand Trunk Ry. to be co-ordinated with the National lines, and my office is being absorbed in a new presidency embracing all the Dominion Government's railway, steamship, express and telegraph properties. In bespeaking for my successor the same fine support that officers and employes have loyally given throughout my term of office, I desire to thank you for your contribution to the success thereby achieved.

"It is not necessary to say that the re-organized management, which took charge on Sept. 6, 1918, when the great war was still in progress, came into being in troublous times. Fortunately termination of hostilities came practically coincident with the extension of the new board's jurisdiction over Canadian Government Rys. In 1919 and 1920, the work of building up the physical properties of the lines was energetically undertaken, and the working results of 1921 and 1922 to date have shown that the operating conditions of the system have been very much improved. During the entire period the various units which now comprise the Canadian National railway, steamship, express and telegraph services, have been operating as one smooth-working machine, have been developing in strength and efficiency, so that we are

now in a position, and have been for some time, to render dependable, efficient transportation service which has resulted in our building up for the system a very considerable amount of good will, that has been reflected in the handling of a substantial share of the country's freight,



David Blythe Hanna.

passenger, express and telegraph business. It has been our constant aim to keep the National system free from anything that could be used to support a charge that the Government's railway, steamship, express and telegraph services were being used for political purposes. I can only say for myself, and those directors who retire with me, that nothing of the nature of political interference would have been tolerated while we were in charge. It is a necessary policy if efficient administration is to be obtained.

"In sending out this note of farewell which will reach many of those with whom I have had practically a working

lifetime's association, I desire to express my hearty appreciation of the friendly personal relationships and friendships which have resulted from our joint efforts to do the best in our power for the fine properties in which we were employed, and which properties I know we have felt are of such potential worth that they can be made great national assets. The way has not always been smooth, and the work has always been hard, but it has always been worth while, because of those with whom I have had the pleasure of sharing the load. For all of you who remain to carry on, I wish the best of good luck. I hope that you will be permitted to advance the interests of Canada's National railway, steamship, express and telegraph services, to an extent that will demonstrate that public ownership may still be consistent with good management. I hope for some time to be an interested spectator of your efforts. Again thanking you for your fine co-operation in the past and with all good wishes for you and yours, believe me, sincerely yours, D. B. Hanna."

Following the Canadian Northern Ry. Co's directors' meeting on Oct. 10, at which his resignation was accepted, Mr. Hanna went round the head offices in Toronto, and said goodbye to the staffs of the principal departments, an act which was evidently much appreciated. He then proceeded to the Dominion Bank Building, where the Canadian Northern Prairie Lands Co., of which he is President has its offices, and where a room had been prepared for him, which he is occupying as his private office.

David Blythe Hanna was born at Thornliebank, Renfrewshire, Scotland, Dec. 20, 1858, and entered railway service there in 1874, since when he has been, to 1879, clerk and ticket agent, Glasgow, Barrhead & Kilmarnock Ry., at Kinnishead, Pollokshaws and Barrhead; 1879 to 1882, cashier, Stobcross station, Glasgow, Caledonian Ry.; 1882 to 1884, in Auditor's office, and Travelling Auditor, G.T.R., Montreal; 1884 to 1886, clerk, General Auditor's office, New York, West Shore & Buffalo Ry., New York; 1886 to 1892, Chief Accountant, Manitoba & North Western Ry., Winnipeg; 1892 to 1896, Treasurer, and from 1893 to 1896 also Land Commissioner, same road; 1896 to Nov., 1902, General Superintendent, first of Lake Manitoba Ry. & Canal Co., and afterwards of Canadian Northern Ry., Winnipeg; Nov., 1902 to Sept. 1918,

Third Vice President, Canadian Northern Ry.; Sept. to Dec. 20, 1918, President, Canadian Northern Ry. Co.; Dec. 20, 1918 to Oct. 10, 1922, President of lines operated as Canadian National Rys. He is President, Canadian Northern Prairie Lands Co., Canada Western Lumber Co., and Western Salt Co.; Vice President, Western Canada Flour Mills Co.; and a

director of British Empire Trust Co., London, Eng., Canada Steamship Lines and Chartered Trust & Executor Co. He is also President of the Scottish College Men's Association. The Canadian Northern Prairie Lands Co., to the affairs of which he will probably devote considerable time in future, has an averse fund of \$1,500,000. The company

\$1,500,000 is paid up, and it has a reserve fund of \$1,500,000. The company has large agricultural land holdings in the prairie provinces.

Mr. Hanna expects to visit Great Britain early in the New Year and will probably go to South America later, to look into possible railway developments there.

Sir Henry W. Thornton's Career

Henry Worth Thornton, son of Henry C. Thornton and Milementa Comeggo Worth, was born at Logansport, Ind., Nov. 6, 1871, and was educated at St. Paul's School, Concord, N.H., and at the Pennsylvania University's Civil Engineering Department from 1890 to 1894, when he graduated as B.Sc. He entered railway service in Dec. 1894 as engineering draftsman, Pennsylvania Lines, west of Pittsburgh, since when he has been consecutively, to Nov., 1899, assistant engineer on construction, Cleveland and Marietta Rd.; topographer attached to Chief Engineer's office, Southwest System, Pennsylvania Lines; assistant in engineers' corps, Pittsburgh division, assistant engineer in field work; attached to Chief Engineer's office, Southwest System, supervisor of yards at Columbus, O., assistant engineer assigned to special work; Nov. 1899 to March 1901, Engineer, Maintenance of Way, Erie and Ashtabula division, Northwest system; March 1901 to May 1902, Superintendent, Marietta Division, Northwest System; May 1902 to Dec. 23, 1903, Superintendent, Cleveland, Akron and Columbus Ry.; Dec. 23, 1903 to Feb. 1, 1911, Superintendent, Erie and Ashtabula Division, Northwest System; all with Pennsylvania Lines, west of Pittsburgh; Feb. 1, 1911, to Nov. 14, 1911, Assistant General Superintendent, Long Island Rd.; controlled and operated by Pennsylvania Rd.; Nov. 14, 1911 to April 1914, General Superintendent same road; April 1914, to Oct., 1922, General Manager, Great Eastern Ry., London, Eng., his salary at the time of his resignation being £6,000 a year. While employed as assistant in engineers' corps, Pennsylvania Rd. he was appointed by the then General Manager, L. F. Loree, now President, Delaware & Hudson Co., to develop a student's course in transportation, and worked in practically every department of the railway, for a sufficient time to become familiar with its operation. When Mr. Thornton was appointed to the Great Eastern Ry., Lord Claud Hamilton, who was then, and still is, the company's Chairman, stated that it was impossible to find a man in Great Britain to fill the position satisfactorily, a statement which produced much hostile criticism.

In 1916 Mr. Thornton was appointed by the British Government as Deputy Director of Inland Waterways and Docks, with temporary rank of Colonel in the Royal Engineers. The Inland Waterways and Docks Department handled the inland navigation in northern France, Egypt and Mesopotamia. In 1917 he was appointed Assistant Director General of Movements and Railways, with temporary rank of Colonel, and went to France to represent the Director General and the Army Council in negotiations with the French, Italian and United States Governments' officials. In 1918 he was appointed Deputy Director General of Movements and Railways, with temporary rank of Brigadier-General. In 1919 he was appointed Inspector General of Transportation with temporary

rank of Major General, and had charge of army transportation on the European Continent.

He was naturalized as a British subject in March 1919 and in May 1919 was created a Knight of the British Empire. He was also given the Cross of Officer, Order of Leopold of Belgium; the French Legion of Honor, and the United States Distinguished Service Medal. In 1920 he was appointed by the British Government on the commission to investigate the operations and financial condition of the Metropolitan Water Board, which controls London's entire water supply. He also served as a member of the National Wages Board, in two arbitrations between English railway companies and



Sir Henry Worth Thornton, K.B.E.,
President and Chairman of the Board of Directors, Canadian Northern Ry. Co., Canadian National Ry. Co., and Grand Trunk Ry. Co.

their men.

He is one of the Vice Presidents of the Institute of Transport in London, and has been a member of the British Railways Advisory Committee. He is also a member of the Institution of Civil Engineers, London, Eng., and American Society of Civil Engineers, New York, and of the following clubs, viz., Junior Athenaeum, Royal Automobile and Queen's, London, Eng.; Mid Surrey Golf, England; Travellers, Paris; and Lotos, New York. He married, in 1901, Virginia Duke Blair, of Newcastle, Pennsylvania. They have one son and one daughter. In his college days he played football, later he took up lawn tennis and latterly golf. Some years ago he visited Kingston, Ont., frequently when his cousin, Col. McGill, was Commandant of the Royal Military College there.

Lord Claud Hamilton, Chairman of the Great Eastern Ry. is reported as saying

to a Montreal Star correspondent:—"Sir Henry Thornton's departure for Canada will be a very great loss not only to the Great Eastern, but to the whole of the British railway system. Thornton is a man of boundless energy and of larger and more enterprising views of transportation than most British railway managers. He brought with him the American readiness to try new developments. He was lately working hard on the restoration of better Continental traffic, in the interest of the recovery of British trade with both Northern Europe, including Russia and Germany, and the central states of Europe, all of which have been greatly disorganized since the war. He has immensely improved the Great Eastern suburban traffic. Our Liverpool St. terminus in London now handles more passengers daily than any other station in the world, including of course any in the United States. For two years during the war, Thornton won the highest opinions of British military authorities as Director of Transportation in France. The Canadian system will afford fine scope for his abilities—and the higher salary is not to be despised."

The London Standard, in commenting on Sir Henry's marked popularity, says that he has probably refused more dinner invitations in the past few years than any other man in England. Another English paper speaks of the appointment as a striking instance of the tendency of high railway officials there to seek new outlets for their talents and energies, as a consequence of the gradual extension of national schemes of railway amalgamation.

A London, Eng. press cablegram of Oct. 17, said:—"Sir Henry Thornton, who has been appointed to the presidency of the Canadian National Rys. and is now returning to England to wind up his affairs, will find a pile of invitations to farewell functions awaiting him on his arrival. His general business friends in London are promoting a big function, and all grades of the Great Eastern Ry. are uniting to give a farewell dinner and presentation to their late chief. The most interesting function is the intended gathering arranged by the leaders of the railway trades unions, with whom Sir Henry's relations have been particularly friendly."

U.S. Railway Officials' Congratulations.
—Samuel Rea, President of the Pennsylvania Rd. sent the following message to Prime Minister King:—"The Government and the people of Canada are to be congratulated upon the appointment of Sir Henry W. Thornton as head of the Canadian National Rys. I believe that no better selection could have been made for that important office. It is a distinct experiment upon which Canada has embarked in an effort to make a government railroad successful. If it can be accomplished under any auspices, I believe it can under Sir Henry's leadership. He has had the great advantage of having been trained in the United States, whose railroads in operation and

management are similar to those of Canada. In addition, he has had years of experience during an extraordinary period on one of England's important railway systems, The Great Eastern. He also had an important part in supervising railway operations during the war. Sir Henry is now a distinguished British subject and will, I am sure, meet with a warm welcome in Canada. American railroad executives will, I feel sure, welcome the appointment, because they know that he brings to his great task that full knowledge and experience of the transportation situation that will be mutually advantageous to both countries."

T. DeWitt Cuyler, Chairman of the Association of U.S. Railroad executives, telegraphed Premier King:—"May I congratulate you on the appointment of Sir Henry Thornton as head of the Canadian National Railroad. I have known him for many years, and he is admirably equipped for the post."

The Long Island Rd. of which Mr. Thornton was General Superintendent before going to England in 1914, and which operates between New York City and Long Island points, is controlled by the Pennsylvania Rd., but is operated independently. Its total operated mileage is 397, and it has a very heavy passenger traffic. It has 165 locomotives, 2756 freight cars, 1214 passenger cars and 279 miscellaneous cars. It operates ferry lines between Long Island City and New York City, and controls Montauk Steamboat Co., and some electric railways.

The Great Eastern Ry., of which Sir Henry W. Thornton has been General Manager and Chief Engineer since 1914, while not one of the great English trunk lines, is a very important one, with a mileage, including joint lines, of 1,259. It is an amalgamation of many railways, and the two main lines from London, the

Colchester line and the Cambridge line, are mementoes of an earlier state of things. The 51 miles to Colchester is all that was built by the original Eastern Counties Ry. Co., which was incorporated in 1836 to build a line from London to Yarmouth, through Chelmsford, Colchester, Ipswich and Norwich. Part of the Cambridge line remained, until 1902, the property of an independent company, the Northern and Eastern Ry. Co., which was incorporated in 1836 to build a railway from the Eastern Counties Ry., at Stratford, to Newport, with a branch to Hertford, and these lines were in 1844 leased to the Eastern Counties Ry. for 999 years, and were amalgamated with G.E.Ry. in 1902. These railways were built on the 5 ft. gauge, but in 1844 the gauge over the whole then system of 84 miles was reduced to 4 ft. 8½ in. Among the amalgamated lines are the Norfolk, the Eastern Union, the Newmarket, the Harwich, the East Anglian, the East Suffolk, etc. The title of Great Eastern Railway was adopted in 1862. The railway's original London terminus was at Shoreditch, on the site now occupied by the goods station. The line to Liverpool St. was opened for local trains Feb. 2, 1874, and for all traffic on Nov. 1, 1875. The extension from the junction at Bethnal Green, to Liverpool Street, and the new terminus, cost considerably over £2,000,000. The G.E.Ry.'s suburban traffic increased so rapidly that an enlargement of Liverpool St. station became necessary, and the east side suburban was opened in 1894.

The G.E.Ry. serves principally the counties of Essex, Suffolk, Cambridge and Norfolk, and to a lesser extent Hertford, Huntingdon and Northampton. The principal towns served by it are Southend, Chelmsford, Colchester, Cambridge,

Ipswich, Harwich, Lowestoft, Yarmouth, Norwich, Cromer and Sheringham. By means of its joint line with the Great Northern Ry., from March, Cambs., its through trains go via Lincoln and Doncaster as far north as York. Its principal traffic is passenger, particularly suburban, some 500 trains going in and out of Liverpool St. daily. The passenger receipts are considerably larger than from freight. The G. E. Ry. operates steamboat and motor boat services on the River Orwell, between Ipswich, Harwich and Felixstowe, and passenger and cargo steamship services from Harwich to the Hook of Holland, Antwerp and Rotterdam. It owns hotels at Liverpool Street, London, Hunstanton-on-Sea, Harwich, Parkston Quay and Felixstowe.

The G.E.Ry. will, in the near future, be merged into the North Eastern and Eastern group of British railways, as provided for in the Railways Act passed by the British Parliament in 1921, full particulars of which were given in Canadian Railway and Marine World for Aug. 1921, pg. 429; and Dec., 1921, pg. 627. The other principal lines in the group will be the North Eastern, Great Central, Great Northern, Hull & Barnsley, North British, and Great North of Scotland, together with 26 subsidiary companies, the whole having a total mileage of 6,441. Under this grouping the position of General Manager and Chief Engineer of the G.E.Ry. which Sir Henry Thornton has held, will probably be abolished in the near future, the company's Chairman, Lord Claud Hamilton, having stated that it is not likely a successor to Sir Henry will be appointed. Sir Henry Thornton and R. L. Wedgwood, General Manager, North Eastern Ry., were looked on as the most likely candidates for the general managership of the northeastern and eastern groups.

The Canadian National Railways' Directors.

Biographical information about Sir Henry Thornton, President and Chairman of the Board of Directors, Canadian Northern Ry. Co., Canadian National Ry. Co., and Grand Trunk Ry. Co., is given in the preceding article. Following are particulars respecting other members of the three boards:—

Major Graham Airdrie Bell, C.M.G., Deputy Minister of Railways and Canals, at Ottawa, was born at Perth, Ont., Aug. 13, 1874, the son of James Bell, at one time Registrar for the south riding of Lanark County, and grandson of Rev. William Bell, a Presbyterian clergyman who went to Perth, Ont., when it was opened as a military settlement, and was in the British Government's service as a clergyman there. He was educated at Perth public school and the collegiate institute. He entered government service at Ottawa, Dec. 1, 1890, with a temporary appointment in the Post Office Department, and received a permanent appointment in the Railways and Canals Department July 6, 1893, and has since advanced through the various grades in the accounting and auditing branches of the department. He was appointed Financial Comptroller, Sept. 1, 1908, and Assistant to the Minister, Jan. 1, 1917, holding that position until June 22, 1918, when the positions of Assistant to the Minister and Deputy Minister were combined, and he was given the combined duties, with the title of acting Deputy Minister, and was appointed Deputy Minister in 1919. On Nov. 1, 1917, he was appointed one of the directors to represent

the Dominion Government on the Canadian Northern Ry. Co.'s board, under the arrangement by which the Government had advanced a large sum for temporary aid, and he has been continued as a member of that board ever since. In Aug. 1922 he was appointed by the Government as a director of the Grand Trunk Ry., succeeding H. G. Kelley, resigned. At the meetings of the newly appointed directors of the Canadian Northern Ry. Co., the Canadian National Ry. Co., and the Grand Trunk Ry. Co., on Oct. 10, 1922, he was appointed Vice President and Vice President of Finance of each company, and also acting Chairman, pending Sir Henry Thornton taking up the Chairman's duties. He received a commission as lieutenant in the 43rd Duke of Cornwall's Own Rifles in 1900, and has passed the various grades to the rank of Major. In 1912 he went to England at the request of the National Rifle Association to act as range officer at Bisley, and is the only Canadian officer who has held that position. At the end of that year he was appointed executive officer of the Dominion Rifle Association, which position he held until the outbreak of war. During 1915, he spent several months in France and England on special service, in the 207th Battalion, Canadian Expeditionary Force, during training, when he was recalled to civil duties. He was made a Companion of the Order of St. Michael and St. George in June 1917.

Frederick G. Dawson, of Prince Rupert, B.C., is a wholesale grocer, and is

about 50 years of age.

Ernest R. Decary, B.A., LL.B., notary, of Decary, Barlow & Jordan, 252 St. James Street, Montreal, who was born there, Dec. 9, 1877, is a son of Alphonse Clovis Decary and Rose de Lima, Saint Jean. He is descended from Jean Decary, who came from France with Maison-neuve and settled in Montreal in 1642. Educated at St. Mary's Jesuit College and Laval University, graduated, 1900, B.A., and LL.B. Read law with Decary & Brunet. Started in practice, Sept. 15, 1900, formed present firm in 1913; acted as chairman of commission for administration of City of Montreal, from April, 1918 to Nov. 1921. In 1921 he organized the Title Guarantee and Trust Corporation of Canada, of which he became First Vice President and Director General; he is a director and member of the executive board, Detroit United Ry., director, Howard Smith Paper Co., and Mount Royal Hotel Co. He represented the C.P.R. in purchasing property for the Place Viger Station and yards extension at Montreal and acted for the Canadian Northern Ry. in acquiring the land for its tunnel terminal in Montreal and for the promoters of the Mount Royal town-site at the other end of the tunnel. He is a life governor of Notre Dame Hospital, Montreal General Hospital and Western Hospital, Montreal, and Lachine General Hospital. He married Eva Lallemand; has three sons. Is a member of Montreal, University, Royal Montreal Golf, Royal St. Lawrence Yacht, and Montreal Reform Clubs. Is a Roman

Catholic, and a Liberal. He lives at 321 Peel St., Montreal, and has a house at Dorval, Que.

Richard Patrick Gough of Toronto, was born at Kleinburg, Ont., on Feb. 7, 1865, and is a son of the late Alex. Gough and the late Eliza McMahon. He was educated in York County public and high schools and St. Michael's College. He has been in storekeeping business since 1884, first at Peterborough, then at Lindsay and Port Hope, Ont., and in 1905 organized the Sellers-Gough Fur Co. in Toronto, of which he is President and Managing Director. He is also President of Gough & Sellers Investments, Ltd., and Murray-Kay Co.; Vice President Home Bank of Canada; Capital Trust Corporation and Capital Life Assurance Co., Ottawa; James A. Ogilvy's Ltd., Montreal, and Reynolds Lumber Co., and a director Canadian Fur Auction Sales Corporation, Montreal; Dominion Sewer Pipe & Clay Industries and Salts & Chemicals, Ltd. He is a Roman Catholic and is a member of the Canadian, Ontario, Lakeview Golf, and York Pioneers Clubs. His recreations are fishing and motoring. He lives at 92 Crescent Road, Toronto.

Tom Mocre, of Ottawa, is an Englishman by birth, and was formerly a carpenter at Niagara Falls, Ont., being a member of the United Brotherhood of Carpenters and Joiners. Since 1898 he has been President of the Trades & Labor Congress of Canada, which is the chief labor organization in the Dominion, and occupies a position corresponding in a measure to the British Trades Union Congress, and the American Federation of Labor, as far as legislative matters are concerned. The Canadian Congress membership is derived mainly from international organizations with jurisdiction covering both Canada and the United States, and which operate under charter granted by the American Federation of Labor. The Canadian Congress itself issues charters to unions which are not eligible for membership in any of the existing recognized international or national organizations, as well as to trade and labor councils and provincial federations of labor. Mr. Moore attended the annual meetings of the International Labor Conference at Geneva in Oct. 1921 and Oct. 1922. He lives at 172 McLaren Street, Ottawa.

Gerard G. Ruel, K.C., of Toronto, was born at St. John, N.B., July 5, 1866, and studied law there, subsequently graduating in law at Harvard University, Cambridge, Mass., in 1889. He practised in St. John for a number of years, and was for some time a partner in the law firm of Blair, Ruel & Blair. From July, 1899, to Oct. 1, 1903, he was Law Clerk, Railways and Canals Department, Ottawa; from Oct. 1, 1903 to 1909, Assistant Solicitor, Canadian Northern Ry., Toronto; 1909 to Dec. 31, 1918, Chief Solicitor, Canadian Northern Ry., Toronto; Jan. 1, 1919 to Apr. 1920, Counsel, Canadian National Rys., Toronto, and since Apr. 1920, General Counsel, Canadian National Rys., Toronto.

John H. Sinclair, K.C., LL.B., barrister, New Glasgow, N.S., was born at Goshen, Guysboro County, N.S., May 27, 1848, and educated at the common school there, at Guysboro Academy and Dalhousie College, Halifax. He was Mayor of New Glasgow, N.S., in 1890-91 and member of the Nova Scotia Legislature from 1894 to 1904. In March 1904 he was elected M.P. for Guysboro at a by-election, to fill the vacancy created by the appointment of D. C. Fraser to the Nova Scotia Supreme Court Bench. He

was re-elected at the general elections of 1904, 1908, 1911 and 1917, but was not a candidate in 1921. He married, July 13, 1886, Jessie, daughter of the late Senator J. W. Carmichael. He is a Presbyterian and a Liberal.

James Stewart, of Winnipeg, was born



Major Graham A. Bell, C.M.G.,
Deputy Minister of Railways and Canals; Vice President, acting Chairman, and Vice President of Finance, Canadian Northern Ry. Co., Canadian National Ry. Co., and Grand Trunk Ry. Co.



Richard P. Gough,
One of the Canadian National Railways' Directors.

in Scotland, Dec. 11, 1881, and is a son of Ewan Stewart, of Kinlochell, Inverness-shire. He was educated at the higher grade school, Fort William, Scotland, and was in the British Civil Service from 1898 to 1906 when he went to Manitoba,

and was in the C.P.R. service from June to Nov. 1906. He then entered the grain business, with the Western Elevator Co., K. B. Stoddart & Co., and other subsidiary companies. He is President of James Stewart Grain Corporation, New York; Maple Leaf Milling Co., Toronto, and Stewart & Cameron, Ltd., general contractors; Vice President, State Elevator Co.; Managing Director, James Stewart & Co., Ltd., Winnipeg, and Federal Grain Co.; director, Western Elevator Co.; Western Grain Co., and Western Terminal Elevators, Ltd., and is a member of the board of grain Supervisors of Canada. He was chairman of the Canadian Wheat Board, which was established by the Dominion Government in Aug. 1919, for merchandizing Canada's wheat crop of that year. He is a Presbyterian. He married Helen Kathleen, daughter of J. J. Rooney, Winnipeg, in 1914, and has two sons and one daughter. He is a member of the Carleton and Manitoba Clubs, Winnipeg.

Canadian National Railways Director's Inspection Trip.

As stated in a previous article, the joint Canadian Northern Ry. Co., Canadian National Ry. Co., and G.T.R. Co., directors decided at their first meeting Oct. 10, to make an inspection trip over the lines from Montreal to Lucerne, B.C., and arrangements were made by S. J. Hungerford, Vice President and General Manager, Canadian Northern, Canadian Government, and Grand Trunk Pacific Rys., for a special train to leave Montreal Oct. 15 at 10 p.m. The directors who went on the trip were Major G. A. Bell, Vice President and acting Chairman; E. R. Decary; R. P. Gough; C. G. Ruel; and J. H. Sinclair. F. G. Dawson, of Prince Rupert, B.C., joined them at Winnipeg, and went west from there with them. Of the other directors, Sir Henry Thornton had sailed from New York the day before for England; T. Moore was attending the International Congress at Geneva; and James Stewart was in Toronto, where he had other business to attend to.

The directors were accompanied by the following Canadian Northern, Canadian Government and Grand Trunk Pacific Rys. officials:—S. J. Hungerford, Vice President and General Manager; M. H. MacLeod, Vice President, Construction Department; C. A. Hayes, Vice President, Traffic Department; R. C. Vaughan, Vice President, Purchasing, Supply and Stores Department; C. B. Brown, Engineering Assistant; and R. P. Ormsby, Secretary, Canadian Northern Ry. Co., and acting Secretary, Canadian National Ry. Co., and Grand Trunk Ry. Co., also R. A. C. Henry of the Railways and Canals Department, who is engaged upon special transportation problems. W. D. Robb, Vice President and General Manager, G.T.R., and F. L. C. Bond, Chief Engineer, G.T.R., also went, on invitation.

The through train was made up of a compartment observation car, and the President's business car 73, for the directors; business cars 51 and 52 for Mr. Hungerford and the other vice presidents and W. D. Robb's G.T.R. business car, Ottawa. W. A. Kingsland, General Manager, Eastern Lines, had his business car Kaen attached to the train from Montreal to the end of his territory at Port Arthur, and also from there to Winnipeg. A. E. Warren, General Manager, Western Lines, had his business car 50 attached to the train from Port Arthur west. The general superintendents' cars were attached over each of their respec-

tive districts, and there was a baggage car for the crew.

The train was run over the G.T.R. from Montreal to Ottawa, thence over the Canadian Northern Ry., via North Bay, Capreol, Port Arthur, Winnipeg, Kindersley, Hanna, Calgary, Drumheller, Brandon, Kipling, Regina, Saskatoon, Big Valley, Edmonton and Jasper, to Lucerne, B.C., the principal stops being made at Port Arthur, Fort William, Winnipeg, Regina, Saskatoon, Calgary, Edmonton, Jasper and Lucerne, where terminal and other facilities were inspected. From Lucerne east the train was run via Edmonton, Vermillion, North Battleford, Saskatoon, Watrous, Melville and Rivers to Winnipeg. From Winnipeg, which was left Oct. 23, it ran over the National Transcontinental Ry. to Quebec, and thence to Montreal, which was reached Oct. 26, and where the party dispersed.

W. A. Kingsland, General Manager, Eastern Lines, accompanied the party over his territory to Port Arthur, and then went on to Winnipeg, and returned by the National Transcontinental Ry. The following Eastern Lines officials went from Montreal to Port Arthur; L. S. Brown, Assistant General Manager; H. T. Hazen, Acting Chief Engineer; G. P. McLaren, Engineer, Maintenance of Way; W. U. Appleton, General Superintendent of Rolling Stock; T. C. Hudson, General Master Mechanic. At Port Arthur the party was met by the following Western Lines officials:—A. E. Warren, General Manager; H. H. Brewer, Assistant General Manager; H. A. Dixon, Chief Engineer; A. H. Eager, General Superintendent of Rolling Stock; R. Creelman, Assistant Passenger Traffic Manager; and W. G. Manders, Assistant Freight Traffic Manager, who went over the portions of the Western Lines which were visited.

The following officials travelled with the party over their respective districts: Ontario District, W. R. Devenish, General Superintendent; C. H. N. Connel, District Engineer, and J. H. McAlpine, Master Mechanic. Manitoba District, A. Wilcox, General Superintendent; A. V. Redmond, District Engineer; H. English, Master Mechanic. Saskatchewan District, B. T. Chappell, General Superintendent; L. G. Roblin, Master Mechanic; A. M. MacGillivray, District Engineer. Alberta District, W. A. Brown, General Superintendent; T. W. White, District Engineer; J. Kyle, Master Mechanic. British Columbia District, J. R. Cameron, Assistant General Manager; N. B. Walton, Assistant General Superintendent; S. Morrison, Assistant Engineer, Maintenance of Way; C. J. Quantie, Master Mechanic.

The superintendents, division engineers, master mechanics and assistant superintendents accompanied the party over their respective divisions.

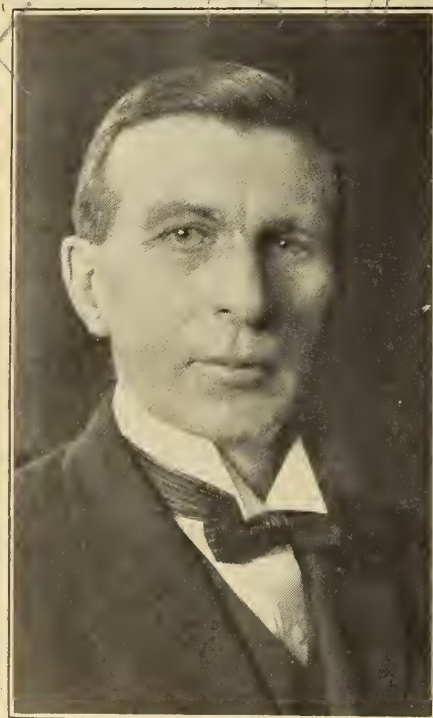
H.M.S. Raleigh's Commander Found Guilty.

A court martial, sitting at Portsmouth, Eng., Oct. 25-26, found Commander L. C. Bott guilty, in connection with the stranding and loss of the H.M.S. Raleigh, at Amour Point, Belle Isle Strait, on Aug. 8, and ordered him to be dismissed from his ship and reprimanded severely. The prosecution held that Bott was blameworthy for failing to point out to the captain the extreme risks being run in not commencing the taking of soundings sooner; in not using both sounding machines; in not reducing speed on his own initiative and immediately inform-

ing the captain when the density of the fog increased, and in not pointing out to the captain that the visibility in close proximity to Porteau Bay could be obtained from the wireless telegraph station at Amour Point as the ship approached Porteau Bay. The court investigated a report prepared from the ship's logs and registers, and the opinion was expressed that sounding was not commenced in time to ensure the safe conduct of the ship.

Immigration Problems Discussed.

The proposition of immigration into Canada was the main theme of interviews given, and of speeches made at functions at different points in the prairie provinces and British Columbia by E. W. Beatty, K.C., President, C.P.R., during his recent western trip of inspection. He endorsed the Western Canada Colonization Association's general plans, and stated that all existing immigration agencies could be used with advantage in making the Government immigration



S. J. Hungerford,
Vice President and General Manager, Canadian Northern Ry. System, Canadian Government Rys., and Grand Trunk Pacific Ry.

policy effective. This is essential, unless the Government itself is prepared to establish a widespread organization to obtain immigrants, to secure lands for them and to aid them during the first few years of their settlement.

The promotion of a thorough immigration policy for Canada was urged upon the Minister of the Interior at Ottawa, Oct. 11, by a delegation representing trans-Atlantic steamship companies, and a conference with them and C.P.R. representatives was held Oct. 13. The appointment of a separate Minister of Immigration, and co-operation with the Imperial Government under the plans of the Empire Settlement Act were urged.

The British Passenger Agents' Association held a meeting in London, Eng., Sept. 28, at which the Empire Settlement Act was the chief subject of discussion. Right Hon. L. S. Amery, M.P., Chairman of the Overseas Settlement

Committee, spoke of the work being done by the committee through the employment agencies, and intimated that it is not desired to work against the interests of the passenger agents in any way. F. C. Wade, Agent General for British Columbia expressed the opinion that under the Empire Settlement Act, it would be possible by co-operation between the Imperial and the Dominion Governments to transport and settle millions of people from the over populated Motherland. He put forward Canada's claims to share in the migration.

Railway Earnings.

Canadian National Railways.

Following are total operating revenues, total operating expenses, and net operating revenues or deficits, for the Canadian Northern Ry. System, Grand Trunk Pacific Ry., and Canadian Government Rys., the last including the Intercolonial Ry., Prince Edward Island Ry. and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government:—

	Revenue	Expenses	Net	deficits
			1922	1921
Jan.	\$8,210,401	\$10,433,564	\$2,223,163	\$2,363,058
Feb.	7,650,743	10,026,572	2,375,829	2,986,998
March	9,418,100	10,397,547	979,447	2,532,959
April	7,804,222	9,153,738	1,349,516	2,636,639
May	9,678,965	9,726,020	47,055	2,554,540
June	8,235,603	10,199,592	1,963,989	2,595,257
July	8,877,776	10,510,778	1,633,002	1,334,569
Aug.	9,569,780	10,399,617	829,837	17,105

\$69,445,590 \$80,847,428 \$11,401,838 \$17,521,125
Decr. \$ 7,425,770 \$13,545,057 \$ 6,119,287

Approximate gross earnings for September, \$11,943,408, against \$11,521,839 for Sept., 1921.

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1922, compared with those for 1921. The discrepancies between these figures and those issued by the Dominion Bureau of Statistics are owing to the fact that the Bureau is, at its request, furnished with figures by the C.P.R., including the Esquimalt & Nanaimo Ry., and the Montreal & Atlantic Ry. earnings, as well as the C.P.R. ones. The figures supplied the Bureau are exclusive of certain income items which are included in figures supplied Canadian Railway and Marine World:—

	Gross	Expenses	Net	Decreases
Jan.	\$11,337,975	\$10,854,498	\$488,477	\$157,948
Feb.	11,308,693	10,649,205	654,488	158,904
March	13,847,627	11,427,120	2,420,507	30,402
April	12,331,371	10,782,598	1,548,773	1,097,359
May	13,664,246	11,319,732	2,344,514	949,038
June	13,810,448	11,448,134	2,362,313	742,445
July	14,463,835	12,501,927	1,961,908	92,408
Aug.	15,918,050	12,971,613	2,946,437	*370,297

\$106,677,243 \$91,954,827 \$14,722,416 \$2,858,205
Decr. \$10,215,623 \$ 7,357,418 \$ 2,858,205

*Increase.

Approximate gross earnings for September, \$17,830,000, against \$19,180,000 for Sept., 1921.

Grand Trunk Railway.

Following are total operating revenues, total operating expenses and net operating revenues, or deficits for 1922 and 1921:—

	Gross	Expenses	Net revenue	
			1922	1921
Jan.	\$5,354,317	\$4,984,953	\$369,364	*\$701,166
Feb.	5,667,487	4,700,985	966,502	31,374
March	6,118,314	5,153,028	965,286	577,680
April	4,901,367	4,596,666	304,701	382,272
May	5,800,329	5,189,756	610,572	324,185
June	6,503,646	5,519,124	984,523	712,023
July	7,164,085	5,709,652	1,454,433	916,225

\$41,509,545 \$35,854,166 \$5,655,381 \$2,242,959
Incr. \$3,412,422

Decr. \$1,424,124 \$4,836,546

*Deficit.

Approximate gross earnings for August, \$10,035,145; for September, \$9,384,984, against \$10,231,232 and \$9,951,224 for same periods respectively in 1921.

St. John Potato Shed.—A new potato shed at Sand Point, St. John, N.B., which is under reconstruction by the Dominion Public Works Department is expected to be completed early in November. It is a reconstruction of old no. 14 shed, and is being fully equipped for handling of potatoes from the cars of the different railways. It will have a capacity of 2,300 tons.

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The Canadian National Railways' Presidency.

When D. B. Hanna was appointed President of the Canadian Northern Ry. Co. by the Dominion Government, in Sept., 1918, Canadian Railway and Marine World said: "It is eminently fitting that Mr. Hanna, who in 1896 was the first official of the little Lake Manitoba Ry. & Canal Co., the nucleus of the present C.N.R. system, should have been chosen as its chief executive. He is acquainted with every detail of the building up of the system and has been responsible for years for its operation and for many other branches of its organization. Laboring under difficulties that many men would have found insurmountable, he has carried on the operation in a most economical way and has proved himself a most capable administrator. During the recent arbitration proceedings, he surprised even his most intimate friends by his thorough knowledge of every phase of the company's operations—finance, construction and operation. Mr. Hanna enjoys to an extraordinary degree the confidence and respect of the thousands of men on the C.N.R. pay rolls, and will undoubtedly receive an enthusiastic loyalty from them that no outsider could hope to secure. He is also very popular with other railway officials, and with the large number of the general public with whom he has come in contact, and we believe that now he has a free hand and can carry out his own ideas as to organization, etc., he will produce satisfactory results. Of one thing the public need have no fear. Mr. Hanna will serve the new owners of the road—the people—as loyally and enthusiastically as he served its private owners, and no man could do more."

Looking back over the four years which have elapsed since the article above was written, we have no hesitation in reiterating everything we then said, and we have the satisfaction of knowing that what we foreshadowed as the result of Mr. Hanna's appointment has been more than fulfilled.

For the first two months after his appointment as President, Mr. Hanna had only the Canadian Northern Ry. System under his control. In Nov. 1918, his jurisdiction was extended over the Canadian Government Rys., including the Intercolonial, the Prince Edward Island and National Transcontinental Railways, and a number of non-paying small local lines in the Maritime Provinces, which had been acquired by successive Dominion Governments and added to the Canadian Government Rys., as additional incubuses, the principal reasons for their purchase, in most cases, being to appease the demands of political supporters and relieve the latter of their financial burdens. In merging, first the Canadian Government Rys., and then the Grand Trunk Pacific Ry., with the Canadian Northern Ry. System, Mr. Hanna showed excellent judgment, and provided positions for the various chief officials as far as was possible, consistent with the necessity for efficiency and economy.

The organization which Mr. Hanna built up is outstanding proof of his organizing ability. He surrounded himself with a most able executive, in the various vice presidents, and these, in turn, organized the financial, construction, operating, maintenance, mechanical, traffic and other departments, so that they do not suffer by comparison with the organization of any other railway on this continent. To the ability of his of-

ficers, and the loyalty which he inspired in all classes of employees, is due a very large part of the success he met with in consolidating the several properties into a transcontinental railway system of the first order.

Mr. Hanna was faced with the task of operating, in combination, roads which were built primarily to operate in competition. The steady improvement secured is evidence of the success he met with in his efforts to overcome this fundamental difficulty by co-ordinating services where opportunity offered. Many of the steps taken to effect economical co-ordination, which have only been completed recently, have not had time to be reflected in operating results, while other actions started to secure further co-ordination, but not yet completed, cannot show results for some time to come. A brief review of some of the results obtained under Mr. Hanna's presidency show some very outstanding facts.

In 1919 the Canadian Northern Rys' operating deficit was \$6,748,294, and in 1920, \$16,440,415. In 1919 the Canadian Government Rys' operating deficit was \$7,645,348, and in 1920, \$10,449,870. In 1919 the Grand Trunk Pacific's operating deficit was \$6,272,444 and in 1920, \$10,134,513. These figures show that at the end of 1920 prospects were certainly discouraging, but the 1921 results proved the wisdom of Mr. Hanna's policy in placing the properties in condition to efficiently perform the functions of a railway. The operating loss for the three systems for 1921 was \$16,159,022, or less than that for the Canadian Northern alone for 1920, and \$20,865,782 less than that for the three roads in 1920.

After a long period of disheartening operating losses, Mr. Hanna was able, in Aug., 1921, to show net operating earnings of \$47,231.44, compared with a deficit for Aug., 1920, of over \$4,000,000. Although the rate reductions, which have so greatly restricted C.P.R. net earnings, have made it impossible for the Canadian National Rys. to maintain net operating earnings, the fact remains that the results secured by Mr. Hanna and his officers, in the final year of his administration, have shown conclusively that they have succeeded in consolidating the lines into a system that needs only more traffic to make it at least able to be self supporting, outside of fixed charges.

For the first six months of 1922, the Canadian National Rys. had an operating loss of \$8,938,998, compared with an operating loss of \$16,169,451 in the first 6 months of 1921. In the first 6 months of 1922, the C.P.R.'s net earnings were \$3,213,713 less than in the first 6 months of 1921. This shows conclusively that, despite conditions which were generally unfavorable to financially successful railroading, the progress made by Mr. Hanna in improving the Canadian National Rys' position was real, and the large reduction in the operating loss is a tribute to his wisdom, and that of his officers, in their policy of placing the property and its equipment in a proper condition to handle traffic at a low cost.

In the first 6 months of 1921 the average revenue train load on the Canadian National Rys. was but 370.9 tons; in the first 6 months of 1922 it increased to 446.3 tons. Mr. Hanna's plans to make the road able to handle tonnage economically have begun to bring results this year, and the plans laid by him will, if adhered to, be responsible for even better results in the future. When meeting newspaper

men in Toronto on Oct. 10, in connection with the newly organized board of directors' first meeting, the acting Minister of Railways, Mr. G. P. Graham, stated that the good work done by Mr. Hanna and his co-directors and officers was just beginning to show.

In the first 6 months of 1922, Canadian National Rys. handled 3,914,761,524 ton miles of revenue freight, in 8,771,438 freight train miles; in the first 6 months of 1921 it took 10,115,419 freight train miles to handle 3,751,384,287 revenue ton miles. These figures alone show the vast improvements secured in operating efficiency. If those who have been so critical of the Canadian National management, since the property was placed under it, had any idea of the manner in which low traffic density increases the cost of handling the traffic offered, and particularly on lines not planned originally to co-operate with one another, their unfounded criticism would be replaced by expressions of appreciation for service rendered.

The rapid improvement in results secured on the Grand Trunk Pacific Ry., since its incorporation into the National System, are amazing. Operating ratios of about 200% were soon succeeded by others which gave promise of this road attaining to a position where operating expenses would be consistently earned, and although undoubtedly some part of this improvement was due to more favorable traffic arrangements, the fact remains that while a diversion of traffic to the G.T.P.R. would mean the loss of it to another part of the system, the system as a whole showed improvement simultaneously with that secured on the G.T.P.R., making evident the increase in efficiency throughout the National Railways enterprise as a whole.

It is an outstanding fact that in 1921 the Canadian National was the only transcontinental line in North America to increase its gross earnings over those of 1920. Despite the effects of the great industrial depression which spread over the continent, and slowed down all departments of business, the progress in the work of making the National System great and successful was well maintained under Mr. Hanna's direction.

So far as we are aware, the principal reason given by the Dominion Government for not continuing Mr. Hanna in the position of President, under the further co-ordination yet to be effected, is that he was formerly in Mackenzie, Mann & Co's service. He gave loyal service to his former employers for many years, and we are satisfied he was as fully as loyal to his recent employers, the Canadian people, and in his latter position he was even doubtless more efficient than in the former one, as he had the chief executive position and greater scope for his abilities. We are thoroughly convinced that it was his great ambition to make the Canadian National Rys. a success, and he went on record, in almost every one of the numerous speeches he made throughout the country from time to time, as being satisfied that government ownership could be successful, provided always that political interference was prevented. He frequently stated that there had been no political interference. Perhaps in doing so he was ultra-loyal to the Government, and we believe he would have been more correct if he had said that there had been no successful political interference, as we are firmly convinced that it was attempted, particularly of late. In this connection, we wish to absolve the various Ministers of Railways under whom

Mr. Hanna served, Dr. Reid, the late Mr. Stewart, and the present Minister, Mr. Kennedy. We believe they played the game fairly, but some other members of the House of Commons, both Conservative and Liberal, did not. We believe we are correct in saying that under the Borden Union Government, when patronage was in the discard, there was no interference. When Mr. Meighen formed a purely Conservative cabinet, he took in a Maritime Provinces man, and it was a matter of current talk that the latter at once got busy attempting to interfere in the appointment of officials on the Canadian Government Rys. portion of the system, in the operation of the Canadian Government Merchant Marine, and in other matters. When the King Government came into office, many of their supporters, after their party having been out of power for several years, clamored for jobs, and several of the Maritime Provinces members are said to have backed them up. It is stated that one M.P., whose name we have, went so far as to attempt to secure the dismissal of section laborers who had voted against him in the last general election, that another M.P. wanted Liberals appointed as gatekeepers, and that there were many other equally glaring cases. If Mr. Hanna could be persuaded to forget his proverbial Scotch caution and careful reticence, and could be induced to tell some of his experiences in this connection, they would probably throw a lurid light on a number of politicians. We believe that Mr. Hanna resisted successfully the attempts to make the National Railways a political machine, and that, as a result, a number of members of the Commons banded together and continually urged the Government not to continue his services. When the present writer was in the Maritime Provinces last summer, it was current talk among Government supporters there, that the M.P.'s could not get appointments made, and that in consequence they were "out to get Mr. Hanna," who was never a politician, and whose political proclivities, if he has any, are not even known to the writer, who has been acquainted with him intimately for over 30 years and who has had frequent conversations with him.

Of course, as the arrangements for the taking over the several railways by the Dominion were started by the Borden Union Government, and carried on by the Meighen Conservative Government, the Liberals attacked the policy at the last general elections, as the Conservatives would doubtless have done had the position been reversed, and, in the making of these attacks, Mr. Hanna was not spared, some most unfounded statements being made. Unfortunately, the question of the non-retention of his services is being discussed in the daily press largely from a party standpoint, but some of the more independent Liberal papers have come out very strongly, two instances of which may be quoted. The Toronto Star says: "For the past three or four years Mr. Hanna and his board of directors have handled a very big and difficult business with a measure of success that is gratifying to those who believe that public ownership of transportation is the policy of the future. The country, in welcoming the new management, is not unaware of the services given by those who now retire from control." And the Manitoba Free Press says: "Mr. Hanna has striven hard and against great difficulties to bring the Government railways out of their unfavorable position. The system is in a much better condition now than it was

a couple of years ago, and there is strong public appreciation of the good work which Mr. Hanna has done."

Mr. Hanna is a man of unimpeachable character, and with a strong personality, he has discharged his exacting duties with ability, energy and enthusiasm, he has given the National Railways a splendid start on the upgrade, and he deserves to be known as a great public servant, who, in our opinion, has been most shabbily treated.

Prime Minister King, in announcing Sir Henry Thornton's appointment, said that the Government had decided not to appoint anyone who had been connected with the Canadian Northern Ry., the Grand Trunk Ry., or the C.P.R., and practically no Canadian. There is no doubt that, in pursuance of this policy, attempts were made to secure the services, one after another, of several U.S. railway officers, but without success, the last one to announce his refusal being Percy R. Todd, President of the Bangor & Aroostook Rd., in Maine.

The Government has been fortunate in securing Sir Henry Thornton, who undoubtedly has a splendid record, having made good in every position he has occupied. Though only having had the title of General Superintendent on the Long Island Rd., he was practically General Manager of it, and his selection for the General Managership of the Great Eastern Ry., in England, was proof that he was an outstanding man. In taking that position, with no knowledge of English railway methods, or of the ways of the country, he was under a heavy handicap, but he quickly overcame any national prejudices that may have existed against him, vastly improved the Great Eastern service, rapidly became a very important factor among English railway managers, and performed invaluable services for the Empire during the great war.

Sir Henry undoubtedly has a tremendous task before him. It will naturally take time for him to become acquainted with the vast system, and even with its staff, but he is in the prime of life, has good health and physique, and great capacity and energy, and he should prove a success. In the officers and officials of the Canadian National Rys., as now existing, and with the other unit to be added, the Grand Trunk Ry., he will find a thoroughly efficient lot of men. He is reported to have stated, after his recent return to England, that one of his duties will be "to select competent and suitable officers, many of whom are already working on the system." We hope that for every position he may have to fill, he will find a suitable man already in the service of one of the constituent companies, and that he will not consider it necessary to make any importations.

Sir Henry is also credited with stating that the Government had assured him that there would be no political interference, otherwise he would not have looked at the proposition. We hope that he will not be disappointed in this respect. His experience has been altogether on privately owned roads, and he is not acquainted with the average Canadian M. P., especially with the Maritime Provinces variety. Fortunately he has a three years contract with the Government, and can afford to take a firm stand, and we hope and believe that he will strenuously resist any attempts at interference by politicians, in which, as well as in his general duties, he will receive Canadian Railway and Marine World's hearty co-operation and support.

Index to Canadian Railway and Marine World for 1922.

For a number of years, Canadian Railway and Marine World has published, early in each year, a very complete index to the contents of the previous year's issues, which we know have been very much appreciated by the large number of subscribers who bind the paper for reference. Owing to what we consider an arbitrary ruling of the Post Office Department, we have not been allowed to simply enclose the index as a supplement with the regular issue of the paper got out at the same time, but have had to bind it in as part of the issue, making it somewhat difficult to detach for binding with the previous year's volume.

We have therefore decided that the index for 1922, which will be published early in 1923, will not be bound in as heretofore, but will be issued and mailed separately, and will only be sent to those who apply for it. Subscribers who wish to receive copies are therefore requested to advise us as early as possible, so that we may know the number that it will be necessary to print.

Billing Empty Tank Cars.—The Railway Association of Canada has issued the following circular: The Association's attention has been directed to the practice in vogue on certain railways of using standard bill of lading form for the conveyance of instructions from consignor to carrier covering the shipment and routing of empty tank cars without charges. Consequently, misunderstanding has occurred as to the responsibility of the carrier (having signed the bill of lading), for movement of the car in accordance with billing instructions. The standard bill of lading form is intended to be used only in connection with revenue bearing traffic. Billing instructions covering the movement of empty cars, without charges, should be furnished by letter, or form, of which the provisions of bill of lading contract are not a part.

Railway Running Rights in Vancouver.—The Board of Railway Commissioners, at its recent sittings in Vancouver, B.C., had before it the Vancouver Harbor Commissioners' application for running rights over the Vancouver, Victoria & Eastern Ry. & Navigation Co's railway, from False Creek to Burrard Inlet, Vancouver. Notice was given that application would be made to the Supreme Court for a ruling as to whether the railway company should be forced to give the Vancouver Harbor Commissioners the running rights asked for.

The Canadian National Railways Nipigon Trophy for 1922, offered for the person who caught the largest speckled trout in Nipigon waters, with rod and line, has been awarded to C. E. Abbott, of Bessemer, Alabama, who got one weighing 7 lb. 9 oz., 27 in. long, and 15 in. round. It was caught on a single hook, with cockatoosh bait.

The American Association of Passenger Traffic Officers' annual meeting at Louisville, Ky., Oct. 10, was largely devoted to receiving reports of various committees, covering ticket paper, standing forms of tickets, digest of fares and divisions, adjustments of passenger fares, etc.

Canadian Railway Club.—Wm. Carter, A.M., A.S.M.E., Assistant General Sales Manager, Canadian Ingersoll-Rand Co., read a paper on some elements of economy in air compression, before the Canadian Railway Club, in Montreal, Oct. 10.

Unfair Government Discrimination Removed.

Canadian Railway and Marine World for October commented on a regulation promulgated by the Customs & Excise Department, at Ottawa, in reference to the issue of license to persons to use cheques with words indicating that the stamp tax thereon had been paid, and requiring that the blank cheques should be sent to Ottawa, either by Canadian Government Railways or Canadian National Express, a requirement which we condemned as unfair and discriminatory to privately owned railways and express companies. We are officially advised that representations in regard to the matter were made to the Minister of Customs and Excise, and that, as a result, the original regulation 10, as published in Canadian Railway and Marine World for October, was cancelled, and the following clause substituted therefor:—

"The blank cheques are to be forwarded to the American Bank Note Co., Ottawa, by express or freight, whichever is the lower rate, charges in all cases 'collect,' with indication on the package of name and address of the shipper, and the shipper will by letter advise the company as to the quantity and description of cheques in the shipment. Note:—Shipments from Montreal exceeding 90lbs.; from Toronto exceeding 60 lbs.; and from Winnipeg exceeding 40 lb. gross weight; should be sent by freight."

This removed the discrimination which we protested against, and of which the Minister was probably not aware until it was drawn to his attention, the regulation having doubtless been framed by departmental officials and very probably not having been submitted to the Minister.

Reid Newfoundland Co.—As stated in previous issues of Canadian Railway and Marine World, the Newfoundland Government is financing the operation of the Reid Newfoundland Co's railway and steamships up to Nov. 15, as a temporary expedient. No information is available as to what is to be done after Nov. 15, but it is expected that the Colonial Legislature will meet early in November, and that some definite plan will then be announced. It is expected that R. C. Morgan, who has been General Manager for some months, will return to his position as Superintendent, C.P.R. Terminals, at Winnipeg, as soon as he can be relieved at St. John's.

Shipment of Empty Oil and Other Barrels.—The Railway Association of Canada has issued the following circular: In order to minimize the danger of fire, and to avoid damage to other freight, it is recommended that instructions be issued to agents to the effect that empty barrels, which previously contained lubricating or other oils, molasses, tar, paint, varnish, beer, ale or other liquors, etc., must have filling and vent holes properly closed before they are accepted for transportation. These regulations do not apply to empty vinegar barrels.

The Dominion Government has provided for the free travel of anyone escorting a former member of the Canadian Expeditionary Force, who is in receipt of a total disability pension for blindness, or other disability which necessitates an escort. This privilege is intended to apply when the former member of the forces is travelling on his annual holiday or at other infrequent intervals, and is not intended to cover regular travel.

Beer Transportation Restricted.—A recent Windsor, Ont., press report stated that the G.T.R. agent there had received notice not to accept further shipments of beer for transportation by freight. We are advised that Canadian railways received advice from the Chief of the United States Customs Division, at Washington, that shipments of intoxicating liquor for transit through U.S. territory would not be permitted, and were further advised by customs officials, at the frontier, that any shipments received for forwarding through the U.S. in bond, from the railways, would be seized by the U.S. customs. Instructions were therefore issued to G.T.R. agents accordingly.

E. W. Beatty on Athletics.—The Toronto Alumnus Association's Montreal branch held its annual dinner, Oct. 20, E. W. Beatty, K.C., President C.P.R., being in the chair. He referred to the prominence of athletics in college lives and expressed the opinion that those who participated in games should do so for the love of the game itself. There is, he was sorry to say, at present too great a tendency to systematize, and because of this the lure is going out of some of our games. The self reliant, thinking athlete is disappearing because there is too much drilling in preparation; the athlete nowadays is becoming merely a part of a machine, and is in fact an automaton.

Intercolonial Ry. Jubilee.—The 50th anniversary of the opening of the Intercolonial Ry. between St. John, N.B., and Halifax, N.S., will occur on Nov. 11. Arrangements are being talked of for a dinner in Moncton, N.B., on that date. The city council is taking the initiative in the matter, and the Moncton Board of Trade has intimated its intention of co-operating. Sir Henry Thornton and other directors of the Canadian National Rys. and some of the officials will be invited to attend.

G.T.R. Rails Orders.—The G.T.R. has given the following orders for open hearth, type A section, steel rails recently:—23,571 gross tons, 100-lb., delivery to be made at Sydney, N.S., commencing early next spring by Dominion Iron & Steel Co.; 1,596 tons 100-lb. for New England lines, to Lackawana Steel Co., Buffalo; 3,100 tons 90-lb. and 4,757 tons 100-lb. for Western Lines, to United States Steel Products Co., to be rolled at Illinois Steel Co's mills in Chicago district.

Railway Lands Patented.—Letters patent were issued during August for Dominion railways lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres
Alberta & Great Waterways Ry.....	19.43
Canadian Northern Pacific Ry	1,756
Canadian Northern Saskatchewan Ry.....	5.82
Canadian Northern Western Ry.....	266.89
Canadian Pacific Ry.....	5.73
Total.....	299.626

Canadian Government Grain Elevators.—R. Hetherington, Secretary, Dominion Grain Commission, Fort William, Ont., is reported to have been appointed acting General Manager, Canadian Government elevators, vice J. P. Jones, Dominion Grain Commissioner, resigned, and who included in his duties the management of the elevators.

Whitewashing Return Fences and Cattle Guards.—The Board of Railway Commissioners has asked railway companies to state whether it is their practice to whitewash the return fences and cattle guards on their lines, the information, being desired with a view to arriving at uniformity of practice.

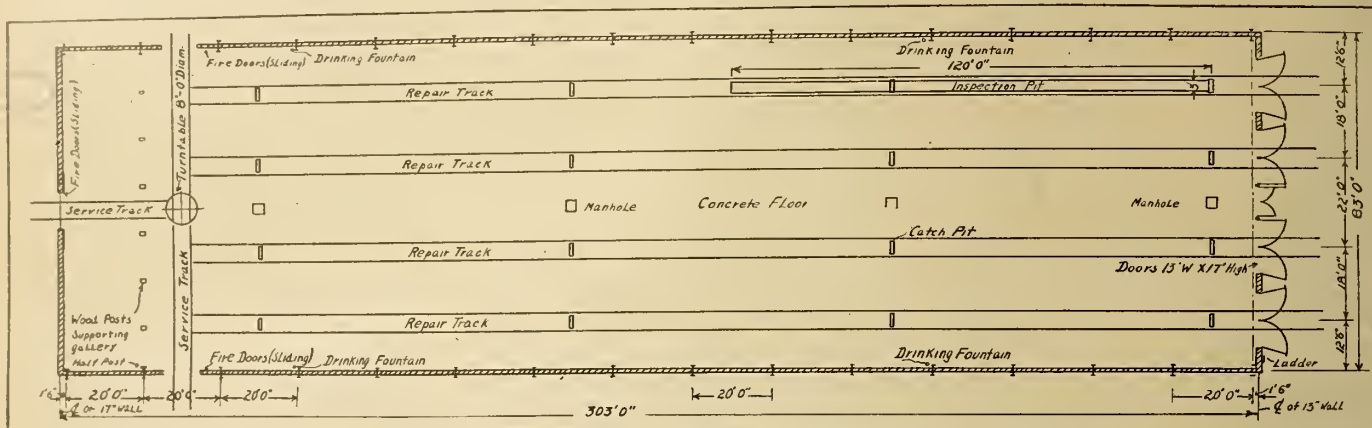
Pacific Type Locomotives for English Railway.

Of practical interest to Canadian railwaymen and illustrative of Pacific type locomotive development in England, are two 3-cylinder passenger locomotives being built for the North Eastern Railway of England, side and front end elevations of which are given herewith. Particularly noticeable is the fact that the leading pair of driving wheels are the main

Canadian National Railways Car Repair Shops at North Edmonton.

Work is proceeding on the construction of the first unit of large freight and passenger car repair shops for the Canadian National Ry. at North Edmonton yards, 3.9 miles north of Edmonton station, on the Edmonton Terminals Subdivision, Edmonton Division, Alberta District. A floor plan of this unit is

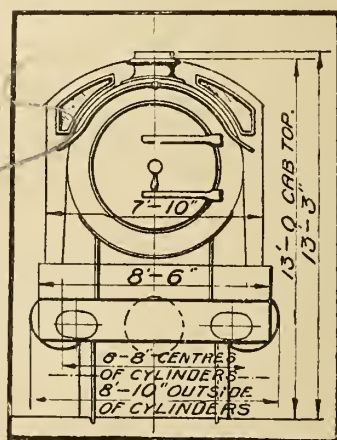
A service track will run transversely at the west end of the building, as shown, and will be served by an 8-ft. turntable, which will also serve a service track leading on to the table at right angles to the first. There will be 4 repair tracks, entering through doors 13 ft. wide and 17 ft. high, at the east end; the track at



Canadian National Railways Car Shops, North Edmonton, Alta.

drivers. The cranks are set 120 deg. apart. Each of the 3 cylinders is 19 in. diam. by 26 in. stroke, and all cylinders and steam chests are in the one casting. The valve gear used is the Stephenson link motion. Piston valves, 8 3/4 in. diam., are used. The length over all is 72 ft. 4 3/4 in., and total wheel base 61 ft. 11 3/4 in. Engine wheel base is 37 ft. 2 in., and driving wheel base 15 ft. Leading truck wheels are 3 ft. 1 1/4 in. diam., driving wheels 6 ft. 8 in., and trailing truck wheels 3 ft. 9 1/4 in.

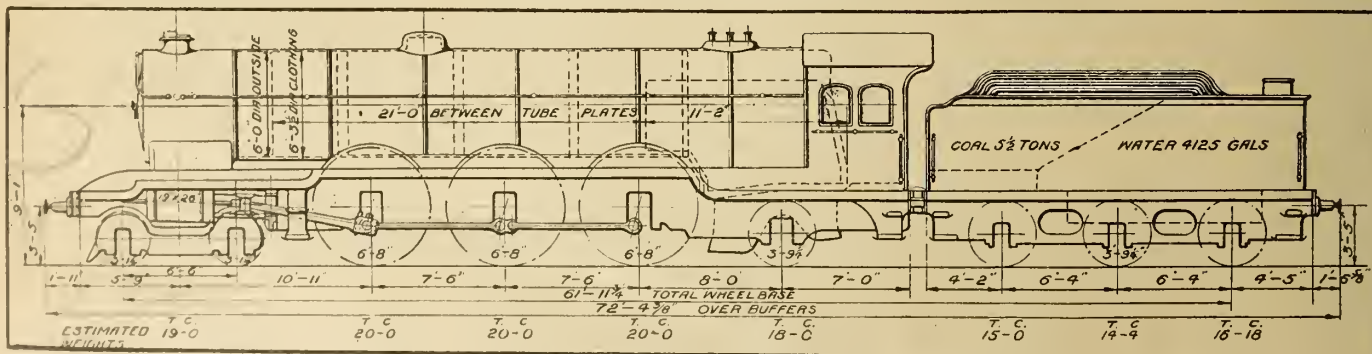
The locomotives are being equipped with superheaters, the 24 superheater tubes being 5 1/4 in. diam., and the 118 small tubes are 2 1/4 in. diam. Fireboxes are equipped with combustion chamber. The distance between boiler tube sheets is 21 ft. and boilers are designed for working pressure of 200 lb. a sq. in. The total heating surface is 3,117.8 sq. ft., distributed as follows: Tubes, 1,517.6; super-



Front End Elevation, North Eastern Railway 3-Cylinder Pacific Type Locomotive.

the north side to be equipped with an inspection pit 120 ft. long and 3 ft. wide. At the west end, a gallery, supported on wood posts, will be provided for repairs to air brake equipment, and for other bench work, and the car foreman's office will also be located on the gallery. Below the gallery, there will be stores, lavatories and wash rooms. The shop will be equipped with water and compressed air lines, with drinking fountains for the workmen as shown by the plan, and electric lighting and steam heating will be installed. There will be crane service covering the building's full length. The floor will be of concrete.

While it is the intention to use this building for passenger car repairs ultimately, it will be used for freight car repairs until additional buildings are constructed. All of the work is to be done by the railways' own forces, under the supervision of district and division



Side Elevation, North Eastern Railway 3-Cylinder Pacific Type Locomotive.

heater tubes, 693.6; superheater elements, 695.6; firebox, 211. The grate area is 41 sq. ft. Tenders have capacity for 5 1/2 tons of coal and 4,125 gall. of water.

Rated tractive effort for these locomotives, using 85% of maximum boiler pressure, is 29,918 lb., the factor of adhesion being 4.49. The locomotives are being built at the North Eastern Ry's Darlington works, and will be used in fast passenger service on the east coast route. The foregoing is abstracted from the Railway Gazette, London, Eng.

given herewith. This building, which will be 303 ft. long, 83 ft. wide and about 40 ft. high, will have concrete foundations set on wooden piling, with steel frame superstructure and brick enclosing walls. The roof, of saw-tooth type and mill construction, will be provided with as much glass area as possible, to provide a maximum amount of natural lighting, and the remainder of the roof will be covered with built-up roofing materials. A large number of ventilators will be provided.

officers, except the fabrication and erection of the steel work, for which tenders will be called. At the time of writing (Oct. 3) the piling has been driven, and work on the foundations is proceeding.

The Alberta & Great Waterways Ry. announced that with the coming into operation of its winter time schedule, on Oct. 9, its train would depart and arrive at the Edmonton, Dunvegan & British Columbia Ry. yards, instead of at 121st St., Edmonton, Alta.

Railway Wages and Working Conditions in Canada and the United States.

The majority and minority reports presented by the conciliation board appointed to enquire into the dispute between Canadian railways and their shopmen, members of the American Federation of Labor's Railway Employees Department, Division 4, were given in Canadian Railway and Marine World for October, pg. 519, and it was mentioned that both the railways and the shopmen had agreed to reopen direct negotiations on the matter of wages. On Oct. 2, the Railway Association of Canada officially announced that the direct negotiations would reopen in Montreal on Oct. 4, and the shopmen's wage schedule committee, which had dispersed, was summoned back there by Chas. Dickie, secretary for the shopmen's organization. Prior to this, the shopmen had obtained assurances from the Minister of Labor, that, in the event of disagreement in the new negotiations, a new dispute calling for a new conciliation board would not be legally created, and that the shopmen's committee would be legally free to issue the strike call held in abeyance, if it thought it advisable to do so. After three days negotiations in Montreal, terminating Oct. 6, it was found that no agreement could be reached. The railways remained firm in their intention to place in effect the reduced rates of pay as approved by the conciliation board which had heard the dispute, and have so placed them in effect. Full details of these reductions for the various grades of shopmen were given in preceding issues of Canadian Railway and Marine World. Consequent on the shopmen's failure to have the railways reconsider the reductions which were enforced, a referendum vote to ascertain if the majority of the shop crafts' members were willing to accept the reduced rates were arranged for, and on Oct. 12 ballots were sent out to all members, returnable Nov. 1, to get the men's opinion as to advisable future action.

A Calgary, Alta., press dispatch credited the secretary of the federated shop crafts there with the statement that the C.P.R. and other railways had knowledge of the conciliation board's report some days before it was filed with the Labor Department. This statement was characterized by Geo. Hodge, Assistant General Manager, C.P.R. Eastern Lines, who conducted the negotiations with the shopmen on behalf of the C.P.R., as having no foundation in fact. He stated that the C.P.R. had no knowledge of the board's report until a copy of it was received at the company's offices on Sept. 5, and that instructions to restore, as from Aug. 16, the rates of pay previously put into effect as of July 16, were not issued till Sept. 5.

The course which the shopmen's strike has taken in the U.S. has served to withdraw from the Canadian shopmen a large part of the moral support which, while the U.S. strike was in full swing, apparently backed them up in their effort to have the high wages continued. Another factor which served to make the shopmen more conciliatory was the enforced closing down of the C.P.R. passenger car shops at Montreal and other points, due to the falling off in passenger traffic. Some 3,000 men were thrown out of employment when the shut-down took place on Oct. 6, and on Oct. 12 a conference was held at the C.P.R. offices in Montreal, at which the C.P.R. was represented by Grant Hall, Vice President; C. H. Temple, Chief of Motive Power

and Car Department; and J. Burns, Works Manager, Angus shops, and the shopmen by F. McKenna, Vice President of Division 4, and other federation officers. No date was set for the shops to be reopened, but some hope was held out that the cessation of work would be of but short duration.

Canadian National Ry. Clerks, etc. The conciliation board appointed to deal with the dispute between the C. N. Rys. and their clerical employees, members of the Canadian Brotherhood of Railway Employees, presented its majority report to the Labor Department on Oct. 20, signed by the chairman, F. T. Costello, barrister, Alexandria, Ont., and the employees' representative H. S. Ross, K.C., Montreal. It stated that a reduction in wages of clerks, freight handlers, roundhouse, store, shop and station employees should not be made, the chief reason given being that a further wage reduction would leave the classes under consideration without adequate means of properly supporting their families. It also pointed out that, as nobody could logically expect the national lines to get on a paying basis quickly, these employees should not be unduly sacrificed to bring that about, and should not be expected to bear more than their share of a financial burden which should be carried by the country as a whole. It was stated that a minority report favoring the proposed wage cuts would be presented by G. D. Kelley, of Ottawa, who represented the C. N. Rys. The wage reductions which it was proposed to place in effect were stated in Canadian Railway and Marine World for August, pg. 402.

C.P.R. Clerks, etc. The conciliation board, of which Daniel Urquhart, Toronto, is Chairman, and on which the C.P.R. is represented by J. T. Arundel, formerly General Superintendent, Ontario District, C.P.R., and the employees by J. G. O'Donoghue, Toronto, appointed to enquire into the dispute between the C.P.R. and various grades of its clerical employees, was reported, in an Ottawa press dispatch of Oct. 23, to have presented a majority report, signed by Messrs. Urquhart and O'Donoghue, to the Labor Department, on that date. No details concerning the report were given, but as it was signed by the chairman and the employees' representative, and as it was also stated in the dispatch that a minority report would be presented by Mr. Arundel, it is to be presumed that the majority report upholds the employees' contentions in whole or in part.

Grand Trunk Ry. Clerks, etc. The conciliation board, of which E. McG. Quirk, Montreal, is Chairman, and on which the railway is represented by U. E. Gillen, Manager Toronto Terminal Ry. Co., and the employees by H. S. Ross, K.C., Montreal, has not, at the time of writing, Oct. 21, presented a report. We are officially advised that negotiations for a settlement independently of the board are now going on between the railway and its clerical employees, and that if these are successful, no report will be presented by the board. If the negotiations fail to effect a settlement, however, the board will present a report to the Minister of Labor in the usual manner.

Grand Trunk Ry. Western Lines Shopmen. When the shopmen's strike in the U.S. was called, the shopmen employed by the G.T.R. in Port Huron, Mich., went on strike. On Oct. 9 a meeting was held by the shopmen at which terms for settlement proposed by the railways were

rejected. On Oct. 16, however, after further negotiations, a settlement satisfactory to both the railway and its shop employees was reached, and the men returned to work. Although no details of the settlement were made public, it is said that the men returned to work at the rates of pay ordered by the U.S. Railroad Labor Board, and under such terms that their seniority is practically assured them.

Chinese Section Labor in British Columbia. A Victoria, B.C., press report credits the Provincial Attorney General and Minister of Labor with stating that he had asked the railways in B.C. to take on white men in place of Chinamen for section labor, to which request the railways acceded. After a short time, however, he was informed by the railways that they had to take the Orientals back again because white men could not be obtained for the work.

General. Summarizing the railway wage situation in Canada, it is apparent that the country has been fortunate in coming through the past few months without experiencing a disastrous strike such as took place in the U.S., and present indications are that wage troubles will not be very conspicuous in the immediate future. The operation of the Industrial Disputes Investigation Act, combined with a sense of fairness and justice on the part of both railway officers and labor leaders has tended to bring about amicable settlements of practically all disputes. The avoidance of strikes; and consequent suffering by all concerned, is a thing of which the railways, the railway employees and the public at large should be thoroughly appreciative.

United States Situation. The shopmen's strike on U.S. railways is practically a thing of the past, some 80 roads having negotiated settlements with their striking employees on the basis of the "Willard-Jewell agreement," the terms of which were given in Canadian Railway and Marine World for October, pg. 521, while other roads, which consistently refused to take back their striking shopmen, have concluded new agreements with their loyal employees and their new men. Among the larger roads which took back the strikers on the Willard-Jewell plan are the Baltimore & Ohio; the Belt Ry. of Chicago; Boston & Albany; Buffalo, Rochester & Pittsburgh; Chicago, Milwaukee & St. Paul; Chicago & North Western; Chicago, St. Paul, Minneapolis & Omaha; Chesapeake & Ohio; Cleveland, Cincinnati, Chicago & St. Louis; Duluth, Winnipeg & Pacific; Michigan Central; New York Central; Pittsburgh & Lake Erie; Seaboard Air Line; and Western Pacific. The Erie has concluded an agreement with its shopmen which differs considerably from the Willard-Jewell plan, and its men returned to work during the first week in October. Representatives of the agreements drawn up on the roads which did not see fit to follow the terms of the Willard-Jewell agreement are those on the Union Pacific and the Chicago, Burlington & Quincy. On the Union Pacific the new agreement provides for many different rates of wages, according to the class of work and skill required, and the number of classes among the employees has been largely increased, in both the locomotive and car departments. In the locomotive department the employees are first classified into two main groups, those doing work requiring fully qualified mechanics, and those doing

work not requiring fully qualified mechanics. In the first group there are 28 different classifications, and 26 in the second, and rates of pay vary materially. The highest rates, for the work requiring the most skill are considerably higher than those ordered by the Labor Board for mechanics, and for men doing work requiring less skill, the wages are considerably lower. The same plan is embraced in the agreement on the Chicago, Burlington & Quincy and on other roads, and it is felt that these new agreements will make for more efficient operation in the railway shops, and at the same time be ultimately in the employees' interest, for the simple reason that the more skilled a man becomes and the more capable he is of doing better work, the higher will be his pay.

The U. S. railways were notified on Sept. 27, by the American Railway Association's Car Service Division, that they need no longer report daily as to the number of new employees taken on in place of strikers. On Sept. 26 the roads as a whole had 376,000 shopmen in service, or over 90% of their normal force.

Maintenance of Way. Canadian Railway and Marine World for October gave particulars of the hearings before the Railroad Labor Board on the demands made by maintenance of way employees for increased wages. The Board went into executive session, to consider these demands, on Oct. 2, and on Oct. 3 it was stated that disagreement among the Board's members had at once taken place. The public members wanted to announce an increase of 2c hourly in trackmen's wages, but the railway members held that trackmen were entitled to no increase, and the labor members held that the proposed increase was insufficient. However, the executive sessions were continued, and the deadlock was broken on Oct. 14 by the railway and labor members agreeing to the public members' views. Accordingly, an increase of 2c on hour was announced. The increase affects 451,911 men employed in the maintenance of way departments on U.S. roads, and it is estimated that it will increase their pay by \$22,125,000 annually. This decision makes the minimum rates of pay for trackmen range from 25 to 37c an hour. About 45% of the men will get 37c an hour, while another 40% will receive over 30c an hour. The Board's decision makes the rates for trackmen one cent an hour greater than those fixed recently by the U. S. Steel Corporation for unskilled labor.

The United Brotherhood of Maintenance of Way Employees and Railroad Shop Laborers held its convention in Detroit during October, and F. H. Fljozdal of Dauphin, Man., was elected President, defeating F. H. Grable, formerly President, by more than 3,000 votes out of 86,000 cast. It was largely through Mr. Grable's influence that the maintenance men were prevented from joining the shopmen in their strike, and it is evident from his defeat that the majority of the membership did not approve of his attitude in that connection. The Brotherhood has brought suit against Allan E. Barker, who was President before F. H. Grable, alleging that he misappropriated \$217,000 of the organization's funds while he was in office. According to Grable's testimony, at a recent court hearing, Barker had agreed to settle the Brotherhood's claim for \$27,000, in Dec., 1920. One claim against Barker is that he sent a cheque for \$50,000 to the Trades and Labor Council of Canada for the purpose of fighting the One Big Union movement.

Signalmen. D. W. Helt, President, Brotherhood of Railway Signalmen, appeared before the U. S. Railroad Labor Board on Sept. 25 to ask for higher wages and more favorable working rules for members of his organization. The wages asked for would approximate those in effect before the last wage reduction, ordered by the Board, and the rules suggested would make the signalmen's working conditions about the same as under the old national agreement. The eastern, western and southeastern railways were represented respectively before the Board at the hearing by J. G. Walber, J. W. Higgins and C. P. Neill, who claimed that the rates of pay being paid signalmen at present are just and reasonable. At the time of writing, Oct. 21, the Board has not rendered a decision.

Locomotive Men and Trainmen. Practically all the U. S. roads have signed contracts with their locomotive men and trainmen continuing for another year the present rates of pay and working conditions.

The Railroad Labor Board on Oct. 16 made public a decision by which yardmasters on 26 class 1 railways and 6 switching terminals were given an 8-hour day with pay for overtime. This is the first time the Board has established rules and working conditions for yardmasters, who by this ruling are classified as subordinate officials and thus subject to the Board's jurisdiction under the Transportation Act. According to J. S. Eldridge, President of the Railroad Yardmasters of America, an international organization with members in both Canada and the U. S., the yardmasters affected have virtually been awarded a 25% wage increase by the Board's ruling. The decision also provides that yardmasters required to work 7 days a week shall be given 2 days off each month. The Delaware, Lackawana & Western, the Pennsylvania and the Illinois Central were not affected by the decision, nor were a number of other large roads which have agreements with their yardmasters.

Railway Passenger Fare Reductions in Great Britain.

London, Eng., press cablegram, Oct. 17.—The eagerly awaited announcement of the lowering of railway fares, which were raised 75% during the war, was made today. The railway companies have agreed to bring this increase down to 50%. Rates for perishable traffic on passenger trains are made subject to the same reduction. Henceforth the practice of some companies of charging less than double fare for the return journey will be generally terminated. Third-class fare under the new decision will work out at 1½d. (3c) a mile. Tourist and excursion fares are to be reduced proportionately to ordinary fares, but season tickets will not be affected, as they are now only 50% above the pre-war rate. Workmen's fares are also unaffected.

The companies point out that although fares will rule at 50% above the pre-war level, working costs, especially wages, are still in a far higher ratio. Therefore the hope is expressed that the negotiations with the railway trade unions will result in a further reduction of wages. It is hoped also that an increase of traffic will at least make up the estimated loss of revenue approaching £10,000,000 annually, which is involved in the present change. The reductions will come into effect at the end of the year.

Railway Rolling Stock Orders and Deliveries.

The G.T.R. is reported to have ordered 250 refrigerator cars from American Car & Foundry Co.

The G.T.R. is having 1000 steel underframe double sheath box cars, series 17,500 to 19,999 rebuilt by National Steel Car Corporation.

The G.T.R. is reported to be enquiring for prices for 3,000 box cars and 700 refrigerator cars for its Canadian lines, and 1,000 box cars and 2,000 automobile cars, for its U.S. lines.

The C.P.R. between Sept. 14 and Oct. 11, received the following rolling stock from its Angus shops:—11 vans, 1 single track steel underframe flanger, and 2 single track snow ploughs.

The G.T.R. has received 3 switching locomotives and 5 steel underframe cabooses from its Montreal shops, and has ordered 25 steel underframe cabooses from its Montreal shops, and one 160-ton steam wrecking crane from Industrial Works, Bay City, Mich.

The G.T.R. was reported recently to have asked prices for 700 refrigerator cars, 1000 automobile cars and 3000 box cars. We are officially advised that while the management is considering the ordering of rolling stock in connection with its programme of improvements for 1923, the amount has not been definitely determined.

The G.T.R. has ordered general repairs to 500 all-wood box cars, by Canadian Car & Foundry Co. They will be equipped with Camel no. 27 door fixtures, mogul ends, Murphy outside metal type XLA roofs, Miner roller side bearings, Schaefer bottom connections and Creco 4-point supports, and 250 of them will have cast steel draft arms and Miner friction A2S draft gear, and the other 250, Bradford draft arms and gear.

Canadian Car & Foundry Co. has sold to Watson Robb & Co., 13 standard all-wood G.T.R. box cars, which have been converted into service cars. Two of them have been made into office cars, 5 into bunk cars, 2 into cook cars and 4 into dining cars. One side door of the converted cars has been boarded up, and the other side door made smaller, and hinged door applied in place of the standard box car door. Four small windows have been put in the sides of the cars, and the cars have been fitted with steel frame bunks, stoves and other accessories, and they are all lined inside with roofing paper. End doors have been built in between end posts.

The Abitibi Power and Paper Co. has received a mogul (2-6-0) locomotive from Montreal Locomotive Works. Following are the chief details,—

Weight on drivers	124,500 lb.
Weight on truck	18,000 lb.
Total weight	142,500 lb.
Wheel base, driving	12 ft. 10 in.
Wheel base, total engine	21 ft. 2½ in.
Wheel base, total engine and tender ..	49 ft. 10 in.
Cylinders, diar. and stroke	19 x 26 in.
Driving wheels, diar.	50 in.
Boiler, type	Extended wagon top
Boiler pressure	180 lb.
Boiler, diar. inside first ring	60½ in.
Firebox, length and width	94¾ x 42½ in.
Tubes, no. and diar.	145—2 in.
Flues, no. and diar.	24—5½ in.
Heating surface, tubes	785 sq. ft.
Heating surface flues	349 sq. ft.
Heating surface, firebox	138 sq. ft.
Heating surface, arch tubes	17 sq. ft.
Heating surface, total	1,289 sq. ft.
Grate area	28 sq. ft.
Tractive power	28,700 lb.
Factor of adhesion	4.8
Tank, type	Sloping back
Tank capacity, water	4,500 U.S. gall.
Capacity, fuel	9 tons
Cab, type	Vestibule

Mainly About Railway People Throughout Canada.

J. W. R. Ambrose, E. M., Chief Engineer, Toronto Terminal Railways Co., won the Toronto Engineers Club's golf tournament at Mississauga Golf Club, near Toronto, recently.

George F. Ancrum, whose appointment as Assistant Treasurer, G.T.R., Montreal, was announced in our last issue, was born at Bristol, Eng., Dec. 9, 1872, and entered G.T.R. service, in June 1888, since when he has been, to 1891, junior clerk, Mechanical Department; 1891 to 1904, clerk, Treasurer's Department; 1904 to 1914, Paymaster; 1914 to 1920, chief clerk to Vice President and Treasurer; 1920 to September 1922, Assistant to Treasurer, all at Montreal.

R. B. Angus, the last of the original directors of the C.P.R., whose death was announced in our last issue, left his Montreal house to his son D. F. Angus, his house at Senneville, Que., to his son, W. F. Angus, and \$10,000 to be divided among his servants in the discretion of the executors, these being his two sons, and R. M. Patterson, son-in-law. The amount of the estate, which is left in trust for his children, has not been made public.

S. T. Blaiklock, son of M. S. Blaiklock, Engineer of Maintenance of Way, G.T.R., was married in Montreal, Oct. 11 to Miss L. M. Molson.

H. P. Borden, C.E., who died at Ottawa, Oct. 19, aged 50, after a long illness, was born in Nova Scotia, and graduated from McGill University in 1902. He was, for some time, in C.P.R. service, and subsequently with Montreal Locomotive Works. He was on the Quebec Bridge Commission staff, which was appointed for the construction of the first Quebec bridge, in 1908, and which collapsed when partly built. From 1916 to 1918, he was a member of the board of engineers for the construction of the present bridge, and from 1919 to 1921 acted as a consulting engineer for the Dominion Government, and subsequently engaged in private practice. He was a member of the Engineering Institute of Canada, and of the American Society of Civil Engineers.

G. M. Bosworth, Chairman, Canadian Pacific Steamships, Ltd., and Mrs Bosworth, have been visiting Hot Springs, Va.

C. G. Bowker, who has been appointed Operating Manager, lines east of Detroit and St. Clair Rivers, G.T.R., Montreal, was born at Medford, N.J., Apr. 21, 1871, and entered railway service in May, 1888, since when he has been, to Oct., 1890, operator, Philadelphia & Reading Rd.; Oct., 1890, to 1893, operator, New England Division, same road; 1893 to 1897, in charge of telegraph lines and electrical service, Buffalo Division, Lehigh Valley Rd., Buffalo, N.Y.; May, 1900, to Feb., 1902, train dispatcher, G.T.R., London, Ont.; Feb., 1902, to Nov., 1905, train dispatcher, G.T.R., Durand, Mich.; Nov., 1905, to May, 1907, Chief Train Dispatcher, G.T.R., Stratford, Ont.; May, 1907, to Sept., 1909, Trainmaster, G.T.R., Stratford, Ont.; Sept., 1909, to May 13, 1911, to Jan., 1913, Joint Super-Middle Division, G.T.R., London, Ont.; May 13, 1911, to aJn., 1913, Joint Superintendent, G.T.R. and Wabash Rd., St. Thomas, Ont.; Jan., 1913, to May 1, 1918, General Superintendent, Eastern Lines, G.T.R., Montreal; May 1, 1918, to Oct. 10, 1922, General Superintendent, Ontario Lines, G.T.R., Toronto.

Franklin P. Brady, Assistant to the Executive, Canadian National Rys., Toronto, died at his house at Winnipeg, Oct. 21, after a long illness, due to cancer. He attended to his duties up to July 6, when he left Toronto for Winnipeg. The body was brought east on a Canadian National Rys. business car, accompanied by the widow and family, and passed through Toronto, Oct. 23, for Concord, N.H., where the funeral took place, Oct. 25. He was born at Haverhill, N.H., June 22, 1853, and entered railway service 1869 as station baggagemaster, Passumpsic Ry., since when he had been consecutively: 1873 to 1880, train dispatcher, Northern Rd., at Concord, N.H.; 1880 to 1883, Chief Train Dispatcher, Southeastern Ry., at Richford, Vt.; 1888 to 1889, Trainmaster, C.P.R.; 1889 to 1898, Assistant Superintendent, C.P.R.; 1898 to May, 1901, Superintendent, C.P.R. at Smiths Falls, Ont.; May 1901 to Sept. 1902, Superintendent districts 10 and 11,



Franklin P. Brady,
Assistant to the Executive, Canadian National Rys., who died, Oct. 21.

C.P.R., at Toronto; Sept. 1902 to May, 1903, Superintendent, district 19, C.P.R., at Fort William, Ont.; June 1, 1903 to Feb., 1904, Assistant General Superintendent, Central Division, C.P.R., Winnipeg, Man.; Feb. 1904 to Sept. 16, 1908, General Superintendent, Lake Superior Division, C.P.R., North Bay, Ont.; May 1, 1908 to June 1909, Member of Canadian Government Railways Board of Management; June, 1909, to June 1913, also Superintendent, Canadian Government Railways, Moncton, N.B.; June 1913, on the abolition of the Canadian Government Railways Managing Board, to May, 1915, General Superintendent, Canadian Government Rys., Moncton, N.B.; May, 1915 to June 1, 1917, General Superintendent, Canadian Government Rys., Cochrane, Ont.; June, 1917, to Dec. 1, 1918, General Manager, Western Lines, Canadian Government Rys., Winnipeg, Man.; Dec. 1, 1918 to Nov., 1920, General Manager, Eastern Lines, Canadian Northern Ry. System and Canadian Government Rys.,

Montreal and from Nov. 1920, Assistant to the Executive, Canadian National Rys., Toronto.

Harry Walter Brodie, whose appointment as Assistant Passenger Traffic Manager, C.P.R., Montreal, was announced in our last issue, and whose portrait appears in this issue, was born at Fredericton, N.B., June 8, 1874, and entered C.P.R. service Jan. 1, 1895, since when he has been, to July, 1895, stenographer, Passenger Department, St. John, N.B.; July to Aug., 1895, stenographer, Passenger Department, Boston, Mass.; Aug., 1895, to Feb., 1898, stenographer, Passenger Department, Toronto; Feb., 1898, to Oct., 1899, chief clerk, Passenger Department, Toronto; Oct., 1899, to Feb., 1903, chief clerk, Passenger Department, Winnipeg; Feb. 1, 1903, to

Lady Bury, former wife of Sir George Bury, ex Vice President, C.P.R., who had been staying at the Hotel Vancouver for some time, has taken up her residence at the Kenilworth Apartment, Vancouver, B.C.

James Clark, whose accidental death as the result of an explosion at Parent, Que., Sept. 15, was mentioned in our last issue, was born Nev. 10, 1867, and from Jan. 27 to Sept. 8, 1916, was Locomotive Foreman, Canadian Government Rys., Parent, Que.; Sept. 8, 1916 to July 25, 1921, Locomotive Foreman, Canadian Government Rys., Bridge, Que.; July 25, 1921, to Sept. 15, 1922, Locomotive Foreman, Canadian National Rys., Parent, Que. Prior to entering Canadian Government Rys. service, he was for several years, Master Mechanic, Quebec and Lake St. John Ry., now part of Canadian National Rys.

P. W. Clarkin, Division Freight Agent, Island Division, Canadian National Rys., Charlottetown, P.E.I., who has also been appointed District Passenger Agent there, was born at North Wiltshire, P.E.I., Mar. 22, 1876, and entered railway service June 16, 1896, since when he has been, to Jan., 1897, assistant agent and operator, Prince Edward Island Ry., at Souris and other points; Jan., 1897, to July, 1899, relieving agent, same road; July 1899, to Aug., 1903, assistant agent, same road, Charlottetown; Aug., 1903 to Apr. 1909, agent, same road, Mount Stewart Jet.; Apr. 1909 to Apr. 30, 1914, clerk, General Freight Agent's office, Canadian Government Rys., Moncton, N.B.; May 1, 1914, to Nov. 30, 1921, chief clerk and Travelling Freight Agent same road, Charlottetown, P.E.I.; Dec. 1, 1921, to Apr. 30, 1922, acting Division Freight Agent, Canadian National Rys., Charlottetown, and from Apr. 30, 1922, Division Freight Agent, Island Division, Canadian National Rys., Charlottetown.

D'Alton C. Coleman, Vice President, Western Lines, C.P.R., Winnipeg, was married at the St. Ignatius Loyola Church Rectory, New York, N.Y., on Oct. 28, to Miss Florence Mary Lynch, daughter of W. J. Lynch, I.S.O., Chief of the Patent Office, Ottawa. Following the ceremony a reception was held at 1049 Park Avenue, New York, the home of her brother, W. F. Lynch, Assistant to President, Cuba Railroad, with whom she had been living, recently, previous to which she lived for some time with another brother, Dr. A. L. Lynch, Saskatoon, Sask. The bride was given away by her father. Her sisters, the Misses Daisy and Bessie Lynch, were maid of honor and bridesmaid respectively; Miss June Magor, daughter of Robt. Magor, of

New York, was flower girl, and W. F. Lynch was best man.

Senator N. Curry, Chairman of the Board, Canadian Car & Foundry Co., and Mrs. Curry, returned to Montreal, early in October, from their summer home at Tidnish, N.S., and left towards the end of the month for their winter house, Cedar Lodge, Paget, Bermuda.

Nov. 1, 1910, Assistant General Passenger Agent, Western Lines, Winnipeg; Nov. 1, 1910, to Sept. 12, 1922, General Passenger Agent, lines west of Revelstoke, B.C., Vancouver, B.C.

W. R. Davidson, who has been appointed General Superintendent, Eastern Lines, G.T.R., Montreal, was born at Everton, Mo., Nov. 8, 1871, and entered railway service in Jan., 1890, since when he has been, to July, 1901, operator, Missouri Pacific Ry., at various points; July, 1901, to Mar., 1904, dispatcher, same road, Wichita, Kan.; Mar. to Oct., 1904, Chief Dispatcher, same road, Wichita, Kan.; Oct., 1904, to Mar., 1911, Trainmaster, same road, Wichita, Kan.; Mar., 1911, to Feb., 1913, Trainmaster, G.T.R., London, Ont.; Feb., 1913, to Mar., 1916, Superintendent, G.T.R., London, Ont.; Mar., 1916, to Sept., 1917, Superintendent, G.T.R., Detroit, Mich.; Sept. 1917, to May 1, 1918, General Superintendent, Western Lines, G.T.R., Chicago, Ill.; May 1, 1918, to Mar. 1, 1920, General Superintendent, Eastern Lines, G.T.R., Montreal; Mar. 1, 1920, to Oct. 10, 1922, General Superintendent, Western Lines, G.T.R., Chicago, Ill.

G. S. Donaldson, General Agent, Chicago and Northwestern Ry., Toronto, was placed on trial at Milton, Ont., Oct. 13, charged with criminal negligence in driving an automobile near Oakville, Ont., in July, when the car overturned, resulting in the owner's death. It transpired in evidence, that he has suffered considerably from loss of memory since his return from active service, that he was not accustomed to driving a car, and that he remembered nothing of the matter from the time he got into the car at Toronto, until his return to consciousness in a hospital some 10 days later. The late owner's parents and widow pleaded for leniency. He was found guilty of manslaughter and sentenced to one month imprisonment.

Knowlson Elliott, who has been appointed District Freight Agent, C.P.R., Edmonton, Dunvegan and British Columbia Ry., and Central Canada Ry., Edmonton, Alta., was born at Gorrie, Ont., June 26, 1884, and entered railway service in Jan., 1903, since when he has been to Oct., 1905, car checker, Michigan Central Rd., Jackson, Mich.; Nov., 1905, to Jan., 1909, clerk, Local Freight Department, C.P.R., Winnipeg; Jan. to Oct., 1909, rate clerk, General Freight Department, C.P.R., Winnipeg; Oct., 1909, to June, 1911, Soliciting Freight Agent, Minneapolis, St. Paul and Sault Ste. Marie Ry., Winnipeg; June, 1911, to July, 1, 1912, Soliciting Freight Agent, C.P.R., Winnipeg; July 1 to Dec. 31, 1912, chief clerk, Division Freight Agent, C.P.R., Winnipeg; Jan. 1, 1913, to July 1, 1914, chief clerk to Assistant Freight Traffic Manager and General Freight Agent, C.P.R., Winnipeg; July 1, 1914, to Sept. 15, 1922, City Freight Agent, C.P.R., Calgary, Alta.

J. M. R. Fairbairn, D.Sc., Chief Engineer, C.P.R., is making an official trip to the Pacific coast.

Robert H. Fish, who has been appointed General Superintendent, Ontario Lines, G.T.R., Toronto, was born at Oakville, Ont., in 1871, and entered G.T.R. service

in 1890, since when he has been, to 1900, locomotive fireman; 1900 to Oct. 1, 1908, locomotive man; Oct. 1, 1908, to Jan. 23, 1913, Road Foreman of Locomotives, London, Ont.; Jan. 23, 1913, to Nov. 14, 1916, Trainmaster, Districts 20 and 21, Ontario Lines, Brantford, Ont.; Nov. 14, 1916 to March 1, 1920, Superintendent, Stratford Division, Ontario Lines, Stratford, Ont.; Mar. 1, 1920, to Oct. 10, 1922, General Superintendent, Eastern Lines, G.T.R., Montreal.

Sir Joseph Flavelle, then Chairman of the Board, G.T.R., Lady Flavelle, W. D. Robb, Vice President and General Manager, G.T.R., and Mrs. Robb, spent a week end, early in October, with W. H. Miner, railway supply manufacturer, Chicago, at his Heart's Delight Farm, Chazy, N.Y.

Edgar Fleming, whose appointment as Assistant to Treasurer, G.T.R. Co., Montreal, was announced in our last issue, was born in London, Eng., May 17, 1884, and entered G.T.R. service July 2, 1900, since when he has been, to April, 1903, office boy; April, 1903, to March, 1913, clerk;



George A. Walton,

General Passenger Agent, Eastern Lines, C.P.R.

By an unfortunate mistake an illustration made from a photograph of C. W. Johnston, Assistant General Passenger Agent, G.T.R., appeared in Canadian Railway and Marine World for October, with the caption G. A. Walton, General Passenger Agent, Eastern Lines, C.P.R., underneath it. The publication of Mr. Walton's photograph above corrects the error.

March, 1913, to July, 1918, Paymaster; July, 1918, to Dec., 1920, Secretary to Vice President and Treasurer; Dec., 1920, to Sept. 1, 1922, chief clerk to Vice President and Treasurer, all at Montreal.

William Edgar Foster, K.C., formerly Solicitor for Ontario, G.T.R., Montreal, died at Belleville, Ont., Oct. 11, after a long illness. He was born there, June 27, 1866, and entered the G.T.R. Legal Department there, Sept. 30, 1884, as clerk and student under John Bell, Q.C., then General Counsel, later becoming his assistant, and on Mr. Bell's death in 1905, he was appointed Assistant to General Solicitor, G.T.R., Montreal, on Jan. 1, 1910, Assistant Solicitor for Ontario, and on July 15, 1913, Solicitor for Ontario,

which position he held until his retirement on pension on account of ill health, Dec. 31, 1921. The funeral at Belleville, Oct. 13, was attended by D. E. Galloway, Assistant Vice President; W. C. Chisholm, General Solicitor; J. P. Pratt, Assistant General Solicitor, and other G.T.R. legal officials.

D. E. Galloway, who has been appointed Assistant Vice President, G.T.R., Montreal, was born at Crief, Ont., Aug. 31, 1882, and entered G.T.R. service, Feb. 1, 1901, since when he has been, to Nov., 1901, in Claims Department, Hamilton, Ont.; Nov., 1901, to Sept. 21, 1904, in Claims Department and General Freight Department, Montreal; Sept. 21, 1904, to Jan. 7, 1910, secretary to Second Vice President and General Manager, G.T.R., Montreal; Jan. 7, 1910, to Oct. 2, 1911, secretary to President, G.T.R. and G.T.P.R., Montreal; Oct., 1911, to Oct., 1922, Assistant to President, G.T.R., Montreal.

Gerald Hamilton Griffin, whose appointment as General Agent, Passenger Department, Rail and Steamship Lines, C.P.R., Cleveland, Ohio, was announced in our last issue, was born at Boston, Mass., Aug. 2, 1877, and entered C.P.R. service in April 1902, since when he has been, to June, 1904, clerk, Assistant Traffic Manager's office, New York; June, 1904 to Jan., 1906, Assistant Ticket Agent, New York; Jan. 1906 to Sept. 1908, Travelling Passenger Agent, New York; Sept. 1908 to Jan. 1916, City Passenger Agent, Buffalo, N.Y.; Jan. 1916 to May 1917, City Ticket Agent, Chicago, Ill.; May, 1917 to July, 1918, Travelling Passenger Agent, St. Louis, Mo.; July, 1918 to Sept., 1922, City Passenger Agent St. Louis, Mo.

D. B. Hanna, ex-President, Canadian National Ry., and Robert Hobson, President, of the Steel Co. of Canada, another of the ex-directors, are members of a syndicate headed by Lloyd Harris, of Brantford, Ont., which has "struck oil" near Shreveport, Louisiana. The first two wells bored were not successful, but a third one is said to be good for several thousand barrels a day.

W. R. Harley, who has been appointed Secretary, Minneapolis, St. Paul and Sault Ste. Marie Ry., Minneapolis, Minn., was born at Glasgow, Scotland. He commenced railway service with the Caledonian Ry., there, and remained with that company for three years, before going to the U.S., since when he has been, 1884 to 1886, stenographer, General Ticket Department, Chicago and Northwestern Ry., Chicago, Ill.; 1886 to 1909, successively, stenographer, cashier and chief clerk, Wisconsin Central Ry.; 1909, following the taking over of that railway by the M.St.P.&S.S.M.Ry., to 1918 District Passenger Agent, Minneapolis, St. Paul and Sault Ste. Marie Ry., Des Moines, Iowa; 1918 to 1920, in office of Federal Manager, U.S. Railways Administration, and from 1920 to the date of his present appointment, chief clerk to President and Assistant Secretary, M. St.P.&S.S.M.R.

Sir Arthur Harris, formerly of the C.P.R. Freight Department, and Lady Harris, have left Montreal to spend the winter in Bermuda.

W. H. Hobbs, who for the past 8 years, and until H. G. Kelley's resignation recently was the G.T.R. President's secretary, is acting in a similar capacity for Vice President and General Manager Robb. During the period following the abolition of the London board, while G.T.R. affairs were administered by the board appointed by the Dominion Government, of which Sir Joseph Flavelle was Presi-

dent, Mr. Hobbs acted as Assistant Secretary of the company, performing such corporate duties as arose from time to time. He also acted as secretary for Sir Henry Thornton, the newly appointed President of the Canadian National Rys. during the latter's visit to America recently.

W. T. Huggan, who has retired from the position of District Passenger Agent, Island Division, Canadian National Rys., Charlottetown, P.E.I., was born at Halifax, N.S., May 24, 1851, and served for several years, to Sept. 1913, as Accountant and Auditor, and from Sept. 1913, as Divisional Accountant and District Passenger Agent, Prince Edward Island Ry., latterly, Island Division, Canadian National Rys., Charlottetown, P.E.I.

Samuel J. Hungerford, who has been appointed Vice President and General Manager, Canadian National Rys., Toronto, was born near Bedford, Que., July 16, 1872, and entered railway service in May, 1886, since when he has been, to Feb., 1891, machinist apprentice, South Eastern Ry. and C.P.R., Farnham, Que.; May, 1891, to Aug., 1894, machinist at various points in Quebec, Ontario and Vermont; Sept., 1894, to Aug., 1897, charge man, C.P.R., Windsor St., Montreal; Aug., 1897, to Apr., 1900, Assistant Foreman, C.P.R., Farnham, Que.; Apr., 1900, to Feb., 1901, Locomotive Foreman, C.P.R., Megantic, Que.; Feb. to Sept., 1901, General Foreman, C.P.R.; Sept. 1901, to Feb., 1903, Locomotive Foreman, C.P.R., Cranbrook, B.C.; Feb., 1903, to Jan., 1904, Master Mechanic, C.P.R., Western Division, C.P.R., Calgary, Alta.; Jan., 1904, to Dec., 1907, Superintendent, Locomotive Shops, C.P.R., Winnipeg; Jan., 1908, to Feb., 1910, Superintendent of Shops, C.P.R., Winnipeg, Man.; Mar., 1910, to Apr., 1915, Superintendent of Rolling Stock, Canadian Northern Ry., Winnipeg; May, 1915, to Nov. 1, 1917, Superintendent of Rolling Stock, C.N.R., Toronto; Nov. 1, 1917, to Dec. 1, 1918, General Manager, Eastern Lines, C.N.R., Toronto; Dec., 1918, to Sept., 1920, Assistant Vice President, Operation, Construction and Maintenance, Canadian National Rys., Toronto; Sept., 1920, to Oct. 10, 1922, Vice President, Operation and Maintenance, Canadian National Rys., Toronto.

R. J. Hunt, Chief Traffic Inspector, C.P.R., Montreal, is a member of a committee which has been appointed by the Ontario Government to report on the province's iron mining possibilities.

James Parnell Johnson, whose appointment as Superintendent, Prince Albert Division, Canadian National Rys., Prince Albert, Sask., was announced in our last issue, was born at Castlebar, Arthabaska County, Que., Oct. 21, 1889, and entered railway service July 1, 1904, since when he has been, to Oct. 1908, telegraph operator, G.T.R.; Oct. 1908 to July 1910, dispatcher, G.T.R., Island Pond, Vt.; July 1910 to March 1912, dispatcher, C.P.R., Farnham, Que.; March 1912 to June 1915, Chief Dispatcher, C.P.R., Chapleau, Ont.; June 1915 to Nov. 1917, Chief Dispatcher, Transcontinental Division, Canadian Northern Ry., Grant, Ont.; Nov. 1917 to Jan. 1919, Assistant to General Superintendent, National Transcontinental Ry., Cochrane, Ont.; Jan. 1919 to March 1920, Inspector of Train Dispatchers, Western Lines, Canadian National Rys.; March 1920 to May 1921, Assistant Superintendent, Canadian National Rys., Melfort, Sask.; May 1921 to Sept. 1922, Assistant Superintendent, Canadian National Rys., Prince Albert, Sask.

Hon. W. C. Kennedy, Minister of Railways and Canals, who was operated on at the Royal Victoria Hospital, Mon-

treau, Aug. 26, for gall stones, and had to have a second operation there on Sept. 20, was reported on Oct. 22 as considerably improved.

Lt.-Col. Lawrence T. Martin, D.S.O., one of the Timiskaming & Northern Ontario Ry. Commissioners, who was married recently to Miss Frances Heney, has returned from his wedding trip and taken up residence on Laurier Ave. East, Ottawa.

Hon. G. D. Maclean, Minister of Education and Provincial Secretary for British Columbia, has, a press report states, also been appointed Minister of Railways, succeeding Premier Oliver in the latter position.

Ralph G. McNeillie, whose appointment as General Passenger Agent, C.P.R. lines, Field, Kootenay Landing and east, Winnipeg, was announced in our last issue, and whose portrait appears in this issue, was born at Lindsay, Ont., July 1, 1883, and entered C.P.R. service, Oct. 1, 1901, since when he has been, to Apr., 1903, stenographer, Winnipeg; Apr., 1903, to Apr., 1904, refund clerk, Winni-



R. G. McNeillie,
General Passenger Agent, C.P.R., Winnipeg.

peg; Apr., 1904, to Apr. 25, 1906, rate clerk, Winnipeg; Apr. 25, 1906, to Oct. 20, 1909, chief clerk, Winnipeg; Oct. 20, 1909, to Jan. 1, 1910, acting District Passenger Agent, Nelson, B.C.; Jan. 1, to Apr. 15, 1910, District Passenger Agent, Nelson, B.C.; Apr. 15, 1910, to July 1, 1913, District Passenger Agent, Calgary, Alta.; July 1, 1913, to Sept. 12, 1922, Assistant General Passenger Agent, Western Lines, Calgary, Alta.

Alfred J. Mitchell, who has retired from the Canadian National Rys. Vice Presidency was born at Toronto, Sept. 28, 1879, and entered transportation service July 18, 1899, since when he has been, to Jan. 1902, chief clerk, Mackenzie, Mann & Co., Jan., 1902, to Jan., 1904, accountant, same company; Jan. 1904, to July, 1908, Assistant Comptroller, same company; July, 1908, to Sept., 1918, Comptroller, same company; July, 1912, to Sept. 1918, also Assistant to Vice President, Canadian Northern Ry., all at Toronto, and from Sept., 1918, Vice President, Canadian Northern Ry. Co.

and Vice President, Finance, of lines operated as Canadian National Rys. He is Vice President Canadian Northern Prairie Lands Co. and now has his office with that company in the Dominion Bank Building, Toronto.

C. Price-Green, Commissioner, Industrial and Resources Department, Canadian National Rys., addressed the Association of Canadian Advertisers, at its annual meeting in Toronto, Oct. 12 on Canada's development.

Frank Scott, who resigned as Vice President and Treasurer, G.T.R., recently, has been elected a director of Dale & Co., insurance agents, Montreal.

W. S. Scott, who was secretary to D. B. Hanna, President, Canadian National Rys., for several years up to Mr. Hanna's resignation, recently, has resigned from the C.N.R. service, to enter that of the Canadian Northern Prairie Lands Co., of which Mr. Hanna is President, and will go to Winnipeg shortly as the company's western representative. Officials and other members of the C.N.R. head office staff in Toronto gave him a gold watch and chain on Oct. 21.

George Arthur Staples, who has been appointed City Freight Agent, C.P.R., Calgary, Alta., was born at Durham, Ont., Feb. 28, 1882, and entered C.P.R. service, Mar. 1, 1901, since when he has been, to Aug., 1902, clerk, North Bay, Ont.; Aug. to Dec., 1902, agent and operator, Chapleau, Ont.; Dec. 1902, to Mar. 1903, operator, Winnipeg; Mar., 1903, to Aug., 1907, Freight Agent, Cranbrook, B. C.; Nov., 1907, to Aug., 1911, cashier and chief clerk, Nelson, B. C.; Aug. 1911, to Jan. 31, 1914, Travelling Freight Agent, Nelson, B.C.; Jan. 31, 1914, to Sept. 15, 1922, City Freight Agent, Vancouver, B.C.

Hon. J. A. Stewart, K.C., who was Minister of Railways and Canals, for a short time in 1921, prior to the defeat of the Meighen Government, died in the Royal Victoria Hospital, Montreal, Oct. 7, of pernicious anaemia, after being there for nearly four months. Prior to entering the House of Commons as member for Lanark, he was, for 14 years, High Chief Ranger of the Canadian Order of Foresters, and was Mayor of Perth for 1900-01 and 1903-04. He was a member of the legal firm of Stewart, Hope & O'Donnell, Perth, Ont., and was largely interested in several industrial concerns.

J. H. Valleau, Secretary-Treasurer, Thousand Islands Ry., and Oshawa Ry., Gananoque, Ont., was married, there, Oct. 15, to Miss Portia Mullen.

Lady and Miss Van Horne returned to Montreal at the end of October, after spending the summer at Ministers Island, St. Andrews, N.B.

John Benjamin Windross, who has been appointed Resident Manager, Prince Edward Hotel, Canadian National Rys., Brandon, Man., was born at Whitehaven, Eng., July 5, 1873, and has been at various times from Aug., 1907, to Feb., 1921, Assistant Manager, Chateau Louise, C. P.R., Lake Louise, Alta.; Assistant Manager, Chateau Frontenac, C.P.R., Quebec, Que.; acting Manager, Chateau Frontenac, C.P.R., Quebec, Que.; Manager, Empress Hotel, C.P.R., Victoria, B.C.; Assistant Manager, Davenport Hotel, Spokane, Wash.; Assistant Manager, Hotel del Coronado, California; from Feb. to Sept., 1921, Manager, Macdonald Hotel, Canadian National Rys., Edmonton, Alta.; from Sept., 1921, relieving Manager of Hotels, Canadian National Rys., and latterly of the Minaki Inn, Minaki, Ont.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Abitibi Transportation and Navigation Co.—We were advised on Oct. 6 that grading on the 16-mile standard gauge logging railway from Iroquois Falls to Hughes, Ont., was 95% completed; that the trestle work was 75% completed, and that 50% of the tracklaying and ballasting had been done. Grenville Crushed Rock Co. is the general contractor.

Belgo Paper Co.—We are officially advised that the Belgo Paper Co. has nearly completed an industrial railway connecting Metabetchouan Lake and Bostonnais River, near Shawinigan Falls, Que. Construction on the line, which is 4.5 miles long, was started in June, and is expected to be fully completed in November. The line, will, it is expected, be put into operation next spring, and will be used entirely for transferring logs from the lake to the river.

Burrard Inlet Tunnel and Bridge Co.—A tentative contract is reported to have been signed between the Burrard Inlet Tunnel and Bridge Co., and the Northern Construction Co. for the construction of a bridge across the second narrows of Burrard Inlet, Vancouver, B.C., at an estimated cost of \$1,250,000. Some time ago negotiations were being carried on with a Pittsburgh, Pa. construction company which offered to erect a bridge according to a plan submitted for approximately \$1,242,000, but this price was later increased to \$1,400,000. Considerable discussions followed and it was claimed that local contractors were well able to do the work. As a result the present tentative contract has been entered into. The Northern Construction Co. will it is reported, proceed aided by A. D. Swan, the Tunnel and Bridge Co's engineer, to secure the necessary data, and to complete the plans for the bridge. The necessary bylaws will be prepared for the confirmation of the contract and the approval of the plans, so that they can be submitted to the voters of the several municipalities interested, which form the company. A press report states that J. W. Stewart and Co., Vancouver, are interested with the Northern Construction Co. in the contract.

Cowichan Bay Ry.—We are officially advised that a map has been filed with the British Columbia Railways Department showing the proposed route of this projected railway on Vancouver Island. The construction of two lines is projected. The first from Deerholm, near Duncan, to Cowichan Bay, about 9 miles, and the second is from the Canadian National Ry. line at the east end of Cowichan Bay, southerly and westerly along the west shore of the lake to Bear Lake, about 9 miles. A press report states that surveys have been made under the direction of D. O. Lewis, formerly engineer in charge of construction, Canadian Northern Ry. Vancouver Island line. (Oct. pg. 518.)

Duluth to Fort William and Port Arthur. Recent press reports gave a good deal of publicity to an alleged project for the construction of a railway from Duluth, Minn., to Fort William and Port Arthur, Ont., by the Duluth and Ontario Ry. Co., which was stated to have been incorporated in Minnesota, with J. W. Bayley as President. Mr. Bayley had been Receiver for the Duluth and Northern Ry., a company having 102.50 miles of track, part of which extended from Knife River, on the Duluth and Iron Range Ry., towards the Canadian boundary. The line was abandoned some years ago and its sale was judicially authorized. The purchaser

at the sale is reported to have been Robert Waldron, Duluth, and it was on the basis of this line that the Duluth and Ontario Ry. was to be constructed. We are advised that while there has been considerable talk in Duluth about the project, it is not expected that anything will come of it, and that it is anticipated that the rails on the D. and N. Ry. will be taken up early in 1923.

Esquimalt and Nanaimo Ry.—The first section of the new Johnson St. bridge, Victoria, B.C., was put into use, Sept. 30, when a freight train was run over it for testing, and the operation of regular passenger and freight trains was begun Oct. 2. The portion in use is the highway section, temporary tracks having been laid thereon, and this section will be used exclusively by the railway until the railway section of the bridge is completed, which is expected to be in May, 1923. The old railway bridge, built by the E. and N. Ry. Co. will now be removed to enable the city, which is building the new railway and general traffic bridge, to complete the main trunnion pier which will carry the railway bascule span. The construction of this span will it is expected be started early in 1923.

Keewatin Lumber Co.—We are officially advised that in connection with the erection of its pulp mill at Kenora, Ont., the Keewatin Lumber Co. has built a spur line for about a mile from the C.P.R. yards to the site. The company, which is controlled by E. W. Backus, of Minneapolis, is building its mill under its contract with the Ontario Government respecting the English River lumber limits, and for developing the Lake of the Woods timber limits, which it has also acquired. In connection with the development of the English River limits the company is under agreement to build a railway of approximately 80 miles. We are officially advised that no construction will be done on this line this year.

Pere Marquette Ry.—We are officially advised in connection with the Board of Railway Commissioners' recent approval of location and detail plans of a station building at Sarnia, Ont., that it is to be built on the north side of Clifford St., and east of the P.M.R. tracks. It is to be a one story building, 33 x 144 ft., with full size basement. The main floor will contain waiting room 23 ft. 7 in. x 19 1-3 ft. with women's and men's lavatories; ticket office 15 x 19 1/2 ft. with agent's office, 15 ft. 10 in. x 21 ft. at the rear; baggage room 13 x 23 1-3 ft.; express room, 20 x 23 ft 4 in.; government bonded room, 14 1/2 ft. x 23 1-3 ft. and freight room 48 3/4 ft. x 29 ft. 10 in. There will be a hallway from the rear of the government bonded room to the agent's office and the stairs leading to the basement will run off this hallway at the baggage room. Tenders for the construction will be asked at an early date. (Oct. pg. 518.)

Quebec and Chibougamou Ry.—A press report states that representatives of the company have had several interviews with members of the Quebec Government with a view to securing additional subsidies for the construction of the proposed line. The Quebec Legislature has already voted a land subsidy for the construction of a railway in a portion of the territory through which the company proposes to build its line from Quebec to the north of Lake St. John, and then on to Lake Chibougamou. The present application, it is stated, is for a cash subsidy of \$8,000 a mile, in addition to

the land subsidy available. It is stated that the company, which is being financed by British capital, has spent \$250,000 in explorations and surveys. (Aug. pg. 410.)

Vancouver Harbour Ry.—The Vancouver Harbour Commission has, we are advised, let contracts for the construction of a single track railway from the Dominion Government wharf to the site of the new Ballantyne pier at Vancouver. The contract for the embankment, which includes filling and patching up the irregular harbor frontage necessary to give the track a permanent foundation, was let to Grant Smith and Co. and McDonnell; that for the light grading, the supply of ties, track laying and ballasting to the Ryan Construction Co.; and that for the supply of rails, switchstands, etc., to Leith, Murray and Co., all of Vancouver. The work is to be done on with at once, so as to be ready for use in connection with the completion of the Ballantyne pier. The railway will extend from the Great Northern Ry. interchange tracks to the Ballantyne pier. The construction of the line, at an estimated cost of \$85,000 was authorized some time ago by the Board of Railway Commissioners, which also granted running rights over the G.N.R. tracks to the Harbor Commission, but the starting of work was held over, pending the change in the personnel of the harbor commission which was made in September.

We are further advised that the total track work involved on the Burrard Inlet section of the railway is about 5,000 ft., but its completion will give the Commissioners control of approximately 65 miles of terminal railway.

Wigwam Pulp and Paper Co.—We are officially advised that the C.P.R. is negotiating with the Great Northern Ry. U.S.A., with respect to the construction of a spur track to serve the plant proposed to be erected by the Wigwam Pulp and Paper Co., near Elko, B.C.

Grain in Store at Elevators.

Returns received by the Dominion Bureau of Statistics, Internal Trade Branch, show that for the week ended Oct. 13, the grain in store made a net increase of 14,751,391 bush. over the previous week. In the western country elevators there was an increase of 8,334,840 bush. The receipts and shipments for the week ended Oct. 6, were, receipts 26,880,550 bush.; shipments 18,544,879. In interior terminal elevators there was an increase of 127,119 bush. The receipts were 504,332 bush., and the shipments by rail were 218,566, and by ship 158,667. The public and private terminal elevators at Fort William and Port Arthur showed a net increase of 4,092,991 bush. The receipts at Fort Fort William from Sept. 1 to Oct. 13, were 70,920,522 bush., and at Vancouver, 739,082. The Winnipeg private terminal elevators showed increases of 277,424 bush., and at public elevators in the east, there was a net increase of 1,317,966 bush. The total receipts were 5,919,794 bush. by ship, and 1,340,425 by rail. The U.S. grain in store at eastern public elevators was 9,018,345 bush., compared with 8,493,221 for the same period in 1921. U.S. lake ports, Buffalo and Duluth, showed a net increase of 823,562 bush., and U.S. Atlantic seaboard ports showed a net decrease of 222,511 bush.

Canadian Pacific and Canadian National Railways' August Earnings and Expenses.

C.P.R. gross earnings for August were \$15,918,049, a decrease from Aug. 1921 of \$1,146,216; operating expenses were \$12,971,613, a decrease from Aug. 1921 of \$1,516,513, and net earnings were \$2,946,436, or \$370,297 greater than those of Aug. 1921. These figures show the best monthly result the company has secured for some time. While gross earnings were considerably smaller than for Aug. 1921, this was only to be expected, in view of the lower rates prevailing. The gross was about \$1,500,000 greater than that for any preceding month in 1922. The August operating expenses, in relation to the gross earnings secured, indicate that the company was able, during the month, to bring about a resumption of the large reductions in operating expense which were prevalent early in the year, and which accompanied the large decreases in revenues compared with those of the early months of 1921.

The gross earnings of \$15,918,049 were the greatest monthly gross earnings since Nov. 1921, and the figure has been exceeded only four times in any month since 1920, when business was very active and rates at their high point. Only in two instances in the company's history have there been higher gross earnings in August, these exceptions being in 1920 and 1921. The combination of the relatively large gross earnings with operating expenses, which show a substantial reduction from those of Aug. 1921, produced a gratifying increase of net earnings over those of August, 1921. These net earnings are the best since those of Nov. 1921 with the single exception of those for March 1922.

A short analysis of the results for the first 8 months of 1922 shows that the rate decreases in effect during the period have more than offset what improvement in business and traffic conditions has taken place throughout the year, so far as the company's gross earnings for the period are concerned, and also shows that, for the 8 month period, the reduction in unit railway operating costs has not been sufficient to wipe out the loss of revenue occasioned by rate reductions. Nobody who has followed the trend of railway rates, wages, and material costs, could logically expect that the expense reductions would cancel the rate reductions, and in view of the relationships which have to and do obtain, the results secured by the C.P.R. during the first 8 months of 1922 cannot be viewed as other than surprisingly good. Gross earnings for the period were \$106,677,243 a decrease of \$10,215,623 from those for the first 8 months of 1921; operating expenses were \$91,954,826, a reduction of \$7,357,417, and the net earnings for the period, \$14,722,416, are \$2,858,205 smaller than net earnings for the first 8 months of 1921.

The Canadian National Rys. (Canadian Northern, Canadian Government and Grand Trunk Pacific) had gross earnings for August of \$9,569,779, a decrease of \$805,371 from Aug. 1921; and operating expenses were \$10,399,616, an increase over Aug. 1921 of \$7,361. The result of these changes was that the operating loss for Aug. 1922 was \$812,732 greater than for Aug. 1921, when it was but \$17,105. It was evident that the rate reductions which have taken place affected the Canadian National Railways in the same way as the C.P.R.; that is, they have more than wiped out any benefit secured by

either railway by reason of the slight increase in traffic offering. Analysis of Canadian National figures covering the year to the end of August, however, shows a different state of affairs than the August figures, taken by themselves, indicate. The large reduction in operating expenses which has been accomplished has made the net return for the first 8 months of the year much more favorable than in the corresponding period of 1921, and the figures for August alone, when the railways were doubtless making large expenditures, demanded by preparations for the heavy autumn traffic, cannot be taken as any indication of general conditions.

While the Canadian National Rys. have accomplished a large improvement in their net returns for the first 8 months of the year, it must be borne in mind that the comparatively poor results of former years gave them large opportunity to secure these improvements; an opportunity, or a latitude, which the C.P.R., on account of its former high standard of earnings, has not had. The decrease in C.P.R. net earnings for the first 8 months of this year, compared with the first 8 months of 1921, is for that reason a better indication of the railway industry's state than are the Canadian National Rys. results. They indicate that the railways have had to face conditions so far in 1922 which have been a little more difficult than in 1921; what change is to be made in those conditions by complete application of the lower grain and commodity rates, in conjunction with a complete application of the latest wage reductions, must remain to be seen. There is one thing certain, these changes will not have the effect of increasing the railways' net earnings by an unduly large amount. It is probable that their net effect will be the production of a tendency for lower net earnings. On the other hand, though, traffic is becoming much heavier, and with a large crop now being moved, it may be that results in September, October and November will exceed all expectations, and it may be hoped, at any rate, that the large traffic now being moved will contribute to net earnings which will allow the C.P.R. as good a net as secured last year, and which will allow the Canadian National to make real progress toward the accomplishment of earning their operating expenses for a complete year.

United States Railways' Financial Results.

Results secured by the U.S. Class 1 railways in August were not nearly so favorable as in July or earlier months in this year, and were, in fact, the least favorable since May, 1921. The net operating income for the class 1 roads as a whole was \$52,579,690 for August, representative of an annual return of but 2.65% compared with \$90,160,200 for Aug. 1921, which was representative of an annual return on tentative valuation of 4.54%. To earn 5%, which the Interstate Commerce Commission has held that the roads are entitled to, they should have earned \$61,689,000 more than they did in Aug. 1922.

The eastern railways had a net operating income in August of \$14,929,990 compared with \$35,402,300 in Aug. 1921. The western railways had a net operating

income of \$33,031,700, compared with \$50,335,500 in Aug. 1921. The southern railways had a net operating income of \$4,618,000 compared with \$4,422,000 in Aug., 1921.

Operating revenues for class 1 roads as a whole were \$473,877,000, a decrease of 6.3% from Aug. 1921. Operating expenses were \$387,150,000, an increase of 1.3%. During the first 8 months of 1922, net operating income for the roads as a whole was \$471,183,600, compared with \$306,063,600 during the first 8 months of 1921. Operating revenues for the 8 months totalled \$3,528,502,000, a decrease of 3.2% from the first 8 months of 1921, while operating expenses, \$2,806,600, were 9.7% less than in the first 8 months of 1921.

The comparatively disappointing results secured in August are due in great part to the rate reduction of 10% which took effect on July 1, and the coal miners' and shopmen's strikes have had an adverse effect on both railway revenue and expense. The U.S. railways are now handling traffic to the limit of their equipment and facilities, however, and improved earnings for the autumn months are in prospect.

Traffic Orders by Board of Railway Commissioners.

Freight Rates on Nova Scotia Lumber.

When the Board sat at Bridgewater, N. S., in Sept., 1921, it heard applications for reductions in local and export freight rates on lumber from Bridgewater and stations on the Canadian National Rys. Bridgewater Division. As the Chief Commissioner and his colleagues at the hearing could not see much in the case, other than that the people naturally wanted cheaper rates, and feeling that sometime in the then near future there would be a reduction in lumber rates, the matter was allowed to stand. Early this summer the rate question having in a large way been settled for some time at least, the evidence and questions at issue were submitted to the Board's Chief Traffic Officer, who reported on them, following which the Chief Commissioner decided, the Assistant Chief Commissioner concurring, that as the rates in both cases are no higher than those generally in effect in Canada, and in many cases much less, the Board would not be justified in making a change, and both applications were therefore dismissed.

Freight Rates on Nova Scotia Fish.

32,989. Oct. 16. Re complaint of Zwicker & Co., Lunenburg, N. S., against alleged excessive freight rate on fish from Lunenburg to Halifax and Yarmouth, N.S. Upon hearing the complaint at Bridgewater, N. S. Sept. 29, 1921, the C.N.R. being represented at the hearing, and Mr. Zwicker appearing in person, and what was alleged, the Board made order that the complaint be dismissed.

Butter Freight Rates.

32,993. Oct. 16. Re complaint of National Dairy Council of Canada, on behalf of Manufacturers' Section of the Alberta Dairymen's Association, against freight rates on butter east and west of Calgary and Edmonton. Upon hearing the complaint at Ottawa, Feb. 23, 1922, in the presence of counsel for the complainant, and the Canadian Pacific and the Canadian National Railways, and what was alleged—the board orders that the complaint be dismissed.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Algoma Eastern Ry.—E. B. BARBER heretofore Assistant to President, has been appointed Comptroller, vice A. A. Pinkey, resigned, and his former position has been abolished. Office, Sault Ste. Marie, Ont.

Canadian National Rys.—MAJOR GRAHAM A. BELL, C.M.G., Deputy Minister of Railways and Canals, has also been appointed Vice President and acting Chairman of the Board of Directors of Canadian Northern Ry. Co., and Canadian National Ry. Co. and also Vice President of Finance, succeeding A. J. Mitchell, resigned, in the latter position. He has also been appointed to similar positions in the Grand Trunk Ry. Co.

vice Jas. Clarke, deceased.

R. B. GORDON, heretofore acting Terminal Passenger Agent, Winnipeg, has been appointed Travelling Passenger Agent, there, vice P. A. Rooney.

D. B. HANNA'S resignation as a director and as President, Canadian Northern Ry. Co., and Canadian National Rys., was accepted on Oct. 10.

S. J. HUNGERFORD, heretofore Vice President, Operation and Maintenance, has been appointed ranking Vice President, with the title of Vice President and General Manager, and will exercise the authority and perform the duties exercised and performed hitherto by the President, until Sir Henry Thornton takes up the duties of that office, his jurisdiction including the Canadian Northern Ry. system, the Canadian Government Rys., and the Grand Trunk Pacific Ry. Office, Toronto.

J. A. MCGINNIS, heretofore section

and Grand Trunk Ry. Directorates' Reorganization."

Canadian Pacific Ry.—E. E. BECK, heretofore Assistant Manager, Hotel Vancouver, Vancouver, B.C., has been appointed Manager, vice H. B. Jackson, deceased.

G. S. BEER, heretofore City Passenger Agent, Toronto, has been appointed Assistant District Passenger Agent, Ontario District. Office, Toronto.

K. ELLIOTT, heretofore City Freight Agent, Calgary, Alta., has been appointed District Freight Agent, C.P.R., Edmonton, Dunvegan and British Columbia Ry., and Central Canada Ry., Edmonton, Alta., vice J. H. Fox, appointed District Freight Agent, C.P.R., Vancouver, B.C.

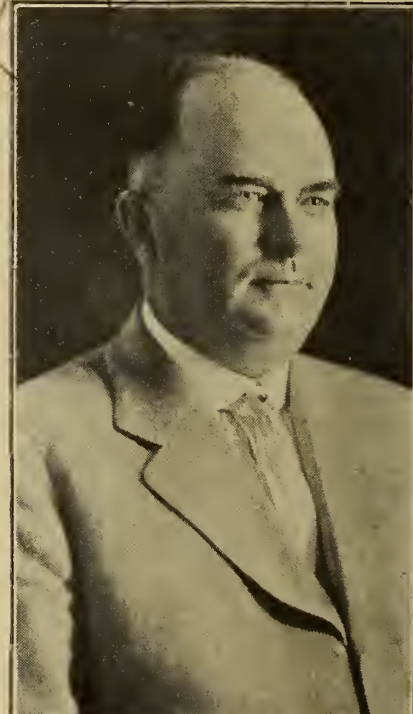
J. H. FOX, heretofore District Freight Agent, Edmonton, Alta., has been appointed District Freight Agent, Vancouver, B.C., vice A. J. Cambie, on leave of absence on account of ill health.



D. E. Galloway,
Assistant Vice President, Grand Trunk Railway.



C. G. Bowker,
Operating Manager, Lines east of Detroit and St. Clair Rivers, Grand Trunk Railway.



W. R. Davidson,
General Superintendent, Eastern Lines, Grand Trunk Railway.

E. H. BROCK, heretofore Assistant Roadmaster, Titchfield, Sask., has been appointed Roadmaster, Melville, Sask., vice H. M. Wilson assigned to other duties.

J. A. M. BROWN, heretofore Roadmaster, Drumheller, Alta., has been appointed Roadmaster, Battle River, Alliance and Scona Subdivisions, Edmonton Division, Alberta District, vice J. Eagleson transferred to Hanna, Alta. Office, Camrose, Alta.

P. W. CLARKIN, Division Freight Agent, Island Division, Charlottetown, P.E.I., has also been appointed District Passenger Agent, there, vice W. T. Huggan, retired.

J. EAGLESON heretofore Roadmaster, Battle River, Alliance and Scona Subdivisions, Edmonton Division, Alberta District, Big Valley, Alta., has been appointed Roadmaster at Hanna, Alta.

T. FRASER, heretofore Night Locomotive Foreman, Parent, Que., has been appointed Locomotive Foreman, there,

foreman, Brandon, Man., has been appointed Assistant Roadmaster, Titchfield, Sask., vice E. H. Brock transferred to Melville, Sask.

L. STEVENS, heretofore hostler, has been appointed Night Foreman, Parent, Que., vice T. Fraser appointed Locomotive Foreman there.

SIR HENRY W. THORNTON, K.B.E., heretofore General Manager and Chief Engineer, Great Eastern Ry. of England, has been appointed, by the Dominion Government, as President and Chairman of the Boards of Directors, Canadian Northern Ry. Co., Canadian National Ry. Co., and Grand Trunk Ry. Co.

A. J. WALSH, Roadmaster, Regina, Sask., has resigned.

J. B. WINDROSS, heretofore Manager, Minaki Inn, Ont., has been appointed Resident Manager, Prince Edward Hotel, Brandon, Man., vice G. R. Raymond.

Full particulars of the appointments of new directors are given on another page under, "The Canadian Northern Ry.

H. C. JAMES, heretofore on the port staff, Quebec, Que., and St. John, N.B., has been appointed Travelling Passenger Agent, Kansas City, Mo., vice A. D. MacDonald, appointed City Passenger Agent, St. Louis, Mo.

W. A. LOWE, heretofore Travelling Freight Agent, Manitoba District, Winnipeg, has been appointed District Freight Agent, Fort William, Ont., vice J. A. Weegar, assigned to other duties.

A. D. MACDONALD, heretofore Travelling Passenger Agent, Kansas City, Mo., has been appointed City Passenger Agent, St. Louis, Mo., vice G. H. Griffin, whose appointment as General Agent, Passenger Department, Cleveland, Ohio, was announced in our last issue.

T. C. ROBINSON, heretofore chief clerk to Division Freight Agent, Manitoba District, vice W. A. Lowe, appointed District Freight Agent, Fort William, Ont.

G. A. STAPLES, heretofore City Freight Agent, Vancouver, B.C., has been

appointed City Freight Agent, Calgary, Alta., vice K. Elliott, appointed District Freight Agent, C.P.R., Edmonton, Dunvegan British Columbia Ry., and Central Canada Ry., Edmonton, Alta.

Central Canada Ry.—See Canadian Pacific Ry.

Edmonton, Dunvegan and British Columbia Ry.—See Canadian Pacific Ry.

Grand Trunk Ry.—MAJOR GRAHAM A. BELL, C.M.G., Deputy Minister of Railways and Canals, has also been appointed Vice President, acting Chairman Board of Directors, and Vice President, G.T.R. Co., succeeding in the latter position, Frank Scott, retired. He has also been appointed to similar positions in the Canadian Northern Ry. Co., and the Canadian National Ry. Co.

C. G. BOWKER, heretofore General Superintendent, Ontario Lines, Toronto, has been appointed Operating Manager, lines east of Detroit and St. Clair Rivers, and performs the duties hitherto performed by the Vice President in charge of Operation. Office, Montreal.

W. R. DAVIDSON, heretofore General Superintendent, Western Lines, Chicago, Ill., has been appointed General Superintendent, Eastern Lines, vice R. H. Fish appointed General Superintendent, Ontario Lines, Toronto. Office, Montreal.

R. H. FISH, heretofore General Superintendent, Eastern Lines, Montreal, has been appointed General Superintendent, Ontario Lines, vice C. G. Bowker, appointed Operating Manager, Montreal, Office, Toronto.

D. E. GALLOWAY, heretofore Assistant to President, has been appointed Assistant Vice President. Office, Montreal.

G. C. JONES, whose position, as Assistant to President, has been abolished, will close his office in Toronto on Oct. 31, having been attached to the Vice President and General Manager's office at Montreal, to perform such special work as may be assigned to him by that officer.

T. W. R. McRAE is Chief Claims Agent, reporting to the General Solicitor, Montreal. His name was wrongly mentioned in our last issue, as W. R. McRae.

C. MANNING, heretofore Assistant to Vice President, Transportation, Construction and Maintenance, has been appointed Assistant Operating Manager, lines east of Detroit and St. Clair Rivers. Office, Montreal.

SIR HENRY W. THORNTON, K.B.E., heretofore General Manager and Chief Engineer, Great Eastern Ry. of England, has been appointed by the Dominion Government as President, and Chairman of the Board of Directors, G.T.R. Co. as well as of the Canadian Northern Ry. Co., and the Canadian National Ry. Co.

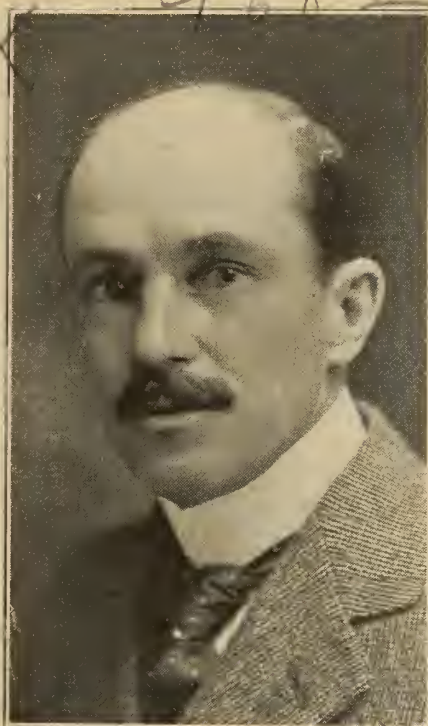
Pere Marquette Ry.—H. McLAUGHLIN heretofore section foreman, St. Thomas, Ont., has been appointed Supervisor of Track, Canadian Division, vice H. Morris, deceased. Office, St. Thomas, Ont.

Railway Accidents Throughout Canada.—The total number of railway accidents reported to the Board of Railway Commissioners, during September, was 268, resulting in 10 employees and 16 others being killed, and 56 passengers, 205 employees and 52 others being injured. Under "others" are included 6 persons killed, and 33 injured, in 23 crossing accidents. Of these accidents, automobiles were concerned in 15, resulting in 6 persons being killed and 23 injured; other vehicles were concerned in 6, and pedestrians in 2. In 18 cases, the crossings were unprotected, in 4, they were protected by bells, and in 1, by gates.

Railway Finance, Meetings, Etc.

Algoma Eastern Ry.—A press report states that the A.E.R. Co., a subsidiary of the Lake Superior Corporation, has sold some 500,000 acres of timber lands for \$1,300,000. The railway company is stated not to have been in a position to develop the lands, and as they were an unproductive asset, it was decided to sell them. The purchasers will, it is stated, erect a pulp and paper mill on the property, which is adjacent to the railway company's line.

Grand Trunk Pacific Ry. Co.—A London, Eng., cablegram, states that representatives of holders of the G.T.P.Ry. Co's 4% debenture stock have had an interview with members of the Dominion Government who were visiting London on official business, as to the position of this stock. It was quoted on the London market, Oct. 4, at 47½, an advance of 8 points in two days, and on Oct. 6, a further advance to 50 was quoted on the market.



H. W. Brodie,
Assistant Passenger Traffic Manager, Eastern
Lines, Canadian Pacific Railway.

The Dominion Government has, it is stated, completed arrangements for the payment through the Canadian National Rys., from Nov. 1, onward, of interest on the G.T. Pacific Branch Lines Railway bonds, guaranteed by Saskatchewan and Alberta. About 1000 miles of branch lines were built under the guarantee, Saskatchewan guaranteeing \$11,310,026 of 4% first mortgage bonds, and \$1,881,792 of 4½% terminal bonds, and Alberta \$3,584,113 of 4% bonds. Interest was paid by the G.T.P.Ry.Co. on these bonds until the lines were taken over by the Minister of Railways as Receiver. The provinces, under the guarantee, subsequently paid the interest, being recompensed by the Dominion Government. Two payments are reported to be due, and under the terms of the guarantee, upon a third default the provinces could take possession of the lines. It was stated that the interest would be paid on Nov. 1, and the provinces relieved of

all further liability.

The Interprovincial & James Bay Ry. and the Canadian Pacific Ry. Cos. will apply to the Board of Railway Commissioners on Nov. 21, for a recommendation to the Governor in council, for the sanction of an agreement between the C.P.R. Co. and the Interprovincial & James Bay Ry. Co., leasing to the C.P.R. the I. & J. B. Ry. Co's railway and undertaking for 99 years, dating from July 1, 1922.

Lake Superior Corporation.—The annual meeting of the shareholders of this corporation, which controls the Algoma Central & Hudson Bay Ry., and the Algoma Eastern Ry., in addition to steel works and other industrial concerns, was held at Camden, N.J., Oct. 5. The following are the officers and directors for the current year: President, W. S. Cunningham; Vice Presidents, H. Coppel, W. C. Franz, and James Harrison; Secretary, A. Taylor; Treasurer, J. Hawson; other directors, S. Mason, H. Gibson, T. D. Wood, J. S. Dale, R. Home Smith, H. I. Underhill, F. McOwen, H. C. Coleman, C. M. Brown, and F. G. Colby.

Minneapolis, St. Paul & Sault Ste. Marie Ry. Co.—A press report states that the directors have decided that no further dividends payable in 1922 will be declared out of surplus until the appeal of two preferred stockholders in the suit over the question of the rights of preferred and common stockholders has been decided. The appeal in the suit is set down for hearing at St. Louis, Mo., beginning Dec. 4. The company declared dividends of \$2 a share on both preferred and common stocks, payable April 15, 1922, out of surplus accumulated up to and including 1920. The payment of these dividends was enjoined by the U.S. District Court until the decision on the appeal as to the rights of the preferred and common stockholders is decided by the courts.

The statement, for the seven months ended July 31, as submitted to the New York Stock Exchange, is stated to show a net loss of \$1,661,347, after interest charges and taxes have been deducted. The figures are as follows: Revenue, \$13,416,111; operating expenses, \$11,682,272; taxes and uncollectible revenue, \$1,207,052; operating income, \$526,787; equipment rents, credit, \$353,789; joint facility rents, debit, \$55,785; net operating income, \$515,133; gross income, \$1,339,952; interest, \$2,698,489; other deductions, \$302,812; net loss for the period, \$1,661,347.

Ottawa Terminal Ry. Co.—The annual meeting was held at Ottawa, Sept. 26, when the following directors were elected.—Sir Joseph Flavelle, Major G. A. Bell, E. L. Newcombe, K.C., A. J. Mitchell, W. D. Robb, J. E. Dalrymple and J. N. Dupuis.

St. John & Quebec Ry.—The St. John-Quebec Trust Co. was incorporated at the New Brunswick Legislature's last session to act as trustee for the St. John & Quebec Ry. Co's bondholders. This railway is owned by the New Brunswick Government, having been taken over from the original company, the trustee for the bondholders of which was the Prudential Trust Co., Montreal. This company has resigned its position, and the St. John-Quebec Trust Co. has taken over the responsibility. The officers of the new company are: President, Hon. W. E. Foster, Premier; Secretary, Hon. J. P. Michaud; Treasurer, Hon. J. P. Byrne. The Premier is reported to have stated that the new company will administer the trust without any cost.

The Newfoundland Railway's Future.

The temporary arrangement for the operation of the Newfoundland Ry., and the allied steamships, made between the Newfoundland Government and the Reid Newfoundland Co., details of which were given in Canadian Railway and Marine World for July, pg. 348, will expire Nov. 15. Under this arrangement, R. C. Morgan was appointed General Manager, and the Government undertook the financing of the railway and steamships. It was stated that a new arrangement was to be discussed and that any agreement reached would be laid before the legislature, which is expected to meet about Nov. 1, so as to ratify the agreement before Nov. 15.

St. John's press reports state that during the recent visit of the Premier and some of the Reid Newfoundland Co's directors to London, Eng., the whole situation was discussed and an agreement arrived at. The arrangement, it is said provides for the taking over by the Government of the steam railway, the St. John's Electric Ry., the drydock at St. John's, and the steamships, and the closing out of all Reid Newfoundland Co's interests connected therewith. It is also said that the Government will abandon all its claims against the company, and pay it \$2,000,000, and that the company will abandon all claims against the Government.

G.T.R. Strikers of 1910 Get Rights Restored.

W. D. Robb, Vice President and General Manager, G.T.R., has authorized the restoration of pension and seniority rights to G.T.R. trainmen, (conductors, brakemen and baggagemen), who participated in the 1910 strike. This decision affects more than 1200 men in train service. The strike began on July 18, 1910, following lengthy negotiations on the men's demands for increased pay, pay on a mileage basis and standardization of wages and hours. A conciliation board recommended a gradual increase of pay till the rates were the same as on the C.P.R., an immediate increase approximating five-eighths of that asked, a standardization of working conditions and pay on a mileage basis. C. M. Hays, then President, G.T.R., refused to act on this finding, owing to G.T.R. financial conditions, but proposed an 18% increase in wages. This the men refused, and the strike began. The company notified the 4500 men on strike that they could consider themselves out of the service, and that their seniority and pension rights were forfeited. After some trouble, the company met with success in operating its trains, and some of its men returned to work. Hon. W. L. M. King, then Minister of Labor in the Laurier Government, offered another board of conciliation, which was at first refused by the men on strike, but to which they agreed later on advice from Jas. Murdock, then Canadian Vice President, Brotherhood of Railroad Trainmen. Mr. Hays, however, stated that the time for arbitration had passed, and finally the men capitulated, accepting his previous offer of an 18% increase, effective May 1, 1910. In taking back its men, the railway adhered to its position that the strikers had lost their seniority and pension rights.

As stated in Canadian Railway and

Marine World for June, W. A. Boys, South Simcoe, Ont., moved in the House of Commons, on May 3, "That in the opinion of this House, immediate steps should be taken by the Government to restore the pension rights and status of all employees and ex-employees of the G.T.R. who were deprived thereof owing to participation in a strike on the system in 1910, to the end that all such may secure their just rights pursuant to the terms of the settlement made between the parties." Prime Minister King stated that the Government had been negotiating to secure a remedy for what he termed a long standing injustice. Action has now been taken to restore the men affected to the runs to be held by them in virtue of their restored seniority.

A Tribute to the Late R. B. Angus.

A Montreal correspondent has sent the Canadian Gazette the following appreciation of R. B. Angus, the last surviving original C.P.R. director, which occurred in Montreal recently:

"So be my passing!
My task accomplished and the long day done—
Let me be gathered to the quiet west,
The sundown splendid and serene,—Death."

"Canada and Montreal in particular mourn the loss of Richard Bladworth Angus, the last of that, alas! now historical group who moulded, wrought and developed our great country of today. Those who knew him as a public figure admired his unusual physical perfection, noble serenity, remarkable mental balance, a great citizen of a great city, grown and developed during his years of maturity, the last of those whose vision and unshakable faith in the future of Canada conceived and brought to fulfilment that earth-girdling belt of empire the Canadian Pacific Ry. But to those favored with the intimacy of personal friendship R. B. Angus also presented a combination of idealism, sincerity, purity of soul, with gentle yet firm outlook on life, an appreciation of all that is finest in art, painting, sculpture, literature, music—in fact of every form of beauty. Admired by all, loved by his friends, respected at home and abroad, and devotedly ministered to by his entire family whose grief and loneliness will be hard to bear, this grand type of Scottish Canadian passes out from among us. Verily it is a 'sundown splendid and serene,—Death.'"

Timiskaming and Northern Ontario Ry. and Nipissing Central Ry. Fire Damage.

The territory through which the Timiskaming and Northern Ontario Ry. and its electric subsidiary, the Nipissing Central Ry., operate, between Haileybury, and South Englehart, Ont., was visited by most serious fires, Oct. 4 and 5, which apparently originated in bush slash on farms which are being cleared all over the territory, and, carried by a strong gale, swept through many square miles of territory, destroying completely the town of Haileybury, North Cobalt, Thornloe, Heaslip, and Charlton villages, and partially destroying New Liskeard, and South Englehart. About 6,000 people were rendered homeless in the towns and villages, and in the whole burned area, about 10,000 persons have been made homeless. The latest death list is 43. The question of relieving the homeless was one of pressing importance, and, acting under the instructions of G. W.

Lee, Chairman of the T. and N.O. Ry. Commission, the railway officials at North Bay, and Cochrane got out special relief trains, and carried away the refugees to points of safety and shelter. The Canadian National Rys., the Grand Trunk and the C.P.R., co-operated in this work, and subsequently arranged for the running of special trains, without charge, to carry in supplies of all kinds to meet the immediate necessities.

We are officially advised that the T. and N.O.R. passenger and freight stations at North Cobalt, Haileybury, Thornloe, Heaslip and Charlton were completely destroyed, together with three dwellings at Haileybury occupied by railway employees; and one dwelling at each of the following points:—Thornloe, Heaslip, Charlton and Kenabek. At Kenabek a large timber trestle was burned, causing a suspension of traffic on the Elk Lake branch. The trestle was expected to be rebuilt so as to permit the resumption of traffic on the branch by Oct. 30. Thirty-five freight cars were destroyed at the several stations. The largest amount of damage to the railways was done at Haileybury, and it is estimated at \$500,000. The stations and other buildings will, we are advised, be rebuilt immediately.

The Nipissing Central Ry. was put out of business in the Haileybury-Cobalt section, about three miles of overhead construction being entirely destroyed. Two cars were caught on North Cobalt streets and totally destroyed, the crews barely escaping with their lives. A press report speaks of the rails having been warped, and the road bed otherwise damaged. A press report of Oct. 22 stated that service had been resumed between Kerr Lake and North Cobalt, but that there will be no connection with Haileybury and New Liskeard for some time to come.

Canadian Pacific Railway Construction, Betterments, Etc.

Elora Subdivision Bridge.—We are officially advised in connection with the recent replacement of bridge 3.4, Elora Subdivision, Ontario district, that the work consists of replacing a standard 3-opening trestle bridge with concrete abutments and a 36 ft. reinforced concrete span.

Fort William Freight Shed.—We are officially advised that only the foundation and concrete dock for the freight shed to replace the no. 3 one on the Kaministiquia River, Fort William, which was burned, Aug. 23, will be done this year. The erection of the superstructure will be deferred until next spring.

Bengough South Extension.—At a sitting of the Board of Railway Commissioners in Regina, Sask., Sept. 30, a question was asked respecting the position in regard to the construction of a C.P.R. line south of Bengough, Sask., and the Chairman is reported to have stated that while a plan for the extension had been filed with the Board, the company had not asked for its approval.

Medicine Hat Locomotive House.—We are officially advised that the company is building, with its own forces, a 15 ft. extension to the rear wall of the 80 ft. locomotive house.

Victoria Ferrydock Improvements.—A press report states that plans are being prepared for making a number of improvements at the C.P.R. car ferry dock at Victoria, B.C., at an estimated cost of \$150,000. (Oct. pg. 523.)

Canadian National Railways Construction, Betterments, Etc.

Halifax and South Western Ry. Bridges.—We are officially advised in connection with recent orders by the Board of Railway Commissioners authorizing the operation of traffic over Argyle River, and Big Brook bridges on the Liverpool Subdivision, that these are two of a series of bridge replacements made during 1921. The series replaced includes 8 on the Liverpool Subdivision, one on the Caledonia Subdivision and 2 on the Port Wade Subdivision. The general reason for their replacement was that they were too light for the traffic.

St. John River Bridge, Fredericton.—A press report states that work has been started to strengthen the piers of the bridge across the St. John River, Fredericton, N.B., a report on which was made recently by C. N. Monsarrat, Casualty Engineer.

Montreal to Parent.—The Montreal Chamber of Commerce is reported to have decided on Oct. 11 to investigate the prospects for building a railway from Montreal to a junction with the National Transcontinental Ry. at Parent, Que. It is claimed that the building of such a line would open up a large area of territory rich in mineral and other resources, and would reduce the distance between Winnipeg and Montreal, on the Canadian National Rys. by 106 miles. This proposition is a revival of Montreal, Joliette and Lake Manuan Ry. Co's project which company was not able to secure the capital necessary.

Muskoka and Sudbury Subdivisions Sidings.—We are officially advised that owing to the use of 50% consolidation and 50% mikado locomotives, on the Muskoka and Sudbury Subdivisions, instead of smaller locomotives, 4 sidings on the Muskoka Subdivision and 4 on the Sudbury Subdivision are being extended to a capacity of 65 cars each. Following are the sidings and their distances from Toronto and their present capacity:—Muskoka Subdivision: Southward, mile 104.2, 29 cars; Medora, mile 118.1, 23 cars; Footes Bay, mile 125.3, 40 cars; Falding, mile 141.3, 30 cars. Sudbury Subdivision:—Boakview, mile 166.5, 45 cars; Drocourt, mile 190.1, 36 cars; Porlock, mile 231, 44 cars; St. Cloud, mile 248.8, 49 cars.

Fort Frances Subdivision Bridges.—We are officially advised that the following bridges on the Fort Frances subdivision are being rebuilt:—Pine bridge, mile 273.1. The existing bridge consists of a pile trestle 285 ft. long, having a maximum height of 42 ft., and was built in 1901, and practically rebuilt in 1913. It is being replaced by an 80 ft. deck plate girder span, on 2 concrete piers, 42 ft. high, and new timber approaches, 8 bents on the east side and 7 bents on the west. The substructure work is being done by the railways' forces. The steel span, which is on hand at Winnipeg, was fabricated by Dominion Bridge Co.

Boucher's bridge, mile 250.6. The existing structure is a frame and pile trestle 250 ft. long, having a maximum height of 46 ft., and was built in 1901, and practically rebuilt in 1913. It is being replaced by a 60 ft. deck plate girder span, on concrete piers, 41 ft. high, with new timber approaches, 5 bents on the east side and 8 on the west. The substructure work is being done by the railway's own forces, and the steel span will be taken from the Shebandowan River bridge, mile 55.2 Kashabowie Subdivision on which a longer span is to be erected.

Water Supply Contracts.—We are officially advised that contracts have been let as follows:—For approximately 12,500 ft. of 8 in. water pipe at Mount, Ont., in Neebing Tp., to Symes & Co., Fort William, Ont.; for approximately 6,500 ft. of 8 in. water pipe line at North Battleford, Sask., to Jamieson Construction Co., Edmonton, Alta.; for dam at Rivers, Sask., to J. D. McArthur, Winnipeg; for water supply at Pattee, Sask., to Northern Construction Co., Winnipeg.

Saskatoon Office Building.—We are officially advised that a contract has been let to P. W. Graham, Moose Jaw, Sask., for the erection of an addition to the office building at Saskatoon, Sask.

Gravelbourg Extension.—The Board of Railway Commissioners has authorized the opening for traffic of the extension of the Regina-Moose Jaw-Swift Current line from Gravelbourg, mile 158.7 to Needpath, mile 199.4.

Kyax Bridge Rebuilding.—Tenders were received to Oct. 12 for a bridge foundation and rock filling at the crossing of Kyax River, mile 1713.3, Skeena Subdivision, Grand Trunk Pacific Ry. near Prince Rupert, B.C.

Prince Rupert Station.—A press report states that the new station building at Prince Rupert, B.C., the Grand Trunk Pacific Ry. terminus has been completed. The building is alongside the wharf, and is 100 x 40 ft., two stories high. It is connected with the town by an overhead bridge about 600 ft. long. The building is of brick, with stone dressing on a concrete foundation, and is heated by steam. A general description of the layout was given in Canadian Railway and Marine World for Oct., 1921, pg. 539. (Oct. pg. 516.)

Among the Express Companies.

The Canadian National Ex. Co. has opened offices at Alba, N.S.; Kinkora, P. E.I.; Flamand, Que.; and has closed its offices at Norway Bay, Que., and Alberta Beach, Alta.

The Canadian National Ex. Co. has opened offices at Ridgedale, Sask., and Waskateneau, Alta., and has closed offices at Lac Baker, N. B., Joe Lake, Ont., and Kuroki, Sask.

A record of rapid transit is reported by the Dominion Ex. Co., in the dispatch of 60 canaries from London, Eng., Aug. 11, for Vancouver, B.C., approximately 6,000 miles distant, where they were delivered Aug. 23.

The Canadian Express Co. was given judgment at Winnipeg, Oct. 3, for \$1529 against the Canadian Credit Men's Trust Association as assignees of Christie Grant estate for money paid by the company on express money orders issued by the assignor. The Trust Association claimed that the express company should rank as an ordinary creditor, but the judgment made it a preferred creditor.

Telegraph, Telephone and Cable Matters.

Canadian National Telegraphs have opened offices at Graham, Ont.; Makaroff, Muir and White Plains, Man.; Bateman, Birsay and Hodgeville, Sask., and Gibbons and Leslieville, Alta., and have closed offices at Quorn, Ont., and Crooked River, Sask.

The dispute between the Marconi Wireless Telegraph Co. and its employees at Glace Bay, N.S., has been settled by a conciliation board, and the employees will receive pay on the same basis as in force at the Dominion Coal Co's mines, retroactive to April 1.

Representations are reported to have been made to the Dominion Government, for an extension and improvement of the Government's wireless telegraph system along the British Columbia coast. It is stated that while that coast is better equipped with buoys and similar aids to navigation, than the U. S. Pacific coast, the latter is better equipped with radiotelegraph apparatus.

It is reported that the British Government has asked the Dominion Government to participate in a scheme of extended radiotelegraphy for the Empire. Arrangements have it is stated, been made to link Great Britain with Egypt and Australia, and Canada is being asked to build a new station to communicate with Great Britain, at an approximate cost of \$1,000,000, with an annual upkeep cost of \$250,000. C. P. Edwards, Superintendent of Radiotelegraphs, Ottawa, has gone to England under Minister of Marine's instructions, and will it is said report on the cost, and the prospects of it being self supporting, before Canada is committed to participation.

The Marconi Wireless Telegraph Co. of Canada's annual meeting was held at Montreal, Oct. 19, when the balance sheet for the calendar year 1921 was approved. The profit and loss account showed a profit, before provision for depreciation, bad and doubtful debts and contingencies, of \$12,252, which added to balance brought forward from 1920, made a total of \$422,629, which was distributed as follows, depreciation and amortization of patents, \$95,988, bad and doubtful debts and contingencies \$40,000, special expenditures \$29,628, balance carried forward to current year, \$257,013. Current assets were \$647,288, and liabilities \$247,346. Property and plant accounts were \$1,205,433, patents, etc., \$4,491,881, investment, \$45,678, capital stock outstanding, \$5,525,000, mortgages, \$49,000, reserves \$346,379. The directors' report pointed out that in order to develop to the full, the possibilities in Canada, there must be a considerable expansion of the company's activities, and negotiations are pending to enable the company to embark on a programme of energetic development. C. G. Greenshields, K.C., Montreal, was elected President, vice A. E. Dymont, Toronto, who was elected Vice President., and H. W. Allen was elected a director to represent the British company. Senatore G. Marconi, G.C.M.G., and R. Bickendike remain as Vice Presidents, the other directors being, G. M. Bosworth, A. H. Morse, Montreal, and G. C. Isaacs, London, England. Sir William Mackenzie and Stephen Haas, Toronto were not re-elected as directors.

Death of J. W. Rush.—The Railway Gazette of London, England, had the following in its issue of Sept. 29.—"The death took place last week at Coleraine, Ireland, cottage hospital, after an operation, of John William Rush, late Managing Director of the Intercolonial Railway, Canada. Deceased was a native of the North of Ireland, and leaves a widow who resides at St. John, N.B." Canadian Railway and Marine World has no record of Mr. Rush having held that position mentioned above, and thinks there must be some mistake, as the title Managing Director is, as a rule, only used in reference to privately owned companies.

Electric Railway Department

Eglinton Car House and Yards, Toronto Transportation Commission.

On July 19, the Toronto Transportation Commission gave a contract for building a car house and office building on property on which it is also constructing a large yard, the property being bounded by Yonge St., Eglinton Ave., Berwick St. and Duplex Ave. The new house will accommodate cars operating on the Yonge St. run. Yonge St. is the chief north and south street in Toronto, and consequently street car traffic on it is very heavy. Up to the present, the majority of the cars operating on it have been housed at the Yorkville car house, north of Bloor St., but the Commission

shows the location of the property and the arrangement of buildings and tracks. Before construction began, a considerable amount of grading was necessary; material had to be excavated at the north side of the property and a fill was necessary at the south side, which also necessitated a concrete retaining wall at the southwest limits, as shown by the plan. Entrance to the yards is provided from both Yonge St. and Eglinton Ave., there being two entrances from both the north and southbound track on Yonge St., and two from the south track on Eglinton Ave., and one from the north track.

buildings. The tracks east of the repair bay will be used for trailer storage, and the method by which Yonge St. cars will pick up or drop their trailers will provide for smooth and efficient handling and the absence of delay. For example, a car southbound on Yonge St., on the track indicated by the arrows, fig. 1, to which it is desired to attach a trailer, will head in at the switch E, and proceed to the point S, where it will stop; the small switcher to be employed will push a trailer out of the trailer storage yard and couple it to the waiting car, which will then draw the trailer back to Yonge

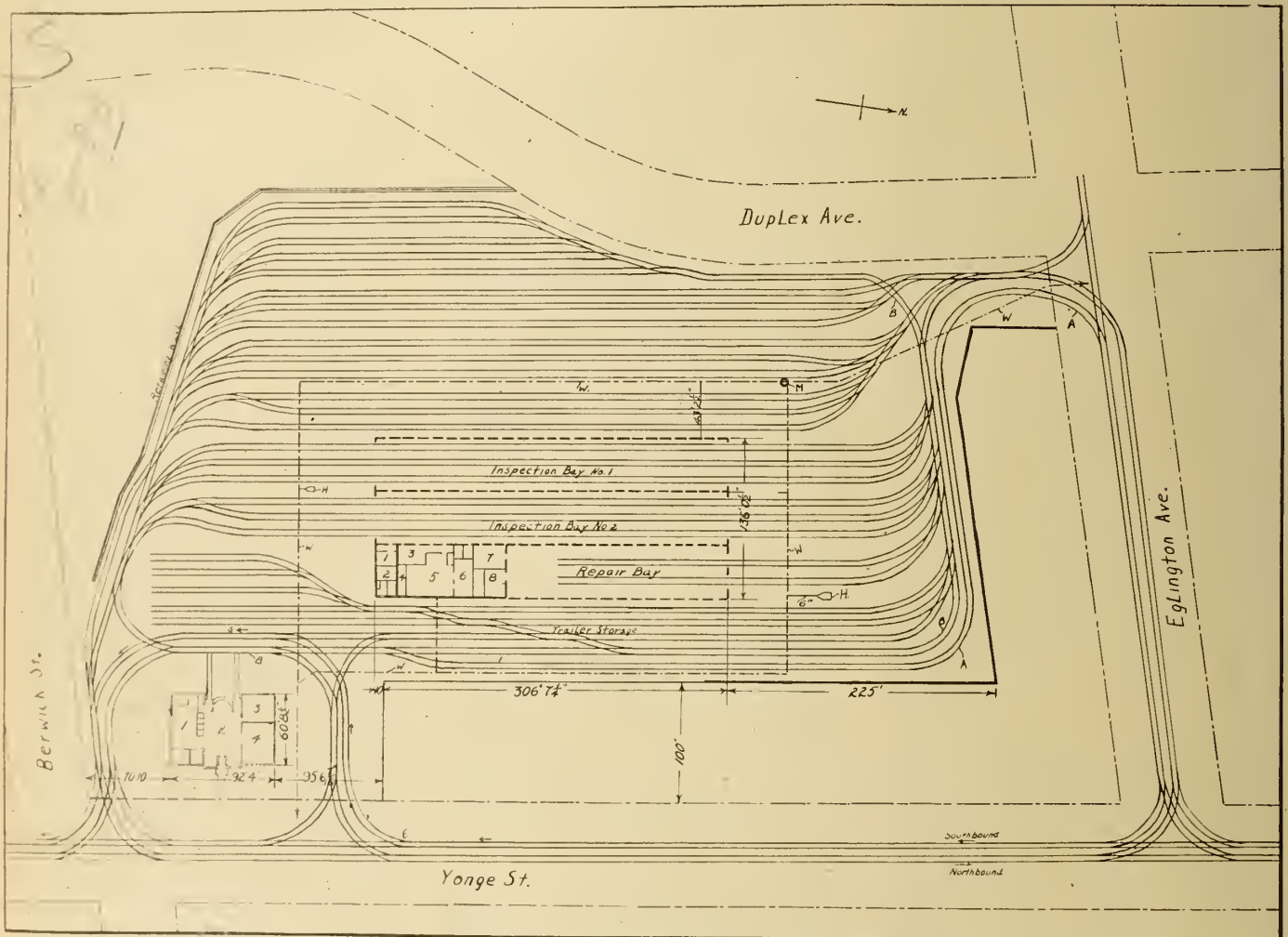


Fig 1.—Toronto Transportation Commission's Eglinton Avenue Car House, Office Building and Yards.

having extended the Yonge St. line to the city's northern limits, the Yorkville house is no longer sufficiently large or properly located to serve this portion of the expanded system. A new car house and yard was therefore a necessity, and the Commission was fortunate in securing property at the corner of Yonge St. and Eglinton Ave., admirably suited to its requirements from both a traffic and operating viewpoint, on which to locate the new facilities.

The net area of the property used for the new house and auxiliary trackage is 7.27 acres, and the total area occupied by buildings is 47,000 sq. ft. Fig. 1, the general layout of the house and yard,

The trackage is laid out so as to afford the greatest possible facility in car movement, as concerns not only getting cars into and out of the storage tracks, inspection tracks and repair tracks, but also getting cars to and from track it may be necessary to place them in, or release them from, main line service. The track A in fig. 1, leaving the south track on Eglinton Ave., runs around the east side of the yard, to connect with the system of tracks near the Yonge St. entrance, and the run-around track B, completely encircles the yard, and provides for cars being conveniently switched from any point in the yard on to the tracks leading into the inspection and repair

St., as indicated by the arrows, and continue its southbound trip. Examination of the track system will show that the operation of attaching a trailer to a northbound car, or of detaching a trailer from a car bound in either direction, will be performed with equal facility, the system of crossovers in the trailer storage layout providing for free movement of the small electric locomotive, or motor car, which will be used in the switching operations.

The steel in the yard tracks will be 85-lb. C.P.R. standard section T rail, and that in the bays will be 93-lb. T rail, 7 in. high, Lorain section 507. The special work at the street turnouts will be of

140 and 122 lb. section, Toronto Transportation Commission standard type A, solid manganese switches, mates and crosses; certain sections of special work connecting the street turnouts to the yard, which will be run over frequently, will be of 108-lb. section, T.T.C. type D, solid manganese switches and mates, and manganese insert crosses, and the remainder of the special work in the yards will be of 108-lb. section T.T.C. standard type C, solid manganese switches with manganese insert mates and crosses. A very notable feature of the track construction is that by far the larger part of all the special work conforms to previously developed T.T.C. standards, ensuring lower first cost, lower replacement cost, adaptability and changeability.

The greater part of the track is to be put in this year; the small group of tracks immediately south of the repair bay and the cluster at the extreme west side of the yard will not be laid till later. The track schedule for laying this year is as follows: Straight track in yard, 6,440 ft.; track in inspection bays, 1,800 ft.; track in repair bay, 320 ft.; total straight track, 8,560 ft.; type A special work, 2,796 ft.; type D special work, 2,392 ft.; type C special work, 3,818 ft.; total special work, 9,006 ft. This will provide car capacity as follows: Yard tracks, 90; trailer tracks, 30; car

the repair bay will have a Columbia hoist, jib cranes, wheel grinders, and other miscellaneous tools and machines necessary for the efficient and economical carrying out of running repairs. Heating in the main building will be provided by 2 large motor driven fans, with underground ducts, leading through the building. The heated air will be conveyed from the boiler room through a central tunnel running below the level of the pit floors, and distributed through tile ducts to outlets in the pit floors. The main building roof construction is shown in fig. 2, from which it may be seen that the longitudinal skylights, running the full length of the building, will play a large part in furnishing an adequate supply of natural lighting. Portable and stationary electric lighting units will be installed to afford the best artificial lighting possible, in line with a realization of the fact that good light is necessary for good repair work. Ventilation will be secured in the repair shop portion, by the inclusion of standard ventilators in the skylight ridge. No effort has been spared to make the arrangement in the boiler room, shop and stores portion of the building the best possible for efficient and economical operation.

The numbered portions of the office building in fig. 1 are as follows: 1, Office; 2, rotunda; 3, lavatory; 4, recreation

complete equipment from a fire protection point of view.

The strip of land at the north and east sides of the property has been reserved by the Commission, and will presumably be sold and used for the erection of business buildings of various kinds. The buildings shown in the lower right hand portion of fig. 2, as fronting on Yonge St. and Eglinton Ave., are not part of the Commission's work, and are merely indicative of what might be built by private owners. Trees and hedges will be planted around the Yonge St. and Berwick St. entrances to the yards, the office building will be surrounded by well-kept lawns, and a stained board fence will be built around the rear of the yard and along Duplex Ave., the object being to have the entire property present as pleasing an appearance as possible.

The contract for the buildings was let July 19 to Wells & Gray, Toronto, to be completed Dec. 6, under a penalty and bonus clause. The buildings were designed by W. E. P. Duncan, Engineer of Structures, Toronto Transportation Commission, and the track layout by A. T. Spencer, Engineer of Way, under whose supervision it is being laid by Commission forces. At the time of writing (Oct. 16) construction of the buildings is progressing favorably, and good progress is also being made with the track work.

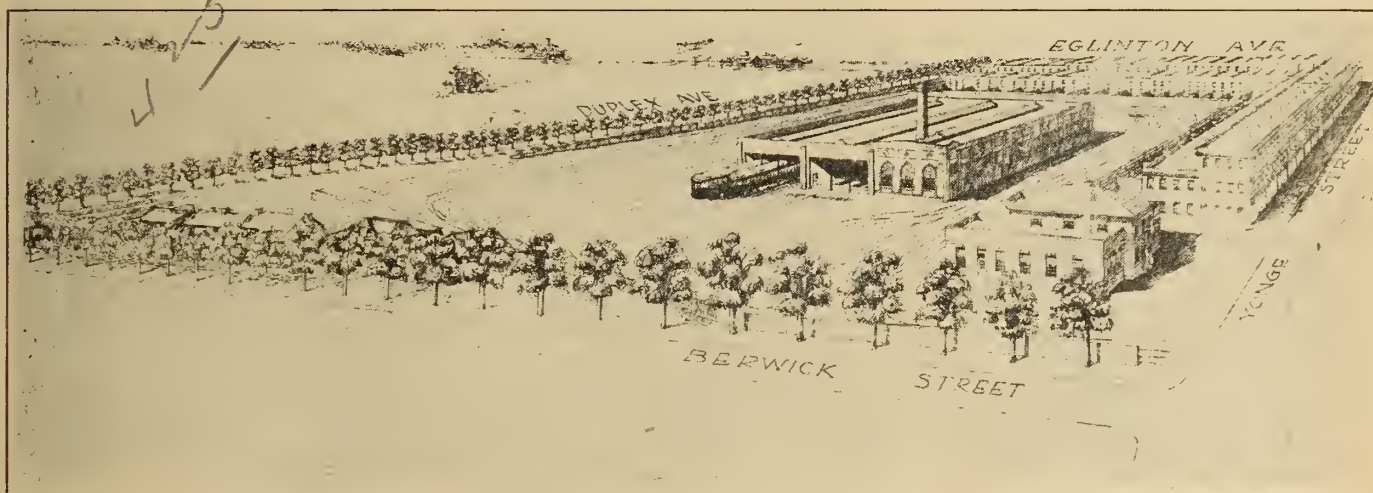


Fig. 2.—Toronto Transportation Commission's Eglinton Avenue Car House, Office Building and Yards, showing proposed commercial stores, etc., in upper right hand corner.

house inspection bays, 30; repair bay, 4; total, 154 cars. The completed installation will have trackage as follows: Straight track in yard, 9,239 ft.; inspection bays, 1,800 ft.; repair bay, 320 ft.; total straight track, 11,359 ft.; type A special work, 2,796 ft.; type D special work, 2,688 ft.; type C special work, 5,487 ft.; total special work, 10,971 ft. Car capacity will then be as follows: Yard tracks, 137; trailer tracks, 36; inspection bays, 30; repair bay, 4; total, 207 cars.

The buildings layout is shown clearly in figs. 1 and 2. The main building, 316 ft. 7 in. x 136 ft., will comprise 2 inspection bays, a repair bay, and a boiler room, shop and stores section. In fig. 1, the numbered portions of the southeast part of the main building are as follows: 1, Locker room; 2, luncheon room; 3, lavatory; 4, valve room; 5, boiler room; 6, coal storage; 7, stores; 8, foreman's office. The main building will be of fire-proof construction, with a reinforced concrete frame, and brick and tile walls, and equipped with sprinkler system throughout. The inspection bays will be equipped with lighted concrete pits, and

room. The office building, of steel frame and tile and brick construction, and with concrete foundations, will be of pleasing appearance. It will be 92 1/3 ft. x 60 2/3 ft., and will have a basement under the office portion. It will have artificial stone trim, slate roof, hardwood floors in the office portion and mastic flooring material in the men's portion.

A feature of the layout will be the fire protection system. In fig. 1, the lines marked W show the water connections to city mains, there being 8-in. connections to both the Yonge St. and Eglinton Ave. mains, with valves located to supply the yard and shop system from either one in case of failure of the other. In addition to standard yard hydrants located throughout the yard, there will be large hydrants located as at H, fig. 1, and monitor towers as at M, equipped with hose nozzle, mounted on a swiveling connection constructed on the universal joint principle, by means of which a stream of water may be projected in any direction. The yard protective system, considered in connection with the hydrants protecting the buildings and the sprinkler system, provides most

Canadian Electric Railway Association Meetings.—During the American Electric Railway Association's Convention which was held on the Municipal Pier at Chicago in the first week of October, the Canadian Electric Railway Association's executive committee met in a room on the pier, provided by the American Association. At the conclusion of the executive meeting a general get together meeting of Canadian street railway men attending the convention followed, at which many matters of interest to the members were discussed. This meeting was attended by about 25 members of the Canadian Association and an excellent opportunity was afforded for them to greet old friends and arrange to see more of each other at the American convention. It was thought that this idea should be continued in other years as a great many of the Canadian companies are members of both associations and usually send delegates to the American convention.

Moncton Tramways, Electricity & Gas Co. has ordered 2 one-man Birney lightweight safety cars, from Ottawa Car Manufacturing Co.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry., and allied companies.

	Aug. 1922	Aug. 1921	2 mos. to Aug. 31, 1922	2 mos. to Aug. 31, 1921
Gross	\$812,274	\$814,154	\$1,677,466	\$1,684,309
Expenses	616,540	628,952	1,228,653	1,264,971
Net	\$225,734	\$215,202	\$448,393	\$419,338

Cape Breton Electric Co.—

	Aug. 1922	Aug. 1921	12 mos. to Aug. 31, 1922	12 mos. to Aug. 31, 1921
Gross	\$19,640	\$65,048	\$641,664	\$697,425
Expenses and taxes	36,848	48,011	574,368	576,442
Net	12,792	17,037	67,296	120,983
Interest	5,697	5,777	67,438	68,927
Balance	7,095	11,260	x 142	52,056
x Deficit.				

The Montreal & Southern Counties Ry. Co.'s annual meeting was held in Montreal, Oct. 4. The following are the officers and directors for the current year: President, W. D. Robb; Vice President, J. E. Dalrymple; Treasurer, J. A. Yates; other directors: Sir Joseph Flavelle, Bart., J. N. Dupuis, F. L. C. Bond; General Auditor, J. M. Rosevear; General Manager, W. B. Powell; General Solicitor, W. C. Chisholm; Secretary, J. P. Hudson. The company is a subsidiary of the Grand Trunk Ry. Co. and Sir Joseph Flavelle and J. N. Dupuis, whose resignations as G.T.R. directors, have been accepted by the Dominion Government, will probably be replaced by some of the recently appointed Canadian National Rys. directors.

Montreal Tramways Co. An issue of \$500,000 5% perpetual mortgage debentures was offered early in October, at the market. This was part of an authorized issue of \$75,000,000 of which there are outstanding, including the present issue \$17,650,000. This is the first financing to be done by the company since Nov. 1921, when \$1,750,000 first and refunding mortgage, 5's were offered on the New York market. In 1920 the company sold \$150,000 of its 5% debentures and issued \$1,000,000 of its 5% 30-year bonds. During the past year the company redeemed the balance outstanding of its 4½% underlying bonds to the amount of \$2,688,953. In addition it finished paying the arrears of dividends, and is progressing with an extensive programme of improvement and replacement of lines. The proceeds of the new issue are for general purposes.

Nova Scotia Tramways and Power Co.—A press report states that the gross earnings for August were \$100,143; operating expenses \$70,745 and taxes \$4,827, leaving \$24,571 to meet bond interest after which there was a surplus of \$7,309, against a deficit of \$2,590, for Aug. 1921. Reduction in operating expenses is given as the cause of the company's improved financial condition.

Winnipeg Electric Railway.—

	Aug. 1922	Aug. 1921	8 mos. to Aug. 31, 1922	8 mos. to Aug. 31, 1921
Gross	\$399,499	\$393,823	\$3,550,671	\$3,640,648
Expenses	294,291	268,728	2,631,161	2,711,898
Net	105,248	125,095	919,550	928,750
Fixed charges	71,018		499,719	
Surplus	34,230		419,741	

The Comptroller states that the decrease in the net for Aug. 1922, as compared with Aug. 1921 was due to a decrease in gross operating revenue of the railway and gas utilities, and an increase in the operating expenses of the railway and electric utilities. The decrease in gross operating revenue of the railway was due entirely to a decrease in the number of passengers carried on account of general business conditions. The decrease in the gross operating revenue of the gas utility was due to the gross billing for the month, including

one day less meter readings, than in 1921, and a decrease in the amount of gas consumed by a number of large consumers. The increase in the operating expenses of the railway was due to an increase in the cost of maintenance of ways, structures and equipment representing extraordinary maintenance on account of track repairs, the replacing of trolley on the overhead system, a general overhauling of a certain class of passenger equipment and an increase in the cost of power on account of steam power production. During Aug. 1921, a considerable portion of the expense in connection with maintenance of track and roadway represented deferred maintenance, the cost of which was charged to a reserve that had been created during 1920, thus resulting in a number of the accounts during August this year showing an increase. The increase in the operating expenses of the electric utility was due to an increase in the cost of power, due to steam power production made necessary on account of the gradual building up of power load preparatory to taking over the output of the Manitoba Power Co's new plant.

Winnipeg Electric Railway Officials Honor A. W. McLimont.

The Winnipeg Electric Ry. Co's heads of departments gave a dinner at the Royal Alexandra Hotel, Winnipeg, on Oct. 11, in honor of A. W. McLimont, on the completion of his fifth year of service with the company, several of the other directors being present. The chair was occupied by J. Whitsell, Operating Manager, and the guest's health was proposed by one of the oldest officials, R. R. Knox, Assistant to the Manager. Mr. McLimont, in responding spoke on the company's history, and dealt especially with the efficiency of salesmanship, the removing of the necessity of government regulating bodies, and the removal from politics of the use of public services of the community. He stated that after long negotiations with the city, a point had been reached which indicated that in order to pay obligations and provide money for future capital expenditures and proper upkeep of the property, it was necessary to obtain a sufficient extension of the franchise to enable securities to be issued for a term attractive to the public, and the company had requested that the city defer its right to take over the property from 1927 to 1937, which would enable the company to secure the necessary money for extensions into localities in need of them, place wires under ground and do other things which would encourage the growth of the city and benefit the people generally. The company is prepared to agree to the introduction of a sliding scale that would reduce fares so that in 1925 the service would be on a 5c fare in all single fare zones, with an adjustment every five years, to see if it would be possible to reduce the fare below that amount.

E. Anderson, K.C., Counsel for the company, proposed the Winnipeg Electric Ry. Co., which was responded to by Sir Augustus Nanton, President, who recalled the days when the four chief officials of the company were the General Manager, Superintendent, accountant and stable boy. F. Morton Morse, Secretary also spoke, and claimed to be the oldest continuous secretary of a street

railway company in the world.

A tastefully printed souvenir menu contained a greeting to Mr. McLimont, outlining shortly, his period of service with the company, the difficulties overcome and the progress made, and paying tribute to his "unceasing anxiety for the company's welfare and untiring efforts to make it prosperous in the face of certain opposition." It also pledged the heartiest co-operation in the tasks which may arise.

A. W. McLimont was born at Quebec, Que., and in 1885 served as a scout in the field telegraph service during the Northwest rebellion. He was subsequently in the Bell Telephone Co's service for some time, and later with the Thomson-Houston Electric Co., Boston, Mass., and assisted in building, organizing and operating railway properties, and installing electric light plants in various parts of the U.S., became General Manager and Resident Engineer, Dubuque Light & Traction Co., Dubuque, Iowa, and resigned in 1895 to supervise the construction of 70 miles of overhead work in New Orleans, La. He then entered General Electric Co's service, and supervised work in Costa Rica and Cordova, Argentine, and on his return to the U.S., took charge of the construction of a high tension transmission line for the Hudson River Power Transmission Co., and subsequently supervised the building and operation of electric light plants for the Guanajuato (Mexico) State Government. He was later engaged in the electrification of the Monterey St. Ry., Monterey, Mexico, and in building and operating an electric railway in Lima, Peru. On again returning to the U.S., he was appointed Electrical Engineer for the Public Service Commission of the First District, New York, N.Y., and resigned on his appointment as General Manager, Chicago & Milwaukee Electric Rd., and a year later was appointed Vice President and General Manager, San Francisco-Oakland Terminal Ry., and later, Vice President and General Manager, Georgia Power Co. He was appointed General Manager, Winnipeg Electric Ry., Oct. 1, 1917, and Vice President and General Manager, in Feb., 1919.

Old Street Cars for Fire Sufferers.—The Toronto Transportation Commission, with the approval of the city authorities, sent the bodies of 85 of the old Toronto Ry. Co's cars, 15 motors and 70 trailers, recently to the fire-swept area in Northern Ontario, for use as temporary dwellings. All of them were equipped with stoves, and doors and windows were put in good condition before shipment. The cars, which were stored in the Commission's Coxwell Ave. yards, were loaded by crane, and but little delay was experienced in dispatching them after the message accepting them was received from the northern municipal authorities. They were shipped in two trains, via G.T.R. to North Bay, and T. & N. O. R. to destination, some of the smaller trailers being loaded three on two flat cars, and the remainder, one on each flat car.

The International Ry. Co. is reported to have filed claims against the City of Buffalo, N.Y., for \$3,805,250 damages, because of the city's alleged failure to provide adequate protection for its property and employees during the recent strike of the carmen. Of the amount of claims, \$2,000,000 is for damage to franchise and good will, \$1,800,000 for loss of fares, and \$4,250 for actual damage to property.

The Toronto Transportation Commission's Work.

The track construction and rehabilitation work planned by the Toronto Transportation Commission for completion in 1922 is nearly finished, the only large jobs remaining to be done being the rehabilitation of the track on Bloor St., one of the city's chief east and west streets, and the track construction on Kingston Road, from Columbine Ave., near Queen St., to the city limits. The work to be done on Bloor St. is between Spadina Ave. and Avenue Road, and between Yonge and Church Streets. When this is completed, the Commission's entire reconstruction and rehabilitation programme will have been carried out, and track work in 1923 and for some time thereafter will be confined to normal maintenance and renewal work. At the time of writing, Oct. 13, the Commission is employing approximately 2,200 extra men, but this number will be reduced considerably in the near future.

Yonge St.—The construction of the double track line on upper Yonge St., between Farnham Ave. and the northern city limits, and of the loop at Doncliffe Road, at the city limits, is completed. While construction was proceeding, a service was furnished by the Toronto & York Radial Ry., Metropolitan Division, which operated its cars on a temporary track built on the west side of Yonge St. As construction progressed, the T. & Y. R. Ry. provided a service between the Lawton loop and Farnham Ave., with cars loaned by the Toronto Transportation Commission, on the completed portion of the double track line. This service was then extended north to Eglinton Ave., then to Glencairn Ave., and on Oct. 15 it was extended to the northern city limits, and the temporary track was removed. At the time of writing, Oct. 13, it is expected that the T. & Y. R. Ry. will continue to provide this service until Nov. 1, after which the Commission will operate its own cars on its newly constructed track. At present, the T. & Y. R. Ry. is maintaining its cars by doing the running repair work at temporary sheds at the northern city limits, and any machine work necessary is done at its old shops at St. Clair Ave. and Yonge St., the work being taken to and from the shops by truck. The T. & Y. R. Ry. will have car houses adjacent to the Toronto Transportation Commission's northern loop, and a joint transfer platform for passengers will be provided between the Commission's loop and the Radial Ry's south end of track.

Bloor St. West.—The question of separating the grade of Bloor St. West from the grades of railways crossing the street, and of building a new section of track on this street, to connect the sections now in operation on it, has been long mooted. At a recent joint meeting between the city Board of Control and Commission officers, this was again discussed, but nothing definite was done, pending a report from the City Works Commissioner, who is negotiating with the railways to see if some solution of the problem cannot be arrived at.

St. Clair Line.—The city council has authorized the Board of Control to confer with the Transportation Commission relative to the possibility of extending the car line on St. Clair Ave. West, which would involve the problem of avoiding railway crossings at grade.

New Machine Shops.—The Commission has plans prepared for a large and completely equipped repair and machine shop, at Bathurst St. and Davenport Road. The estimated expenditure will

be \$1,500,000. A meeting between the Commission's officers and the Board of Control was held recently, at which details of the proposed shops were gone over. Tenders have not yet been invited, and pending the provision of the funds necessary for the work, no definite date for commencing construction will be set.

Fire Protection in Car Yards. The Commission called for tenders recently for building towers and installing equipment for fire protection systems at the Russell, St. Clair and Danforth car yards. The proposed system will consist mainly of steel platforms, or towers, on top of

building will be vested. The Toronto Hydro Commission offices will be held by that body on a rental basis.

Two-Deck Cars not Suitable for British Columbia.

The Buzzer, issued by the British Columbia Electric Ry., says: We have received several letters of late suggesting double-deck cars as used in Great Britain. Needless to say, street railways on this continent would welcome with open arms any means of doubling the capacity of their cars at small expense if at all possible. Likewise, it would be very pleasant to be able to ride in the open air of cars whose upper deck was not covered. Smokers would have some accommodation, too. These advantages have been viewed with longing, but, sad to say, there are several obstacles in the way that are so far unsurmountable. The double-deck car was tried a number of years ago in New York, Pittsburgh and elsewhere, and given up. The public did not want it, for the reason that they did not like climbing upstairs. It might be, of course, that the proportion of British population in Vancouver acceptance in that respect, so we will go on to the next point.

The difficulties may be classified under the heads of speed, construction and convenience of operation. In Great Britain the average speed of street cars is 8 miles an hour, with stops averaging 600 ft. apart. On this continent the average speed is between 9 and 10 miles an hour, in spite of more frequent stops. The lower speed of the double-deck cars is the result of the load upon the motors and the time required for loading. Our present motors could not haul twice the load and make the same speed. A double-deck car obviously takes longer to load than a wide-platform p-a-y-e car. It is impossible to have some cars make 8 miles and some 10 miles an hour on the same system. The fast cars would be slowed down by the 8-mile-an-hour cars, and that is one of the first things the public would kick about.

As far as we can see, to adapt the double-deck car to the p-a-y-e system would entail such reconstruction as to make the scheme impracticable. We might as well build new cars, which would take all the advantage out of the scheme. Of course, the conductor must remain on the platform to operate the gates, and this makes the abandonment of the p-a-y-e principle out of the question.

In spite of all these conditions, it may be asked why double-deck cars won't do here as well as they do in Great Britain. Each city and even each country has different characteristics. It requires a different type of car for some cities than others. Here, we need a type of car which takes on a large number of passengers at each stop in a minimum of time, leaves the business district and speeds away. Another city's car may pick up only one or two passengers at each stop, but do so all along its route. That car does not need such large platforms. Another obstacle in the way of using double-deck cars, as we have mentioned, is the possible objection to climbing upstairs. We are always glad to have suggestions and opinions from our patrons. May we point out in this case that we would gladly adopt a double-deck car if feasible, but expert opinion says there is no way of doing so.

Canadian Electric Railway Association.

Honorary President, E. A. Robert, President, Montreal Tramways Co., and Quebec Ry., Light, Heat & Power Co.

Honorary Vice President, Wm. C. Hawkins, Managing Director and Secretary, Dominion Power & Transmission Co.

Honorary Council. Thos. Ahearn, President, Ottawa Electric Ry.; Acton Burrows, Proprietor, Canadian Railway and Marine World; Geo. Kidd, General Manager, British Columbia Electric Ry.; Lt.-Col. J. E. Hutcheson, General Manager, Montreal Tramways Co., and director, Quebec Ry., Light, Heat & Power Co.

President, Major F. D. Burpee, Manager and director, Ottawa Electric Ry.

Vice President, H. H. Couzens, General Manager, Toronto Transportation Commission.

Executive Committee, The President, the Vice President, the immediate past President (G. Gordon Gale, Vice President and General Manager, Hull Electric Co.) and D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co.; E. P. Coleman, General Manager, Dominion Power & Transmission Co.; A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Ry.; D. W. Houston, Superintendent, Regina Municipal Ry.; A. W. McLimont, Vice President and General Manager, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Railway, Light & Power Co.; W. R. Robertson, General Superintendent of Railways, Hydro-Electric Power Commission of Ontario; W. L. Weston, Manager, Nova Scotia Tramways & Power Co.; H. E. Weyman, Manager, Levis County Ry.; C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Treasurer, W. S. Hart, Managing Director, Three Rivers Traction Co.

Auditor, Lt.-Col. G. C. Royce, General Manager, Toronto Suburban Ry.

Secretary, D. N. Gill, Comptroller, Ottawa Electric Ry., Ottawa, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

each of which will be mounted a hose nozzle operating on a universal joint, by means of which a stream of water may be directed in any desired direction. A similar installation at the new Eglinton car yards was covered in the general contract.

Carmen's and Inspectors' Overcoats. The Commission has issued winter overcoats to conductors, motormen and inspectors. Those for the conductors and motormen are made of dark grey Oxford frieze, and those for the inspectors of blue pilot cloth. The inspectors are also supplied with blue waterproof raincoats. Conductors and motormen pay for their first overcoat, half the cost of their second, and are furnished free thereafter, the inspectors, who have been long in the service, are furnished free.

The Public Utilities Building, at the northeast corner of Yonge and Front Sts., which contains the Commission's offices, will, according to a recent Board of Control decision, be controlled by the Commission, in which ownership of the

Suit for Royalties on Toronto Transportation Commission Cars.

Consequent on the Canadian Brill Co's decision to discontinue business in Canada, and on the alleged commencement of its removal of equipment etc. from the plant at Preston, Ont., which it leased from the Preston Car and Coach Co., application was made by Peter Witt of Cleveland, Ohio, and C. S. Wright of Toronto, in the bankruptcy court in Toronto, recently, for an order forbidding the Brill Co. to proceed with the removal of its physical assets until royalties, claimed by the applicants as due in connection with devices used on cars built by the company for the Toronto Transportation Commission, were paid. The company denied that the royalties claimed, \$50 on each of 50 cars, or \$2,500 in all, were legally due the applicants. The court, however, granted a restraining order under the Bankruptcy Act, and appointed the Union Trust Co. receiver and custodian of the company's property pending a legal decision. On this being done, a Union Trust Co. official, accompanied by T. H. McCauley of Toronto, proceeded to Preston, assumed control of the Canadian Brill Co's property, and retained it for two days, when the company's solicitors appeared before the bankruptcy court and deposited \$2,500, to be left in court pending the outcome of legal proceedings to determine the validity of the claim for royalties. Upon the money being deposited, the court's order was at once vacated.

Hardening Process for Toronto Transportation Commission's Rails.

The Toronto Transportation Commission has had a machine brought out from England for hardening the wearing surface of rails by the Sandberg process. It is the intention to treat the rails on one mile of track, in various locations, this year, and if results are satisfactory, more extensive applications of the treatment will probably be made next year. The treatment will be applied this year to both the 90lb. steel and the new 122lb. sections laid recently. The process consists of the application of a treatment to the head of the rail, by which the steel's structure is changed from the normal pearlite formation to the sorbitic formation. The change in the molecular structure takes place to a depth of from 3-16 to 1/4 in. from the top of the rail, and it is claimed that an effectively hardened or tempered wearing surface is presented to the action of the car wheels. The machine being used by the Commission is capable of treating about 30ft. of rail an hour.

As applied at rail mills, the treatment consists of the application of a cold blast of air to the rail head while at the critical temperature, after the rail has been taken from the finishing roll. The treatment is applied in this case for from 3 to 4 minutes. On the Transportation Commission's lines, however, the in situ treatment will be applied, the rails being treated in place. In this treatment, a flame is caused to travel slowly along the surface of the rail, this heating being followed by the application of a water jet for quenching or cooling.

The process has not been used in Canada previously, but is said to have been used successfully in a number of English cities, where accurate rail meas-

urements indicate that the rail's life has been prolonged two to three times. It has also been used in rail mills in the U.S. The benefits claimed for the treatment are: increased life of rails, elimination of corrugation and consequent reduction of grinding operations and saving of metal, increased life of joints and saving in track maintenance. It is also claimed that the resistance to traction is not adversely affected. Examination of a section of rail which has been treated shows clearly the change in structure which is effected, the line of demarcation showing the treatment's penetration being quite evident.

Electric Railway Notes.

The St. Thomas, Ont., City Council is reported to have agreed to let the rear 70 ft. of the street car barn to St. Thomas Metal Signs, Ltd., for \$25 a month, the company to make any necessary alterations.

G. L. Guy, of Winnipeg, Man., who has been engaged by the Fort William, Ont., City Council, to make a survey of the Fort William Municipal Ry. and report thereon, arrived in Fort William, Oct. 1, and began his survey the next day.

The Hydro Electric Power Commission of Ontario, from July 21 to Aug. 14, received 5 safety cars for operation on the Hydro Electric Rys. Essex Division, and 3 safety cars for operation on the Guelph Radial Ry., from Canadian Brill Co.

The trucks for the 50 motor cars, which Ottawa Car Manufacturing Co. is building for the Toronto Transportation Commission, details of which were given in Canadian Railway and Marine World for August, will be built by Canadian Car & Foundry Co.

The Toronto & York Radial Ry. has received 13 flat cars from Canadian Car & Foundry Co. These cars are 38 ft. 3 1/4 in. over buffer blocks, 8 ft. 9 1/2 in. over sills, 26 ft. 10 in. truck centers, and have steel underframes of light construction, and are fitted with four 1 1/2-in. diam. truss rods, and Westinghouse KC 812 brakes.

The Shawinigan Water & Power Co. is reported to be planning to develop 150,000 h.p. of electrical energy at the Great Falls of the St. Maurice River, about 6 miles from Shawinigan, Que. The estimated cost is from \$10,000,000 to \$15,000,000, and it is expected that the work will be started in the spring of 1923.

The rule of the road in New Brunswick will be changed, Dec. 1, so as to bring it into conformity with the general practice, to keep to the right. It was intended that New Brunswick and Nova Scotia would put the new rule in operation on the same date, but it was found that the legislation in the latter province was imperfect, so New Brunswick is acting alone.

The Board of Railway Commissioners was called upon at its recent sittings in Vancouver, B.C., to decide two matters arising out of the putting in force of the new rule of the road. This involved the change of the location of the derails and signals at Powell St., the cost of which work was stated to be \$2,700, and work at the George St. crossing, Vancouver. The British Columbia Electric Ry. and the Great Northern Ry. were the parties interested in both matters. The Board reserved decision in the latter case, but decided that the B. C. E. Ry. Co. should pay three-fourths of the cost of the Powell St. work.

The Quebec Public Service Commission, in its judgment respecting the Levis County Ry., in June, a summary of which appeared in Canadian Railway and Marine World for August, pg. 433, provided, among other things, that the municipalities within which the railway operates contribute \$16,000 towards the cost of snow removal on the streets on which the lines are laid. The Levis City Council applied recently to the Commission for the right to appoint a special inspector to look after the removal of snow, the cost to be borne by the Levis County Ry. and the municipalities interested. The hearing was set for Oct. 30.

The British Columbia Electric Ry. Co. was sued in the county court at Vancouver recently by Mrs. G. McKnight for \$500 damages, for being ejected from one of the company's cars. The plaintiff alleged that she boarded the car at Cedar Cottage and paid a 10c fare to Cedar Park, while the conductor alleged she got on between Ninth and Fourteenth St., paying a 10c fare, which was sufficient only to take her to Collingwood. She alleged that at this point the conductor took her by the shoulders and pushed her out of the car. As she had no more money with her, she had to walk to Central Park, and by reason of delay in getting there lost an opportunity of doing work. Judge Grant awarded her \$50 damages.

Motor Omnibus Traffic Notes.

There are reported to be 12 motor buses in operation on streets in London, Ont. The fares received are said to total about \$1,400 a week, collected in 5c fares and in tickets sold at 6 and 8 for 25c. The city council is reported to have under consideration the desirability of cancelling all the motor bus licenses in the city, and arranging with the London St. Ry. Co. to operate bus lines on streets not served by the electric car lines.

The Ontario Legislature, at its last session, authorized the appointment of a committee to enquire, during the recess, into the question of motor traffic on the highways and to draft amendments to the Motor Traffic Act. The committee has been visiting numerous centers during the summer, and has collected a large amount of information.

Mr. Justice Riddell, sitting in Toronto recently, awarded \$7,500 and costs to H. J. Allison, Long Branch, and \$600 and costs, to J. McConnell, Lakeview, against Jasper Haight, owner of the Red Bus line, and the Blue Bus Transit Co., for damages arising out of a collision between buses of the two lines at stop 17, Lake Shore Road, Jan. 3. Allison received permanent injuries, and McConnell was out of work for some six weeks.

Nova Scotia Accident Prevention Association. — The executive committee's quarterly meeting was held in Sydney, Oct. 19, C. C. Curtis, General Manager, Cape Breton Electric Co., the P resident being in the chair. The Association's objects are by propaganda and publicity to do all that is possible for the prevention of accidents in individual plants, etc., and to act as intermediary between the companies which it represents and the Workmen's Compensation Board. During 1921, there were 6,134 accidents reported in Nova Scotia of which 98 were fatal, and \$948,689.30 was paid out in compensation. The amount of assessments for the Workmen's Compensation Board's work for 1921 totalled \$1,092,267.58, and the amount expended by the Association in the way of prevention of accidents was \$7,621.90.

British Columbia Electric Railway's Vancouver Franchise.

The various matters which have been under negotiation between the British Columbia Electric Ry. Co. and the Vancouver City Council, since the withdrawal from the Dominion Parliament of the Vancouver, Fraser Valley and Southern Ry. Co.'s bill under which it was proposed to amalgamate all the B.C.E. Ry. Co.'s undertakings so as to bring them all under the Board of Railway Commissioners' jurisdiction, are apparently nearing a satisfactory conclusion. The agreement under which the bill was withdrawn in May, provided that the B.C. Government would obtain the legislation necessary for the establishment of a tribunal to settle matters in dispute, and the municipalities agreed to allow fares to remain as they were pending the passing of such legislation. The City of Vancouver stood out against this for some time, but ultimately agreed to permit the company to continue to charge 6c fare in the city, pending the completion of further negotiations. The terms of the further agreement have been under discussion all summer and a tentative agreement was approved by the council's special committee. This provides for the reduction of the light rate from 6c to 5c; for the repaving of certain streets; for the extension of the gas plant and the reduction of rates on the completion of the extension; the carrying out of certain engineering matters; the extension for five years of the present cash fare of 6c; and for an arbitration every three years of any matter in dispute between the city and the company.

The city council on Oct. 9, directed that the report should be laid on the table pending the drawing up of a bylaw to confirm it when the whole matter will be considered. It is reported that the agreement probably will be ratified, and that among the improvements to be made by the company, which are specifically mentioned, are the replacing of the present overhead wires by underground cables; the paving between the track on Hastings St., near Carroll St.; and the reconstruction of the track for three blocks on Hastings St., just west of Granville St., and along Fraser Ave., from Kingsway to 25th Ave.

The Attorney General is reported to have completed a draft of a bill to be introduced in the Legislature to deal with the matters agreed upon. A press report gives the following summary of its provisions:—The Government will appoint a commission, or a sole commissioner, under the Public Inquiries Act, to enquire into all matters relating to the nature and quality of the company's passenger service, or to the performance of the service and the rates charged. The Government will appoint such a commission upon written application of a municipal council affected, or from not less than 100 provincial voters residing in a district affected, but without municipal organization, or from the company.

The commission will have complete jurisdiction over the fares for passenger service. In considering rates, the commission is to have due regard to giving the company a fair and reasonable return upon the appraised value of its property and to the protection of the public from rates that are excessive as being more than a fair and reasonable charge for services of the nature and quality furnished by the company and the circumstances existing at the time any former rate was made or fixed, as well as the

circumstances existing at the time of the enquiry are to be considered. The company is not to be allowed to give transportation at rates less than the rate established by the commission. Reduced rates for mileage, commutation tickets, or excursions and for special cars, per hour may be arranged.

The commission shall make its decision upon the real merits and justice of the case and shall not be bound to follow strict legal precedent. The commission is not to be bound by the finding or judgment of any other commission or court.

A substantial compliance with the requirements of the act shall be sufficient to give effect to the order of the commission, and no order shall be declared inoperative, illegal, or void for want of form or for any error or omission of a technical or clerical nature.

Persons who solicit, accept or receive, directly or indirectly, any rebate, concession or discrimination in regard to passenger service of the company in violation of any provision of the act to be liable to fine of from \$20 to \$500. Provision is made for free carriage or reduced rates for company's officers and employes, policemen, firemen and postmen.

Quebec Railway, Light, Heat & Power Co's Reorganization.

The recent changes in the Quebec Ry., Light and Power Co.'s directorate and the election of E. A. Robert as President were generally understood to presage a general policy of development in various directions. The first of the changes to be made, of which notice has been given, is the re-organization of the company. The announcement of this reorganization was made by Mr. Robert, Oct. 5, as follows: "Since assuming the office of President, I have made a careful study of the company and its subsidiaries. The success of any public utility company depends primarily upon its furnishing a satisfactory and efficient service in all departments and keeping pace with the growing needs of the population which it serves. Keeping this in view, a detailed survey has been made of all branches of the company's activities to determine its present and future financial requirements in each branch. As a result it has been decided that it would be in the interest of both the security holders and customers of the company to effect a reorganization having for its object the following: To alter the present system of dividing the various branches of the company's business. To facilitate the progressive expansion of the company's existing business. To enable the company to considerably extend its activities. To provide means for economically financing extensions and developments. To enable the reorganization of the enterprise to be effected in the best interests of the public and the security holders of the company. As a preliminary step application will be made at the forthcoming session of the Quebec Legislature for the incorporation of three companies, the Quebec Power Co., the Quebec Gas Co., and the Quebec Tramways Co."

Notices of the applications to the Legislature for the incorporation of the several companies appeared in the Quebec Gazette, Oct. 7, the applicants in each case being: E. A. Robert, C. G. Greenshields, Lt.-Col. J. E. Hutcheson, K. B. Thornton and Hon. D. O. L'Esper-

ance, all directors and officers of the Q. Ry., L. and P. Co. The Quebec Tramways Co. is the title under which incorporation is asked for a company to purchase, lease or otherwise acquire and to build, operate and maintain tramways and railways in the City of Quebec and in Saguenay, Lake St. John, Charlevoix, Montmorency, Quebec, Portneuf, Champlain, St. Maurice, Maskinonge, Berthier, Joliette, Bonaventure, Gaspé, Matane, Rimouski, Temiscouata, Kamouraska, L'Islet, Montmagny, Bellechase, Lévis, Dorchester, Lotbinière, Mégantic, Beauce, Frontenac, Nicolet, Arthabaska, Wolfe, Compton, Yamaska, Drummond, Richmond, Richelieu, Bagot, Shefford, Sherbrooke, Stanstead and St. Hyacinthe counties, to acquire or build power plants, gas works or waterworks within the same area capable of being operated in conjunction with the company's tramways or railways, to acquire in whole or in part the capital stock, securities and undertakings of the Quebec Ry., Light, Heat and Power Co., the Quebec Ry., Light and Power Co., the Quebec, Jacques Cartier Electric Co., the Quebec County Ry. Co., the Quebec Gas Co., the Frontenac Gas Co., the Canadian Electric Light Co., or any of them, or the stocks and securities of any other company which might be used in connection with the company's undertaking.

For the Quebec Power Co., authority is asked to acquire and develop hydraulic, electric and other powers and to distribute power within the area mentioned above, and to lease, buy or otherwise acquire stock in any of the companies mentioned above, and to acquire stock in other similar companies which may be of advantage thereto.

For the Quebec Gas Co. authority is asked to build, develop and operate gas plants, electric power plants and water works within the area first mentioned, and to acquire, in whole or in part, the stock of any of the companies mentioned under the application for the Quebec Tramways Co.

Proposed Toronto-Port Credit-Hamilton-Niagara Falls Electric Railway.

Some progress is being made in connection with the proposal for the construction of an electric railway, under the hydro electric railway legislation, from Toronto via Port Credit to Hamilton and through the Niagara Peninsula. In regard to the Toronto-Hamilton section, the bylaws favoring construction have been re-approved by the councils of Port Credit and Oakville villages, and Toronto, Trafalgar, Bronte and Burlington townships, and the question of re-affirming the bylaws is under consideration by the councils of Etobicoke township and Mimico and New Toronto town councils.

F. A. Gaby, Chief Engineer, Hydro Electric Power Commission of Ontario, was in Hamilton, Sept. 29, and met representatives of the city council, the harbor commission and the Burlington Beach commission and discussed routes fully with them. The city board of control asked for full details of the whole plan, and as a result Sir Adam Beck visited Hamilton, Oct. 9, and gave the board information on the various points raised, and it was stated that the council could ratify the agreement up to Nov. 15 so that it could be submitted to a vote of the electorate at the municipal elections.

Regarding the Hamilton-Niagara section, Grimsby village council has ap-

proved of the agreement, and the St. Catharines city council on Oct. 15 abandoned the position taken Oct. 1, when there was a tie on a resolution for affirmation, by unanimously passing a resolution affirming the bylaw.

A press report states that 14 out of the 20 municipalities interested have reaffirmed the bylaw.

Montreal Tramways Co's Transportation Department Changes.

Arthur Gaboury, Superintendent, Montreal Tramways Co., who is in ill health, has been granted extended leave of absence. He was born at Montreal, April 6, 1875, and entered Montreal Street Ry. Co's service, June 4, 1894, since, when he has been, to Oct., 1900, conductor and motorman; Oct. to Nov., 1900, Assistant Inspector; Nov. to Dec., 1900, night clerk, Cote St. barn; Dec., 1900, to Sept., 1903, day chief clerk, St. Denis Street; Sept., 1903, to May, 1906, Claims Agent; May, 1906, to 1907, Assistant Superintendent; and from 1907, Superintendent. He was, early in 1918, appointed, by the French Government, an officer of the French Academy. He was a member of the Canadian Electric Railway Association's executive committee for several years, and was its Vice President, 1918-1919; President in 1920-21, and was its Treasurer, from Mar., 1921, to June, 1922. He is a member of the American Electric Railway Association's committee on Canadian company membership, and in 1919 was elected a member of the executive committee of the American Railway Transportation and Traffic Association, of which he became Third Vice President in 1921, and Second Vice President at the Association's annual meeting early in October.

A. J. Gadoua, who has been the M.T. Co's Claims Agent, for a number of years, has been appointed acting Superintendent of Transportation, and will have general supervision of that Department until further notice. Prior to entering the Claims Department, he served the company as conductor, depot clerk and inspector for a number of years, and for two years he had charge of traffic in Paris, under the late Duncan McDonald.

C. M. Shaw, who has been Assistant to the Superintendent, for several years, has been appointed Assistant Superintendent of Transportation, with direct supervision over passenger and freight car service and traffic.

In giving notice of these changes, Lt. Col. Hutcheson, General Manager, has asked of all members of the staff continued loyalty and co-operation with Messrs. Gadoua and Shaw in the discharge of the Department's duties.

Ottawa Electric Railway Franchise Negotiations.

The Ottawa City Council, following the decision of the ratepayers, some months ago, by a vote of 8,415 to 6,070 in favor of an extension of the Ottawa Electric Ry. Co's franchise for 30 years, appointed a special committee to consider the matter, and to report upon the terms upon which a franchise extension should be granted. The committee appointed R. M. Feustel, Fort Wayne, Ind., to make certain investigations, and his report was received by Mayor Plant, Oct. 7. It is stated to cover 47 pages, and to contain a mass of figures and tabulations, which will require considerable study by the committee. A press report gives the following particulars in regard to it: The report deals chiefly with the

company's operating revenue and expenses, returns on investment, expense per mile in operations, passenger revenue, number of passengers carried, and covers 1892 to 1921. Mr. Feustel estimates that for the next five years the city's agreement should provide for the company laying 18 miles of extensions, which he finds are urgently required. He contends that it is possible for the company to maintain a 5c fare and secure an adequate revenue. One mile of the present track can be torn up and eliminated. What section this is was not divulged by the committee. Mr. Feustel divided his extensions report into five groups, allowing for one extension in each of the next five years. He estimates that 47 new cars are needed. In the rush periods in the summer the company operates 113 cars. His investigations revealed a steady increase in the patronage of street cars in Ottawa, which ranks second among cities investigated by his staff. The patronage in the city was 336 rides per capita per year among the trolley riding public. Toronto was first with 350 rides per capita a year. Reference to the Britannia line is contained in a separate report.

The report has been given some consideration by the committee, which is said to have had a conference with Mr. Feustel, Oct. 14. It is expected that the council's special committee will approach the Ottawa Electric Ry. Co. on the matter as soon as they have fully considered the report.

Electric Railway Passenger Fares.

British Columbia Electric Ry. — The Board of Railway Commissioners, at its recent sitting in Vancouver, heard an application from the City of Vancouver, asking that a 6c fare be put in operation on the company's Boundary Lake interurban line running through the city from Boundary Road to Commercial Drive. The distance between the two points is 2.5 miles, and the cash fare charged was 10c. The city contended that this fare was too high, that on the city lines which paralleled this interurban line for some distance, a 6c fare is charged; and that the high rate retarded the development of the city in the section through which it runs. The company contended that, while the cash fare was 10c, 10 commutation tickets were sold for 70c, thus reducing the fare to 7c; and further that a portion of the distance travelled over is on the company's own right of way. The Board directed that fares within the city limits should be uniform, and directed that the fare to be charged on this section of the Vancouver, Fraser Valley & Southern Ry. should be 6c between Vancouver and Horne-Payne and intermediate points.

St. Thomas Municipal Ry.—A press report states that the first month's operation of the line under the 7c fare showed an increase in patronage of 3% over that for August, the last month during which the 5c fare was charged. The operating deficit for September was \$116, against over \$500 in the preceding month, and about \$800 for September, 1921.

Toronto Transportation Commission. —The city board of control has unanimously passed a resolution requesting the Commission to reduce car fares during the morning and evening rush hours, the mover contending that the present fares are a burden on the so-called working classes. It is significant that this action has been taken by the controllers suspiciously near the municipal elections.

London Street Railway Situation.

The transportation commission appointed by London, Ont., City Council to consider the transportation situation in the city is reported to have completed its investigations and to have arrived at certain conclusions for submission to the council. It is said that the commission will recommend the submission of three questions to the voters on Jan. 1, 1923. The first would involve the purchase of the London St. Ry. as it stands; the second, the cancellation of the company's franchise and the inauguration of a system of motor busses or trackless trolleys, or both; and the third to grant an extension of the company's franchise.

In connection with the second suggestion, Sir Adam Beck, the mayor, P. Pocock, members of the transportation committee, and A. E. K. Bunnell, the engineer, who has been advising it, visited Windsor, Ont., to inspect the street railway system there and the trackless trolleys operating in connection with it. Sir Adam Beck is reported to have stated that the Hydro Electric Power Commission of Ontario would be prepared to take over the London St. Ry. and operate it for the city, but that the thought the line could be handled more economically and advantageously in conjunction with the London and Port Stanley Ry.

Winnipeg Electric Railway Franchise Extension.

The question of granting an extension of the Winnipeg Electric Ry. Co's franchise has been under consideration by a special committee of the city council during the whole of this municipal year. The majority and minority reports were published in Canadian Railway and Marine World for September, pg. 476. The city council authorized the committee to continue negotiations with the company on the lines suggested in the minority report. This decision was followed by the resignation of Ald. Douglas and the appointment of Ald. Sparling as chairman of the special committee. As the municipal elections approach an endeavor is being made, on the one hand, to have the present council settle the question, and on the other to make the matter an issue at the elections. It is claimed that the present council has not had any instructions from the ratepayers as to electric railway matters, and that it is not therefore in a position to decide them. The company, in its Public Service News, urges that the franchise question should not become a political issue; that it is purely a business proposition; that it has been before the council and the public for many months, and that the aldermen know the citizens' views on it pretty well.

Speaking, on Oct. 11, at a dinner in connection with the fifth anniversary of his appointment as General Manager, A. W. McLimont, Vice President and General Manager, is reported to have said: "The company has been unable for some time back to offer the investing public securities which would bring the funds to make capital expenditures or pay present obligations, and now we find ourselves in the position of not being able to offer securities to the public by reason of the possible life of our franchise being terminated within 5 years, and a security of such short period is not acceptable to the public. The negotiations have reached the point where it appears that an agreement may be made between the city council and ourselves which will grant

this extension, subject to the ratification of the agreement by a referendum, and I want you men to interest yourselves in everything that is printed, and everything that is procurable, which will explain the exact situation for you. There is no question at the present time of municipal ownership. If an adverse vote occurs the company will not be able to issue securities upon which to obtain new capital, therefore it cannot make such extensions and improvements in its property to enable it to progress in the manner which this young city requires. It simply means 5 years of one great factor being prevented from assisting in the forward movement of your city. Now, what happens if the vote is favorable? First of all, word goes out broadcast through the land, that the street railway, that very important factor in the lives of the people of Winnipeg, has met with broad and fair treatment from the citizens and their authorities. We will be able to issue securities which will be taken by the public and funds provided to make extensions into localities that will grow, and, in doing so, will create great activity in the market of all building materials and labor."

Electric Railway Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—Alderman Towers is reported to have advised a Vancouver ward ratepayers' association, Oct. 4, that negotiations between the city council and the company, regarding the extension of the Dunbar St. line were nearing a satisfactory settlement. He said that the proposed line would continue down to Fourteenth Ave., and to avoid the sudden dip in the hill, cut across to Twelfth Ave. and Alma Road, thus avoiding the hill that otherwise would necessitate the erection of a bridge, at the cost of about \$25,000. In the carrying through of this road, it would be necessary to buy about 20 lots in the city. (Oct., pg. 534.)

Hull Electric Co. is, we are officially advised, regrading its tracks on Bridge St., between Gaveneau and St. Laurent Streets, and is paving its Bridge St. line between Gaveneau and Frontenac Streets, Hull, Que. (Aug., pg. 429.)

The International Transit Co. has, we are officially, advised, completed a 900-ft. extension of its tracks in Sault Ste. Marie, Ont., to the new agricultural park in the east end of the city.

Levis County Ry.—We are officially advised that the car house to be built to replace the one burned will be at Point Levis, on the low level line, about a mile from Levis ferry. (Oct., pg. 534.)

London St. Ry.—A press report states that arrangements have been completed between the company and the London, Ont., City Council, for taking up the street car line on Oxford St., preparatory to its being paved.

Car traffic on Hamilton Road was reported to have been resumed, Oct. 1, the line having been closed from Egerton St. to the end of the track to facilitate paving operations. (Sept., pg. 479.)

Montreal Tramways Co.—Montreal City Council is reported to be considering the desirability of asking the company to build a line from Park terminal in Mercier Ward, up Cadillac St. to Notre Dame de Victoria. (Aug., pg. 429.)

The double track extension on Church Ave., Verdun, to connect Wellington St. with the present terminus of the Cote St. Paul section of the Notre Dame line

about 4,000 ft., construction on which was started early in July, is reported to have been completed and to have been opened for traffic, Oct. 16.

The extension of the Rosemount line to connect with Papineau Ave. is reported to be under construction. (Aug., pg. 429.)

Moncton Tramways, Electricity & Gas Co.—We are officially advised that construction has been started on a new car house in Moncton, N.B., to replace the one which was burned. It will be 40 x 70 ft., and of concrete, brick and steel. The contractor is A. Wheeler. (Oct., pg. 534.)

New Brunswick Power Co.—The relaying of tracks on the line from St. John to Fairville, is reported to have been completed. (Oct., pg. 534.)

Toronto & York Radial Ry.—We are officially advised that plans are nearly completed for the new terminal facilities at Glen Echo Ave. and Doncliffe Drive.

We are further advised that no surveys are being made for a private right of way for the line from Toronto city limits to Newmarket, as stated in a recent press report. (Oct., pg. 534.)

Windsor, Essex & Lake Shore Rapid Ry.—We are officially advised that track has been laid into the site for the new terminal facilities at Leamington, Ont. Some other work is being done on the site, but the plans for the proposed freight shed are not yet completed (Oct., pg. 534.)

Mainly About Electric Railway People.

Johannes C.M. Buntzen, formerly General Manager, British Columbia Electric Ry., died Oct. 3, at Copenhagen, Denmark. He was born there, Dec. 16, 1859, and went to Vancouver in the early nineties. After some time spent as a storekeeper, he became associated with a financial firm which was appointed assignee of the Vancouver Electric Light & Ry. Co. Taking charge of this plant under the assignment, he displayed considerable aptitude for the management, and when, in 1897, the whole of the electric light and traction concerns in the vicinity were absorbed in the British Columbia Electric Ry., he was appointed Comptroller, and shortly afterwards General Manager. Under his managership the company's power plant development was carried through, the Lake Buntzen plant being started in 1902. He retired from the position of General Manager in 1906, and was appointed Managing Director in London, Eng., resigning in Nov., 1908, when he left London to live in Copenhagen, but he retained his position as a director of the company.

Edwin V. Caton, who has been appointed Electrical Engineer, Winnipeg Electric Ry., vice D. K. Lewis, who has gone to Cuba, was, in his earlier days, in service with Vickers, Ltd., Sheffield, England, and came to Canada to superintend the installation of the first five units of the Winnipeg hydro electric system. He was appointed Chief Engineer of the system in 1912, and held that position until September, when he resigned to take up his new appointment. He is a member of council of the Association of Professional Engineers of Manitoba, and was chairman of the Manitoba Branch of the Engineering Institute of Canada.

A. L. Farquharson, Manager, Fort William Municipal Ry., was granted leave of absence for a month from Oct. 1, by the Fort William Public Utilities Committee.

E. J. Fream, Calgary, Alta., is reported to have been appointed a member of the Alberta Public Utilities Commission, to

fill a vacancy which has existed for some time, and in consequence has resigned as Secretary of the United Grain Growers' Association.

Mrs. J. B. Griffith, wife of the Purchasing Agent, Dominion Power & Transmission Co., Hamilton, Ont., is reported to have been left half of the estate of her late brother, H. B. Scott, Vice President, Newcombe & Endicott department store, Detroit, Mich., which it is said will amount to over \$1,000,000. Her son Bruce was left a valuable farm.

F. D. Jackson, Secretary, Public Utilities Commission, Port Arthur, Ont., has also been appointed Treasurer, Port Arthur Civic Ry.

K. B. Thornton, General Manager and Chief Engineer, Montreal Public Service Corporation, has been elected Honorary President, Electric Co-operative Association of the Province of Quebec.

Montreal Tramways Co's Annual Meeting.

At the Montreal Tramways Co's. annual meeting in Montreal, Sept. 26, the president and directors' report for the year ended June 30, as printed in full on pg. 594 of this issue, was presented. The President E. A. Robert, who occupied the chair is reported as stating that the company has passed through its troublous days and with business now almost back to normal its future is assured. The coming year is expected to show an improved position to put before the shareholders in 1923. The contract, which is the pioneer one of its kind in America, is working well for the city, the company and the shareholders. It is unique as the company is guaranteed by the community in which it operates and with ordinary prudence and care shareholders need not worry about their holdings. Financial conditions are improving and operating costs are being lessened by reason of the growing cheapness of money.

The directors were all re-elected as follows: E. A. Robert, President; J. W. McConnell and Hon. G. G. Foster, K.C., Vice Presidents; Wm. C. Finley, P. J. McIntosh, W. G. Ross, J. M. McIntyre, Hon. J. M. Wilson and Hon. L. C. Webster. J. E. Hutcheson is General Manager and Patrick Dubee, Secretary-Treasurer.

Preston Car Works.—As stated in Canadian Railway and Marine World for Nov., 1921, Canadian Brill Co. Ltd., which had shortly before been incorporated under the Dominion Companies Act, with an authorized capital of \$300,000, and office at Preston, Ont., leased the Preston Car & Coach Co's plant there for a year from Sept. 1, 1921, with the option of buying it, and took over the responsibility of its operation. Before the expiry of the lease on Sept. 1, 1922, an extension of two months was arranged, but the Brill Co. did not exercise its option to buy, and gave up the operation of the plant on Oct. 31. No announcement has been made as to whether it will be operated under other management, the impression is that it will be closed, at least as far as car building is concerned.

Tramway Wages in England.—A London press cablegram says that the tramways labor dispute has been settled by the workers voting to accept provisional terms calling for an immediate reduction of wages of 4 shillings weekly. There will be no further adjustments of wages until January next.

Marine Department

Suspension of Coasting Laws on the Great Lakes Asked.

During the early part of the summer, certain interested shippers, millers, etc., made representations to the Dominion Government, that Canadian shippers of grain, from the head of the Great Lakes were being discriminated against, in that the rate from Fort William and Port Arthur, to Buffalo, was considerably below those for Port Colborne, and Georgian Bay ports, respectively. The rates then quoted were,—to Buffalo, 2c, to Port Colborne 2½c, and to Georgian Bay ports 3c. Following these complaints, several interviews and considerable correspondence took place between the Minister of Trade and Commerce and the Dominion Marine Association, representing the steamship companies, and the facts were stated before the Minister, as of July 8. At that time, the rates on grain from Fort William and Port Arthur, were,—to Buffalo 2¼c, to Port Colborne 2½c, and to Georgian Bay ports 3c. It was also pointed out that the rates from the head of the Great Lakes to the seaboard were as follows: All water to Montreal, 9.75c; through Georgian Bay ports, 11.10c, and through Buffalo, 11.35c. It was thus shown that the transportation to the seaboard through Canadian channels was cheaper than through the U.S. Early in the season, it was well known that the Canadian route was considerably congested, due, it was alleged, to shippers utilizing elevator space at Montreal for storage purposes, and also to the very large quantity of U.S. grain shipped by the Canadian route, thus causing a blockade at the outlet, and backing up the flow of grain to the source. Since then, the Montreal Harbor Commissioners have taken steps, which, it is expected, will relieve the situation considerably, whereby practically prohibitive rates are to be charged for grain allowed to remain in elevators longer than a stated period.

The reason for the lower rate to Buffalo was explained to the Minister, it being stated that U.S. tonnage, which ordinarily enjoys the profitable carriage of coal and ore, found no movement of these commodities this season, sufficient to satisfy requirements, and, as usually occurs in the spring and autumn, when coal and ore are not moving, these ships entered the Canadian grain trade, and were willing to carry grain at 2c, even if they did not make their operating expenses. The moment coal and ore again become available, the low rate will disappear.

Those alleging discrimination, strongly urged the Government to suspend the coasting regulations and allow U. S. ships to enter the Canadian trade, presumably with the view of bringing the Port Colborne and Georgian Bay rates to a parity with that obtaining to Buffalo. It may be mentioned that bulk grain ships from the head of the Great Lakes to Buffalo, are nearly always assured of a return cargo, while those running to Georgian Bay ports invariably return light to the head of the Great Lakes, and this must be considered in relation to the rate.

As previously stated in Canadian Railway and Marine World, the position of the Canadian steamship owners, as outlined above, was fully explained to the Minister, and was, apparently, accepted

as a sufficient answer to the claims made by shippers, and no action was taken towards a suspension of the coasting regulations.

However, during September, further pressure was placed on the Government, and the Minister of Trade and Commerce telegraphed the Dominion Marine Association, as follows: "Representations have been made to this Department of discrimination in freight rates, Fort William to Canadian bay ports and Buffalo and also restraint of trade affecting insurance on cargoes. I should like to have conference with representatives of all companies operating grain vessels on the Canadian lakes, and for this purpose invite members of your association to be present in the office of the Minister of Trade and Commerce on Oct. 3, at 11 o'clock. Will you kindly notify all interested and advise me who will attend." The meeting was attended by A. A. Wright, Honorary President; T. R. En-

dian rates, shippers preferred to send their grain through that port. So far as this argument is concerned, figures previously submitted by the Dominion Marine Association show that of approximately 30,000,000 bush. of grain shipped through Buffalo, 27,000,000 were bonded through for export, and of the remaining 3,000,000, 1,000,000 were subsequently sold for export. As shown, the rate to the seaboard through Buffalo was 11.35c, through Georgian Bay ports 11.10c, and all water to Montreal, 9.75c. Therefore, some other argument than the low rate from the head of the Great Lakes to Buffalo must be found to account for this quantity of Canadian grain going to the seaboard, otherwise than through Canadian channels. The Minister also stated that he had been informed that in August, the rate was 2c a bush. to Buffalo, and 3¼c to Port Colborne. Another charge made was that shippers were compelled to take insurance from brokers representing the steamship companies at 25c per \$100, when a rate of 13c could be obtained elsewhere.

The Minister having asked for an explanation of the alleged discrimination was reminded that the disparity in rates had been reversed by the increase in the Buffalo rate to 5½c as against only 4c to Georgian Bay and was asked whether Canadian carriers would be considered entitled to charge up to the Buffalo rate. The Minister proposed to confine the discussion to differences alleged at earlier dates, and quoted from a memorandum rates mentioned to him at certain dates as bases for complaint. The discussion then became general, and the Association, through various members, presented as occasion arose the points of which a summary follows:—

1. With reference to the allegation of discrimination during the past summer the following answers were presented: The Buffalo rates cited were the result of very special conditions, and were not entitled to be considered a fair basis for comparison. The United States fleet was fitted out last summer to engage in their profitable trade of coal up and ore down, from which, by the U.S. coasting laws, Canadians are debarred, and when the coal strike stopped the movement of coal, and the ore movement slowed up, because of the over supply at the eastern end of the route, the U.S. ships were put into the grain trade and took cargoes to Buffalo at such rates as they could get, in order to keep moving, and thus ready to engage at opportunity in their regular trade. A distress rate of this kind is no criterion and is in fact below cost of operation. If comparison is to be made in the rates, a fair average, rather than isolated cases, should be taken, and if such a comparison is made it will be found that no complaint can be based upon it against Canadian tonnage. On the contrary such a comparison will satisfy all the requirements now demanded of Canadian ship owners, who desire always to provide a rate to the seaboard through Canadian channels that will compare favorably with that through the U.S. No more unjust proposal could be suggested, and none more impossible of practical fulfilment, than that Canadian ships should stand ready to carry, independently of cost or remuneration, at a

Dominion Marine Association.

Honorary President, A. A. Wright, President, Tidewater Shipbuilders, and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

President, T. R. Enderby, Operating Manager, Canada Steamship Lines, Montreal.

First Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Second Vice President, G. J. Madden, George Hall Coal Co. of Canada, Ogdensburg, N.Y.

Executive Committee, The President, First and Second Vice Presidents, and W. E. Burke, Canada Steamship Lines, Montreal; Yvon Dupre, Sincennes-McNaughton Line, Montreal; M. J. Haney, Canada Steamship Lines, Toronto; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transports, Montreal; Honorary members, L. L. Henderson and A. A. Wright, Montreal.

Counsel, Francis King, K.C., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

derby, President, and Francis King, K.C., Counsel, Dominion Marine Association; W. H. Smith, Canada Atlantic Transit Co.; W. Crawford, Mathews Steamship Co., Sincennes-McNaughton Line; G. J. Madden, George Hall Coal Co. of Canada; W. J. McCormack, Algoma Central Steamship Line; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co.; R. B. Teakle, Canadian Government Merchant Marine, and D. B. Hanna, President, Canadian National Rys.; the Minister of Trade and Commerce being accompanied by Hon. G. P. Graham, acting Minister of Railways and Canals, and Major G. A. Bell, Deputy Minister of Railways and Canals. The Minister of Trade and Commerce, in stating the reason for the conference, repeated the complaints of discrimination, which had previously been discussed, and presumed dismissed, and said that it was claimed that with the Buffalo rate being lower than the Cana-

rate momentarily fixed by the convenience or by the necessities of a U.S. ship owner. The reason that any Canadian boats carried to Buffalo, at the low rates available to that port at certain times last summer, can be found in the exigencies of the trade and in the business relations of their owners. No Canadian carries to Buffalo from personal preference, and all prefer to carry to their own ports, if they can get the cargoes promptly, and earn the necessary returns, without serious delays and losses due to congested terminals and other causes. As to this further, it must be remembered that the ship owner does not route the grain. The shipper does that. Canadian owners state that trip statements show their ships lost money on the cargoes in question. Other owners expressed a preference for tying up their ships. The real question should be whether a given rate is exorbitant or unfair, and the Association again submitted this proposition is the proper test, rather than a comparison with a distress rate to Buffalo bearing no necessary relation to cost. If any pledge is required from Canadian ship owners as to the relation rates should bear to each other it should be confined to the all-water rate to Montreal. This should be less than the rate to the Atlantic seaboard via Buffalo, and when complaint was made to ship owners in the summer, at the instance of a prominent miller, this all water rate was only 9.75c a bushel, as against a rate to the seaboard by Buffalo of 11.35c.

Compliance with the request for limitation of the rate to Port Colborne would only benefit the mill there, would not affect the through routing of the grain, and would seriously interfere with the equitable division of earnings between the upper lake boat and those in operation below Port Colborne. The summer freight rate, when little grain is moving, is invariably low in any event, while cost of operation remains as high as ever; and debarred from the profitable ore and coal trade on the U.S. side of the line the Canadian bulk cargo ships would not be able to keep in operation without fair returns in the early spring and in the autumn, when enough grain is moving to pay a remuneration rate. It is at these remunerative periods before the ore movement begins and after it slackens that U.S. ships break into the only trade Canadian ships enjoy and take a large part of the business offering. This may be quite fair, although it places the Canadian ship at a disadvantage, but it is an additional reason for refusing to require the Canadian ship to carry at a loss in the summer.

The complaints made are believed to be largely at the instance of shippers who have made mistaken estimates of the market, and wish to cover their errors at the expense of the ship owners. There is no substantial complaint from the trade generally. The Montreal Board of Trade was cited to the conference as one of the complainants. Investigation shows that this was apparently an error. The Secretary of the board states that no such complaint was made by that body. It seems that the acting Secretary of the Montreal Corn Exchange wrote asking for storage cargo privileges for U.S. boats on their last trip this season and that the request went no further.

On the allegation that there exists restraint of trade in the requirement on the part of brokers that shippers permit the broker to arrange the insurance on the cargo, it was answered that there is no restraint of trade in this, as it is the general practice, not only with Cana-

dian, but also with U.S. ships in making charters. That no loss is entailed by the practice. That the subject is one for discussion with the brokers, who make the stipulation for insurance, as the Dominion Marine Association has nothing to do with it, and as a body knows nothing about it. That in any event the question has no bearing on the coasting laws, and that if the practice is to be condemned for any reason a fairer remedy may be devised than the suspension or repeal of the Canadian coasting laws. In fact, no more unfair remedy could well be proposed than this, which would visit the alleged sins of the broker upon the heads of innocent ship owners and shareholders; and it would not necessarily be effective to stop the practice, for the Canadian ship owner would simply disappear and the broker could still carry out his plans on the tonnage which would then necessarily be registered under the U.S. flag in order to get any business.

One member of the Association, Canada Steamship Lines, Ltd., was credited with holding a substantial majority of the bulk freight tonnage on the Canadian side of the line. The contrary is the truth. The company holds less than 50% of the upper lake tonnage and less than 40% of that carrying through the Welland Canal.

On the general question of any interference with the coasting laws, the Association repeated its protest against the continued revival and discussion of these proposals, pointing out that the statute took the proper view in according the Governor in council the right to suspend in favor of any country only in cases where that country extended the same privileges to Canadian ships. Such reciprocal suspension took place during the war, and Canadian ship owners cheerfully acquiesced. They are on record as ready to welcome any such reciprocal suspension, and to engage in a fair fight for existence at any time. But they claim that while the barrier is maintained against them in the U.S. a one-sided suspension or interference with this law would be manifestly unfair, and could only be justified by well-proved flagrant notations of the protecting principle upon which this law was based, a violation which the facts submitted and discussed at the conference fell far short of establishing. The coasting law is the only solid foundation upon which the ship building industry of Canada rests. Destroy confidence in it and you prevent investment in Canadian ships. Without a rigid coasting law to parallel that of the U.S., Canadian tonnage would have to take the only means open to it to enjoy equal rights with that of the U.S. and no more building would take place in Canada. The advantages would have to tremendously outweigh these disadvantages to justify Parliament in inviting U.S. ships to add Canadian trade to what they already enjoy.

As to the proposal for the privilege to U.S. ships to bring storage cargoes to Canadian ports on their last trips the objections already cited applied, especially the weakening of confidence in the law and the effect upon ship building. But on more particular grounds it was submitted that Canadian owners who have already chartered for last trips at moderate rates, in the expectation of reasonable ice breaking bills for movement in the winter, should not be subjected to the greatly increased cost and inconvenience that would be entailed by the addition of U.S. tonnage to the storage fleets in Canadian ports; tonnage

which would charter at sufficiently remunerative rates after the privilege was extended. Provision would have to be made to protect the Canadian owners against this loss. Full use should be made of existing Canadian facilities for Canadian grain, and provision of additional storage and transfer facilities should be hastened, to take care of the rapidly increasing demands of the western crops.

The foregoing is the briefest possible summary of some of the main reasons against the proposal to weaken or destroy that necessary measure of reasonable protection now held by Canadian shipping against the inroads of the powerful and well nourished U.S. fleet. The argument must not be confused with an argument against fair competition. No one condemns fair competition, and condemnation is directed only against a one-sided arrangement which would place all the advantages with the U.S. ships and sacrifice Canadian shipping, in order to benefit, not the Canadian public, but rather simply one interest which temporarily fails to enjoy the advantages circumstances have thrown for a moment in the way of a neighbor.

The Association's members who were present considered that they had presented conclusively satisfactory answers to the Minister's complaints; and D. B. Hanna, President, Canadian National Rys., supported the Association in its views, both as to the impropriety of the proposal to submit always to the Buffalo rate, which is frequently a distress one, and as to the need of confidence in the coasting laws, and also as to storage cargoes.

The Minister remarked that it was the Government's desire to keep Canadian grain in Canadian channels, and it would be well if Canadian steamship owners would give an assurance that the Buffalo rate would never be exceeded by more than 1/2c a bush. On the shipowners refusing to give such an assurance, the Minister is reported to have said, "The onus is on you. In the meantime the Government will consider your statement, and decide what is best for the country as a whole."

Regarding the proposal to suspend the coasting regulations, supposing that to be a remedy for the alleged grievance, the Governor in council can only do so in favor of a foreign country which admits British ships to its coasting trade. There is no other method by which they may be suspended, except by act of Parliament amending the Canada Shipping Act. As it is unlikely that Parliament will meet until early next year, there is no prospect of any such action being taken, which would be effective during the current Great Lakes and St. Lawrence navigation season.

An Ottawa press dispatch, several days after the foregoing was written, stated: "There will be no suspension of the coastal regulations this season to meet the demand of western shippers who charge the Canadian lake carriers with discrimination against Canadian ports, at times, and want U.S. bottoms to be permitted to come in and compete. It is said that the legal advice submitted is that the present law does not permit of suspension by order in council and enabling legislation is necessary. This cannot be before the next session."

Southampton Dock.—The London & South Western Ry. is reported to have ordered a floating dock for Southampton, Eng., to be 960 ft. long, with lifting capacity of 60,000 tons.

Dominion Wreck Commissioners' Enquiries and Judgments.

Enquiries have been held and judgments delivered in connection with the following casualties:—

Grounding of s.s. Baluchistan.

Held at Quebec, Que., Sept. 15, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Lapierre and J. B. Henry, as nautical assessors, into the grounding of the Hindustan Steam Shipping Co's s.s. Baluchistan, of Newcastle-upon-Tyne, Eng., about half a mile to the west of White Island light ship, River St. Lawrence, Aug. 26. Evidence was given by the master, Capt. R. Longridge; the pilot, J. H. Talbot; first officer, T. W. Davner; F. Cumming, seaman; and T. Maxfield, third engineer. The court expressed the opinion, based on the fact that only payment of pilotage is compulsory, and not the employment of a pilot, the pilot is an adviser to the master, and that the pilot had very little assistance from the master. The ship was enveloped in fog from the time she passed Cape Dogs at about a mile distant. A four point bearing was taken of Cape Dogs, by the chief officer, who gave the distance indicated. The evidence of the chief officer and the pilot, as to the state of the tide, was contradictory, the former stating that the pilot advised him it was ebbing, while the latter asserted it was flood, while the tide tables show that at the time, it was half flood and spring tides. The court therefore wondered how a 4-point bearing could have been taken. If the chief officer was advised that the tide was ebbing, then he established that the speed of the ship was about 10 knots, whereas it was flood, thus reducing the speed to 6 knots. Under the circumstances the position or departure obtained from Cape Dogs could not be accurate. If it was flood tide, with a current of about 2 miles against the ship, why did the pilot alter his course to east, thus offering the side of the ship to the full influence of the tide, with a tendency to drift her westerly. In the court's opinion such a course could only be adopted if the tide were ebbing. Considering these facts, it would indicate that the evidence of the chief officer that he had been advised that it was ebbing tide, was nearly correct, but the court did not stress this phase of the evidence. Notwithstanding the facts, as stated, full speed was maintained, contrary to the Rules of the Road, article 16, and the ship was at full speed when she grounded. Owing to the dense fog, objects only being visible from a cable to a quarter of a mile distant, the speed was unwarranted. The pilot stated that the chief officer was away for 15 minutes, from the time he was ordered to take a sounding, and the ship struck before the report of 12 fathoms was made. The necessity for sounding was shown, but when the report of such sounding was not made within a reasonable interval, the pilot should have reduced the speed. In fact, the speed should have been diminished before, or at the time, the order to take a sounding was given. In view of the foregoing, the pilot erred seriously in not taking ordinary precautions, and was therefore held in default. With respect to the master's absence from the navigating bridge, the court expressed sympathy, on account of any health disability incurred while a prisoner of war in Austria, but felt that if he was well enough to be on the lower bridge prior to, and at the time of, the grounding, he was well enough to be on the upper bridge, near at hand to be consulted, or

to suggest. The chief officer had reported to the master that he was leaving the bridge to sound, and the master's duty required him, at least, to replace the chief officer on the bridge until the latter's return. Such remissness, under the circumstances, deserves the severest censure. The court was impressed with the chief officer's demeanor in giving evidence, and failed to find a flaw in his behavior. The lookout, a boy with three years experience, astonished the court by stating that he had received instructions to report lights, but received no orders to report fog signals. His position on the fore-castle head would have prevented him from hearing unusual sounds, and in this matter, the chief officer was adjudged to have been remiss in not giving instructions to the lookout as to what was expected of him.

The court therefore found that the pilot, J. H. Talbot, was in default. His record of 35 years only contained one slight accident, some years ago, and in view of this, the court, considering the grounding a very serious affair, dealt leniently with him in returning him his certificate, and fining him \$200, to be paid by Oct. 15. The master, Capt. R. Longridge, was severely reprimanded for being away from the bridge under the circumstances, and the chief officer, T. W. Davner, was advised to educate his lookout man, and to issue specific instructions as circumstances may warrant.

Grounding of s.s. Empress.

The Wreck Commissioner's enquiry and judgment in respect of the grounding of the C.P.R. s.s. Empress, at Black Point, near St. John, N.B., is dealt with on other page of this issue, under the heading "Grounding of the C.P.R. s.s. Empress in the Bay of Fundy."

Navigation Lights on St. Lawrence River and Great Lakes.

The Marine Department has given notice that all Canadian lights and fog alarms on Lake Superior will be kept in operation until the close of navigation, except at Caribou Island, which will be closed Dec. 10; Otter Island, Quebec harbor, Davieaux Island and Michipicoten Island, east end, which will be closed Dec. 15; Ile Parisienne, which will be closed Dec. 18, and Gargantua, Michipicoten harbor, and Corbeil Point, which will be closed Dec. 20. The lights at Slate Island, Battle Island, Lamb Island, Shaganash, Point Porphyry, Thunder Cape, Welcome Island, Pie Island and Victoria Island, will be closed after the last sailing to or from Port Arthur and Fort William.

All Canadian lights and fog alarms on Lake Huron, Georgian Bay, Lake St. Clair, Lake Erie, Lake Ontario and connecting waters, will be maintained in operation until the close of navigation, except the southeast shoal light ship, Lake Erie, which may be removed after Dec. 1, and also Lonely Island light, Georgian Bay, which may be closed before the general close of navigation.

All Canadian lights on the St. Lawrence River will be maintained in operation until the close of navigation.

All gas buoys and other floating aids to navigation will be maintained in position as long as ice conditions will permit, and in cases where it is necessary to remove gas buoys before the close of navigation, the more important points will be marked by spars.

Marine Public Works Contracts.

The Dominion Public Works Department has awarded contracts as follows,— Aug. 22, dredging entrance channel and basin at Kincardine, Ont., W. Bermingham, Kingston, class B, at 50c a cu. yd., scow measure; Aug. 25, repairs to wharf at St. Alexis, Que., Caron and Frere, L'Islet, Que., at unit prices; Aug. 28, dredging at Montmagny, Que., Horace Dussault and Co., Levis, Que., class B, at 50c a cu. yd., scow measure; Aug. 31, removal of Bunker Island light shoal and removal of Bunker Island after its abandonment by Marine Department, Halifax Dredging Co., Halifax, N.S., class B, \$1.45 a cu. yd., in situ; Sept. 6, dredging at Beaver Harbor, Chocolate Cove, Leonardville, St. Andrews, N.B., J. A. Gregory St. John, N.B., class B, at 60c a cu. yd., scow measure; Sept. 6, deepening of basin at Digby, N.S., J. S. Gregory, St. John, N.B., class B, at 40c a cu. yd., in situ; Sept. 7, clean up entirely all obstacles and materials in bed of St. Marys River, opposite Sault Ste. Marie, Ont., Soo Dredging and Construction Co., Sault Ste. Marie, Ont., for derrick scow driver \$112.50 a day of 10 hrs., including towing to and from work, for drill boat \$42.50 an hr. for 8 hr. day, and for dredge \$55 an hr. for 8 hr. day, and dynamite at invoice prices; Sept. 8, dredging channel to wharf and a gap through to breakwater at Port Elgin, Ont., W. Bermingham, Kingston, Ont., class B, 70c a cu. yd. scow measure, and \$1,800 for gap; Sept. 8, dredging channel at Gobbons Point, Little Current, Ont., C. S. Boone Dredging and Construction Co., Toronto, class A \$4.95 a cu. yd. in situ, class B, \$2 a cu. yd. in situ; Sept. 9, dredging at St. Jean d'Orleans, Que., Lachance Ltd., Montreal, class A, \$2.50 a cu. yd. in situ, class B, 60c a cu. yd. scow measure; Sept. 9, dredging channel through shoals between Louiseville and deep water, Riviere du Loup en haut, Que., Lachance Ltd., Montreal, class A \$2.50 a cu. yd. for material to be scowed away, and \$2.50 for material to be overcast, place measure, class B 30c a cu. yd., scow measure for material to be scowed away and 28c a cu. yd. place measure for material to be overcast; Sept. 2, repairs to wharf at St. Michel de Bellechasse, Que., J. R. and J. E. Boulanger, Montmagny, Que., at unit prices; Sept. 12, extension to breakwater wharf at Chimney Corner, N.S., W. E. Landry, Antigonish, N.S. at unit prices; Sept. 15, dredging of shoal to eastward of Whitman's wharf, Canso, N.S., W. McFarbridge, Halifax, N.S., \$100 a day of 10 hrs. and \$5 to be deducted from rental rate for time lost at any one time and amounting to 5 hrs due to stress of weather; Sept. 20, dredging at Newcastle N.B., Miramichi Dredging Co., Newcastle, N.B., class B 68½c a cu. yd. in situ.

Navigation of Amherstburg and Livingstone Channels.—The Marine Department has notified mariners that the temporary modifications of rules and regulations for navigating the Lower Detroit River, which were made effective May 15, 1920, are still in force. The following rule has not been universally observed, with the result that highly dangerous crossings occur above the Detroit River light: "All vessels, upbound for Livingstone Channel, will leave Lake Erie via the channel to the west of Detroit River lighthouse." Violation of the regulations in question will hereafter be reported to the authorities, so that action may be instituted.

Grounding of C.P.R. s.s. Empress in the Bay of Fundy.

The C.P.R. s.s. Empress, running between Digby, N.S., and St. John, N.B., ran on the rocks at Black Point, near Partridge Island, and about 4 miles from her western terminal at Reeds Point, St. John harbor, Sept. 29. A dense fog prevailed at the time obscuring all objects within a few feet of the ship. There were 110 passengers on board, mostly women and children. One of the ship's boats was launched within 8 minutes after she struck, and 4 of the crew rowed to Reeds Point for help. The steam tug Neptune was dispatched immediately to the ship and nearly all the passengers were taken off in boats and transferred to the tug. Later a line was attached to the ship by the tug, and the balance of the passengers were transferred, the officers and crew numbering 32, with the exception of the stewardess, remaining with the ship, and the whole of the passengers were landed at Reeds Point within 5½ hours of the accident. The Empress left Digby, at 3.15 p.m. on her usual trip. There was a heavy fog and a high sea running. Immediately land was seen ahead the engines were reversed and the wheel turned hard aport, but the ship struck on a ledge of rock, and remained hard and fast, with her bow standing high out of the water and with a list of about 40 deg. J. H. Boyle, Superintendent, Brownville Division, New Brunswick District, who was acting General Superintendent, New Brunswick District, C.P.R., during the absence of J. M. Woodman, was, with other of the company's officers on board the tug Neptune, and directed operations for the safety of the passengers. On the following day the ship was visited by J. T. Walsh, Manager, Steamship Department, C.P.R., Montreal, J. H. Boyle, acting General Superintendent, N. B. District, L. Atkinson of the C.P.R. Bay of Fundy Steamship Service; Capt. R. J. Mulcahy, port warden, St. John, N.B., and representatives of the London Salvage Co., who studied the ship's position and the possibilities of floating her. Attempts to do so were made on Sept. 30, and Oct. 1, by the tugs Neptune and Margaret A. Hackett, but without success. She was refloated Oct. 4, after portions of the rock on which she rested, and other obstructions had been removed by explosives. It was stated that the damage sustained was not serious. Temporary repairs were made at St. John, N.B., after which she proceeded to Halifax, N.S., where she was drydocked for thorough inspection and repair. It is reported that while in drydock she will be equipped with radiotelegraph installation. The service between Digby, N.S., and St. John, N.B., was suspended for a few days, pending arrangements for another steamship. The Dominion Government s.s. Aranmore was subsequently chartered until the repairs to the Empress are completed, and the service was resumed Oct. 11.

An investigation into the casualty was held at St. John, N.B., Oct. 12, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. A. J. Mulcahy and Capt. W. H. Parker, of the Royal Mail Steam Packet Co's s.s. Chignecto, as nautical assessors. Evidence was given by Capt. A. McDonald, R. A. Sweeney, chief officer; R. McGrath, quartermaster; G. Copper, sailor; G. R. Kinney, chief engineer, of the s.s. Empress; and Capt. L. Kinney of the C.G.S. Aberdeen. The C.P.R. was represented by F. R. Taylor, K.C., and H. H. Mc-

Lean Jr. The captain was not legally represented.

The evidence showed that, at the time of the accident, the ship was drawing 10 ft. forward and 13 ft. 7 in. aft, and that the usual course was steered and the speed timed. The fog horn on Partridge Island was heard slightly on the port bow. Some contradiction as to the bearing occurred, but it seems that an accurate bearing was not taken of the first sound, nor any of the succeeding ones. However, the course was altered to n. ½ e. The wind had been, and was still blowing fresh from the s.w. striking her on the port quarter, and the evidence of the quartermaster showed that at times the ship would swing to windward about one point, then he would compensate somewhat by letting her fall off the same number of degrees on the opposite side. In view of such steering no dependence

gravity of the violation of that rule. The court could not, in view of the evidence, come to any other conclusion than that, on the part of the master and chief officer, who is there to help the master, ordinary prudence was not observed, and therefore found the master, Captain McDonald, certificate 3,929, in default. Owing to this being his first mishap and being a young man who gave straightforward evidence, the court did not deal with his certificate, but reprimanded him and cautioned him to be more careful in future. Failing to hear the bell buoy it was time to realize or rather surmise that extra prudence was in order. With respect to the chief officer, the court felt that he was remiss in his functions in not taking a more accurate bearing of the sounds and making his reports accordingly. He was also reprimanded and cautioned to be more interested in the



Canadian Pacific Railway s.s. Empress, ashore on Black Rock, Bay of Fundy, at low tide.

could be placed on the exact position of the ship simply by the usual method followed and found satisfactory in previous voyages. The full speed was maintained, the master evidently having in mind to slow down when his distances had been run, and then take a cast of the lead. It appeared to the court that when the sound of the fog horn was heard on the port bow, it would have been the right movement to steer for the sound, instead of altering the course to starboard without having ascertained, except in a cursory manner, the bearing of the sound, and being unable to be positive of the ship's position, which could only be known after successive casts of the lead. It had been demonstrated to the court that on the day in question a very strong and unusual set to the n.e. had occurred. This is often met with and is to be expected. Hence the cocksureness as to the position of the ship without having taken means of certitude was inadvisable. The Rules of the Road demand and obligate the moderation of speed in foggy weather. There are no exceptions mentioned. It must be inferred, and it is inferred, that at all times and under all circumstances covered by the rule in question, a moderate speed is compulsory. Hence the master was found in default for maintaining the full speed, which is a violation of the rules. In view of the proofs obtained from an independent witness, that an unusual set had taken place on that day, it served to minimize to some degree the

navigation of the ship and to be a help to his superior officer.

The press had announced that wireless will be installed on the Empress; the court commended this step as one of great import, and one which will prove a basis of assurance that all will be well in future, in view of the facilities provided at St. John in the way of a direction finding station.

The Empress was built at Newcastle-Upon-Tyne, Eng., in 1906, for the Charlottetown Steam Navigation Co's service between Summerside, P.E.I., and Point du Chene, N.B., and is of steel, screw driven by engine of 365 h.p. Her dimensions are,— length 235 ft., breadth 34.2 ft., depth 20 ft., tonnage 1342 gross, 612 net. On the Charlottetown Steam Navigation Co. discontinuing business in 1916, the Empress was sold to the C.P.R. for its Digby-St. John service, and the company's other steamship, Northumberland, was sold to the Dominion Government which took over the P.E.I. and mainland steamship service, the Northumberland being subsequently transferred to Lake Ontario for operation by Canadian National Rys.

Castrian Steamship Co. Ltd. has been incorporated under the Dominion Companies Act, with \$200,000 authorized capital, and office at Montreal, to own and operate ships, wharves, docks, elevators, etc., and to carry on a general steamship, navigation, wrecking and salvaging business.

Ship Building and Ship Repairing Throughout Canada and Newfoundland.

Fire Tug for Toronto.—Toronto's fire chief recommended the board of control, recently, to accept a tender from the Gibley Co., Penetanguishene, Ont., to supply the city with a fire tug for \$29,875. The controllers deferred action.

North Vancouver Ferry Steamboat.—The city council received notice, Oct. 9, from Napier & Miller, Glasgow, Scotland, that they would be unable to accept the specifications and agreement submitted by the city council for building a steel ferry steamboat for \$43,000, but that they were prepared to carry out a contract on the terms and conditions of their own tender and specification. Any contract made by the council in this connection is subject to ratification by the ratepayers.

Canadian Vickers, Ltd., Montreal, did repair work on the following ships during September: Canadian Seigneur, Canadian Challenger, Canadian Conqueror, Canadian Rancher, Canadian Constructor, Canadian Cruiser, for Canadian Government Merchant Marine, Ltd.; Montrolite, Talaralite, Torontolite, for Imperial Oil Ltd.; Istria, for George Hall Coal Co. of Canada; Montreal, Lord Dufferin, for Canada Steamship Lines Ltd.; Porsanger, for Westfal, Larsen & Co.; Baluchistan, for Hindustan Shipping Co.; Ville d'Ys, for French Government; Domiva, for Preston Steam Navigation Co.; Gaspesia, for Clarke Steamship Co.; Western Plains, for U.S. Shipping Board; Antonia, Albania, Venusia, for Cunard Line; Victorian, Metagama, Canadian Pacific Steamships Ltd.; Concordia, for Donaldson Line; H. K. Waage, for D/SA/S Fold; Chiswick, for British Steamship Co.; Unita, for H. M. Wrangell & Co.; Osterdal, for Norwegian owners; Pallas, for Swedish owners; Lishar County, for International Steamship Co.; Albany, for McLean Kennedy Ltd.; Alwaki, for Thos. Harling & Sons.

The company has received an order from the Marine Department for a steel, single screw hopper barge, with propelling machinery, to have 1,250 i.h.p. The hull is to have the following leading dimensions: Length, b.p. 210 ft.; breadth moulded, 35 ft.; depth moulded, 19 ft.; hopper capacity, 950 cu. yd. The barge will be operated in the north channel, below Quebec.

Davie Shipbuilding and Repairing Co., Levis, Que.—Canada Steamship Lines' s.s. Rapids Prince, after being released, Sept. 9, from Heron Island, below Lachine Rapids, where she grounded July 30, through the breaking of a rudder chain, was taken to the Davie yard, where she was drydocked for repairs. We are advised that the damage sustained was mainly to the bottom of the ship.

Halifax Shipyards Ltd., Halifax, N.S.—The contract for repairing the U.S. s.s. Bennington, which ran ashore at Seal Island, near Cape Sable, in August, called for the repairing of 29 plates, the opening up for examination of the main engines, engine room auxiliaries, boilers, etc., the drawing of the tail shaft and repairs to rudder. The repairs were completed and the ship undocked, Sept. 16, two days ahead of contract time, and, after reloading, she proceeded to Montreal. She is an oil burner, carrying fuel oil in her double bottom, and as a number of double bottom compartments were punctured, it was impossible to pump the oil from these compartments before she was docked. In docking her, when the water in the dock was pumped

down to the level of the tank top, pressure being reduced, the oil began to appear in the water in the dock. It was therefore necessary to set up a portable pump to pump the oil from the tanks to tank cars on the dock wall, and thus prevent the oil from going into the harbor.

The Canadian Government Merchant Marine s.s. Canadian Voyageur, which, while anchored in Bedford Basin, Halifax, in the autumn of 1921, dragged her anchors during a gale, and went ashore, causing considerable bottom damage, was docked Sept. 18, after having been laid up, owing to the general depression in shipping. The contract provided for the renewal and repair of 31 bottom plates, and the work was completed and the ship undocked, Oct. 4.

Newfoundland Drydocks, Ltd., St. John's, Nfld.—The Neptune Steamships Co's s.s. Neptune was docked, Oct. 11, for survey and repairs, after grounding at Catalina, when bound from Labrador to St. John's. Considerable damage was done to the keel, and while she was in dock she received a general cleaning, painting and overhauling.

Prince Rupert Drydock and Engineering Co., Prince Rupert, B.C. The receiver for this company, which went into bankruptcy some time ago, is reported to have announced that following conferences with the Deputy Minister of Marine and Fisheries, a settlement may be made with the creditors, at 50c on the dollar.

Prince Rupert Drydock & Shipyard, Prince Rupert, B.C., did the following repairs during September: Masset Timber Co's steam tug, Evergreen, extensive hull repairs and alterations; steam trawlers George E. Foster and James Carruthers, docked, cleaned and painted; Grand Trunk Pacific Coast Steamship Co's barges 1 and 2, docked, cleaned and painted; 22 fishing ships, docked, cleaned and painted, and a number of other miscellaneous repairs.

Victoria (B.C.) Shipowners Ltd., Victoria, B.C., which was formed to build 4 wooden barquentines under special aid from the Dominion Government, to relieve the unemployment situation, subsequent to demobilization after the war, and which got into financial difficulties before the completion of the first ship, (S. F. Tolmie) has been declared bankrupt by the British Columbia Supreme Court, on an action by the Washington Bank of Alma. Under the agreement between the company and the Dominion Finance Department, on the failure of the company to complete the ships, the government took over the unfinished S. F. Tolmie and had it completed and handed over to the Canadian Government Merchant Marine Ltd. for operation. The material which had been bought for the other 3 ships was also taken over under the terms of the agreement, and it was reported that the Government having decided not to proceed with the construction of the remainder, decided to sell this material. Efforts which had been made to force the last Government and the present one to render further financial assistance to enable the ships to be completed, or to guarantee accounts of certain creditors, have failed.

Victoria Machinery Depot Co., Victoria, B.C., did the following work during September: Trebla, formerly Santa Cruz, 511 tons, Capt. A. Berquist, tail shaft drawn for inspection, hull and engine repairs, new smoke stack, new towing

winch; Princess Patricia, 1,158 tons, C.P.R., propeller repairs; Charmer, 1,044 tons, C.P.R., painted, hull and engine repairs, new tail shaft; Princess Maquinna, 1,777 tons, C.P.R., painted, engine repairs, hull repairs, due to stranding, 17 plates removed; Otter, 165 tons, C.P.R., painted, hull and engine repairs; steam tug Red Fir, Capt. Bruce, boiler repairs; pile driver scow, McDonald & Hall, re-tubing boiler; schooner Naden, Naval Service Department, painted; steam tug Sadie, Victoria Tug Co.; painted, hull and engine repairs; scow 6, Victoria Tug Co., painted and general repairs.

Yarrows, Ltd., Victoria, B.C., did the following repairs during September: Canadian Government s.s. Estevan, 1,161 tons, new briggewall bearer plates; C.P.R. s.s. Princess Victoria, 1,943 tons, dry-docked, cleaned and painted, and repairs to tail shaft; s.s. Princess Royal, 1,997 tons, fitting ash ejector; Canadian Western Steamship's s.s. Margaret Coughlin, 5,704 tons, drydocked, cleaned and painted, and repairs to rudder; Commercial Cable Co., cable ship Restorer, 3,180 tons, welding repairs; Consolidated Whaling Corporation, s.s. Gray, 707 tons, extensive repairs due to stranding, renewed large number of bottom plates, and general repairs; Bowring & Co., s.s. El Lobo, 4,800 tons, repairs to rudder, etc., drydocked, cleaned and painted; Britannia Mining & Smelting Co., s.s. Quadra, 683 tons, docked, cleaned and painted; Nippon Yusen Kaisha, Take-toyo Maru, 7,028 tons, new piston rings; Pacific Salvage Co., steam tug Salvor, new smoke stack; W. A. Souter & Co., Sheafmead, 4,273 tons, drydocked, cleaned and painted, and sundry repairs; Union Steamship Co. of British Columbia, s.s. Venture, 1,011 tons, manganese bronze propeller blades; and steam tugs Mystery and Olive M., boiler repairs and new fire bars. In addition to the foregoing, several scows were docked for cleaning, caulking and painting.

Flags for Canadian Merchant Marine and Navy. An order in council passed April 26, has been issued recently prescribing the flag to be flown by Canadian registered ships, viz: the red ensign defaced by the shield of the Canadian coat of arms in the fly. The blue ensign with the Canadian coat of arms in the fly is to be flown by Royal Canadian Navy ships. As a new coat of arms has been adopted by the Dominion, it was necessary to issue an order for the replacement of the old coat of arms by it. Flags bearing the old shield may be used up to March 31, 1924.

Panama Canal.—Traffic between the west coast of Canada and Europe, and between the west coast of Canada and the U.S. east coast, increased greatly during the past year. It is somewhat difficult to differentiate in the traffic between the west coast of Canada and the U.S. west coast, as the majority of ships in the Canadian traffic also load and discharge cargo at U.S. ports. Panama Canal Record.

The Great Lakes Transportation Co., on Oct. 15, redeemed \$42,000 par value of its bonds, being all its outstanding bonds nos. 99 to 140, inclusive, secured by a mortgage to R. Stone, Detroit, Mich., and dated April, 15, 1915. For a portion of the bonds, which actually mature April 15, 1923, payment was made of \$1.02 on the dollar par value, and for those maturing April 15, 1925, \$1.03 on the dollar par value.

Dominion Marine Association's Activities.

The Immigration and Colonization Department having notified shipowners of the imposition of fees for overtime to be paid by shipowners to immigration officers, the Association has decided to oppose the proposal.

The proposal to suspend the coasting regulations as a remedy for an alleged discrimination against Canadian shippers in the Great Lakes grain trade, in which the Association members are actively engaged, is dealt with on another page of this issue.

The Association is again taking up the matter of the compulsory payment of pilotage dues on the St. Lawrence River below Montreal, but was advised by the Deputy Minister of Marine, recently, that no action is possible at present, nor until Parliament meets. The Association will request the assistance of the Shipping Federation of Canada, on the question, and will arrange for an interview with the Minister of Marine, on his return to Canada from Genoa.

With regard to the reduction of shoveling charges on grain, of 35c per 1,000 bush. at railway elevators and other eastern terminals, except Port Colborne, and of 25c per 1,000 bush. at Montreal, as mentioned in our last issue, the Association is asking for further action on the part of Montreal, and is also endeavoring to reopen the question relating to Port Colborne, and has suggested a conference with the Railways Department on the subject.

The application of the St. Lawrence River Power Co. having been filed with the International Joint Commission, for continuance of the submerged weir authorized in 1918 for three years, in the South Sault channel, in the St. Lawrence River, below the inlet of the power canal to the plant at Massena, N.Y., and after enquiry and consultation, it appearing, more particularly from a letter written by the Canadian Chief Hydrographer, that there had been no complaints during the time that the weir has been in position, and that, in fact, navigation has been benefitted in periods of low water, although in periods of high water there is some danger to the canal banks, the Association has decided, as there seems to be no present need for the removal of the weir, that the Commission be asked to limit the period of any further approval it may give, so as to compel the company to apply for extensions from time to time.

The new regulations respecting steamboat inspection, which were approved by order in council, March 10, but which have only been published recently, were discussed at a recent meeting of the Association's executive committee, and it was resolved that so far as they apply to ships enrolled in the Association, they are unnecessarily stringent and onerous, and in a great many respects, impracticable, that as it is not possible to comply with their requirements, they should be withdrawn, in order that they may be reconsidered and revised with due regard to conditions on fresh water, and in the light of advice from those who have enjoyed practical experience under these conditions. The Association, representing, as it does, almost all the companies owning and operating ships on inland waters between tidewater and the head of the Great Lakes, believes that it should be consulted as to its views in the framing of rules of so much importance to its members' business, and should have an opportunity of presenting reasonable

criticisms and objections before any such rules are put in force, and that the interest of owners in the safety of their ships should of itself entitle their views to some consideration. The Association's members, as owners of the ships, have an additional reason in asking this consideration, as inspection fees, which, in 1903, the Dominion Government declared should be paid out of public revenue, because inspection was for the benefit of the public, have recently been reimposed, with incidental extra taxes, on the ships' owners.

The Hamilton Harbor Commissioners.

The Dominion Government has appointed Wm. Ainslie, John Newland and W. B. Sheppard as commissioners for Hamilton, Ont., harbor, in place of the former commissioners, W. J. Clark, A. C. Garden and G. J. Guy. The Mayor of Hamilton, on Oct. 12, communicated with the Marine Department, pointing out that A. G. Garden had been reappointed by the city as its representative, and asking why the Government had appointed three commissioners. The Department is reported to have replied that Mr. Garden was appointed by the city, Dec. 8, 1915, for three years, that this term expired on the same date in 1918, and that the Department has nothing to show that he had been reappointed, and therefore, the Government had, under the act constituting the Hamilton Harbor Commission, made an appointment on behalf of the city. The Hamilton Chamber of Commerce has protested to the Prime Minister against the dismissal of the former commissioners. H. E. Waterman, Secretary of the old Commission, is reported to have resigned.

The Hamilton Harbor Commission was constituted by the statutes of 1912, chap. 98, which provides that the corporation shall consist of three commissioners, one of whom shall be appointed by the city council and two by the Governor in council, the one appointed by the city council to hold office for three years, subject to removal, and shall be eligible for reappointment. Sec. 8 of the act reads: "Whenever a vacancy occurs in the office of commissioner appointed by the council of the City of Hamilton, whether such vacancy occurs by expiration of the term of office, or otherwise, the council shall, within 30 days, appoint his successor, and in default of such appointment being made within the said period, the Governor in council may appoint a person to fill such vacancy, and the person so appointed shall hold office in all respects as the commissioner in whose place he is appointed would have held it."

Dominion order in council 2,050 was passed Oct. 7, cancelling the order of April 17, 1912, which appointed W. J. Clark and G. J. Guy as Commissioners, and appointing Wm. Ainslie and John Newlands in their stead, and also appointing W. B. Sheppard in place of A. C. Garden, who was appointed by Hamilton City Council, under bylaw 1,885, Dec. 28, 1915, for three years, and whose term expired, Dec. 28, 1918, no further appointment having been made by the city council, under the Hamilton Harbor Commissioners Act, sec. 8.

In 1914 the harbor commissioners adopted a tariff of harbor dues, and following this, the city council made representations to them on the subject, and offered a grant of \$4,000 a year in lieu of harbor dues. The commissioners accepted the offer, anticipating that it would build up the harbor business, and

the agreement has been renewed from year to year, but the new commissioners claim that the results obtained have not realized expectations, and they propose to adopt a tariff which will be compiled in the near future, possibly on the basis of the old tariff, as there are heavy engineering expenses which will have to be met, and the grant from the city up to the present is said to have barely covered administration expenses.

A Hamilton press report states that the city council has resolved, as a protest against the Dominion Government appointing a representative on behalf of the city, not to co-operate with the new commissioners.

Shipments of Grain from Fort William and Port Arthur for the Crop Year 1921-1922.

In view of the attempts made to have the Canadian coasting laws abrogated, to permit U.S. ships to carry grain between Canadian ports, in order to eliminate alleged discrimination against Canadian shippers by Canadian steamship owners, which is fully dealt with on another page, the following figures, compiled from a report by the Board of Grain Commissioners, will be of interest. The total amount of all grains, shipped to Canadian ports, was 109,877,962 bush.; sample mixed grain, 56,624,436 lb.; elevator screenings, 13,997 tons. To U.S. ports, all grains, 115,792,072 bush.; sample mixed grain, 115,017,231 lb.; elevator screenings, 19,823 tons. Of these amounts, 616 cargoes were shipped in Canadian ships, as follows: All grains, 126,077,333 bush.; sample mixed grain, 81,633,910 lb.; elevator screenings, 16,550 tons. In U.S. ships, 334 cargoes, all grains, 99,592,701 bush.; sample mixed grain, 90,007,757 lb.; elevator screenings, 17,270 tons. The amounts shipped to Canadian ports in Canadian ships, were, all grains, 110,317,688 bush.; sample mixed grain, 56,624,436 lb.; elevator screenings, 13,997 tons; to Canadian ports in U.S. ships, wheat, 413,000 bush. To U.S. ports in Canadian ships, 15,749,642 bush.; sample mixed grain 25,009,474 lb.; elevator screenings, 2,553 tons; to U.S. ports in U.S. ships, all grains, 99,179,701 bush.; sample mixed grain, 90,007,757 lb.; elevator screenings, 17,270 tons.

Grain Shipping Regulations at Montreal.

M. P. Fennell Jr., General Manager, Montreal Harbor Commissioners, and who is also Chairman, Grain Clearance Board, is reported to have stated, Oct. 3, that in view of the large number of ships then in Montreal harbor, and the additional number en route, the Board had been considering the best method to be pursued in loading them for quick dispatch. To assist in doing this, the following regulation had been adopted on Oct. 2, and confirmed by the Montreal Harbor Commissioners: "On and after this date ships taking full cargoes of grain will be berthed and loaded in the order in which certificates of readiness to load are issued by the port warden, provided their grain cargo is in the elevators or can be arranged for through the Grain Clearance Board, and loading will be continued until completed. Ships shall lose their turn when their grain cargoes are not here or cannot be provided for, but shall remain on turn in their order of readiness. Similarly, ships ready, but wishing to defer their loading, shall retain their position on turn."

Great Lakes Grain Freight Rates.

Press dispatches from Cleveland, Ohio, during October, showed a steady demand for grain tonnage for the Great Lakes, and a general increase in rates over those for September, which had shown a general stiffening from the lower summer rates. Following is a summary:—

Oct. 2.—With tonnage in good demand, 5c was freely offered to Buffalo, for early loading, but, in many cases, cargoes were declined on account of congestion at the elevators. Two large ships placed at head of lakes for loading at 5c, during the following week, on understanding that there would be room at elevators on arrival at Buffalo. Two ships chartered to load at Michigan ports for Georgian Bay, at 3½c, with dispatch guarantee. Rate bid from Duluth and Fort William to Buffalo for the last half of October was 5½c.

Oct. 4.—Grain offered freely, but cargoes not taken for early loading without dispatch guarantee. Three ships chartered at head of lakes at 5c, to Buffalo, with demurrage at \$800 a day for detention over 96 hours. A charter was made from South Chicago to Georgian Bay at 3½c, with demurrage at \$750 a day after 72 hours.

Oct. 9.—Chartering active, with shippers' dispatch guarantees. Charters made at head of lakes for Buffalo at 5½c. Two ships placed, with \$1,000 a day demurrage for detention at unloading port over 72 hrs., and one charter with demurrage at \$1,500 a day after 72 hrs. Two charters from Duluth to Georgian Bay at 5c, with demurrage at \$1,000 a day over 72 hrs., and a charter from a Michigan port to Georgian Bay, at 3½c on same basis. A charter was made to lead at head of lakes between Nov. 15 and 25, for Buffalo, at 7c, and some storage business was done at that figure.

Oct. 10.—Chartering active. A charter from Fort William to Port Huron, or Toledo, was made at 5c, with dispatch guarantee, and demurrage for detention over 72 hrs.

Oct. 11.—Last trip and winter storage rates quoted at 8c, and three charters made, from Duluth or Fort William, for last half of November, to hold at Buffalo, and another for first week of December, to hold at Erie. Michigan and Georgian Bay ports quoted at 3½c, with dispatch guarantee. Grain carriers reported held at Buffalo a week or more, with no immediate improvement in dispatch expected.

Oct. 12.—Rate from head of lakes to Buffalo steady at 6c, with an advance for late loading tonnage. Two ships placed at 6c for Buffalo, with \$1,000 demurrage after 72 hrs., and another from Fort William to South Chicago at 6c, with \$1,500 demurrage after 72 hrs. The latter grain is for shipment to the Gulf of Mexico by rail, for ocean shipment, on account of congestion at lower lake receiving ports.

Oct. 13.—Rate from head of lakes to Buffalo at 6c, for prompt loading, with dispatch guarantee, and 8½c for last trip and storage.

Oct. 17.—For late November loading and storage, 7½c was bid. The demand for tonnage slowed up, and the rate for early loading was shaded. Charters for 6-day loading were made at 5c and 6c, with dispatch guarantee. A charter was made from head of lakes to South Chicago, at 5½c, and \$1,000 a day demurrage over 72 hrs., and to Buffalo at same rate, with demurrage at \$1,000 a day after 96 hrs. Later, a charter was made to Buffalo at 6c, with \$800 a day demurrage over 96 hrs.

Oct. 18.—A ship was placed at Duluth, to load for Georgian Bay, at 5½c, with \$1,000 a day demurrage after 72 hrs., and 5c was bid for Buffalo, with some tonnage on the market at 5½c.

Canadian Pacific Railway Ocean Steamship Services.

The s.s. Empress of Scotland made her last trip of the season on the St. Lawrence route, during the last days of September. She is to be laid up for several months, during which she will be reconditioned in preparation for a Mediterranean cruise of 65 days, sailing from New York, under charter to F. C. Clark, Feb. 3, 1923.

The steamships Empress of India, and Corsican, have been chartered by the British Government for the transportation of troops to the near east. The necessary changes in both ships were made at Glasgow, after which they proceeded to Southampton, for orders. It is stated that the first named ship carries about 2,500 men a trip, and the latter, 1,500. The s.s. Scotian is also under charter for the transportation of troops to and from India.

A New York nautical paper of Sept. 23, contained an item headed "C.P.'s New Cargo Fleet," as follows: "The Canadian Pacific is building a great fleet of steel cargo ships. These include the Batsford, Bolingbroke, Bosworth, Boswell, Dunbridge, Holbrook, Mottawa, Methven, Montezuma, Motisfont and others." This item is a little behind the times, as these ships were built as follows: Methven, 1906; Mattawa, 1912; Batsford, 1914; Bolingbroke, Holbrook, Mottisfont, 1917; Montezuma, Dunbridge, 1918, and Bosworth, 1919, and, with others, were bought by the C.P.R. towards the end of the war, in 1918.

Large quantities of German goods are being carried by Canadian liners in bond from Germany to the western states. U. S. customs officials state that this year is the first in the annals of shipments that such goods have been shipped from Hamburg to the U.S. by C.P.R. ships and rail to their destination in the U.S. They claim they get better service and quicker dispatch via this route owing to the perfect organization of the services in Canada and in Europe.—Nautical Gazette, New York.

The s.s. Empress of Britain, shortly after leaving Cherbourg, France, Oct. 13, was struck by the Spanish s.s. Nadia, and her plates penetrated to the extent of about 3 ft. The Empress of Britain was

slowed down for about 10 minutes, to see if the Nadia required assistance, and, as she did not, the run to Southampton was continued.

The s.s. Empress of Scotland, which was reported recently, as about to be converted to an oil burner by the Todd Shipbuilding Corporation, New York, has been using oil as fuel all the time she has been under C.P.R. operation, having been converted to that system before being handed over by former German owners. What is now being done by the Todd Shipbuilding Corporation is the refitting of the ship with that company's style of oil burners.

The s.s. Empress of France is scheduled to sail from New York, Jan. 23, 1923, on a 4 months cruise to Havana, Panama Canal, Cocos Island, San Francisco, Honolulu, Yokohama, Tokio, Kamakura, Osaka, Kyoto, Kobe, Nagasaki, Hong Kong, Canton, Manila, Batavia, Singapore, Rangoon, Calcutta, Bombay, Sindy, with optional trips to Darjeeling, Benares, Lucknow, Cawnpore, Agra, Delhi, etc. The voyage will be continued through the Red Sea and the Suez Canal, visiting Port Said, Cairo, and calling at Naples, Gibraltar and Havre.

Esquimalt Naval Matters.—It is announced that Engineer-Lieut.-Commander G. L. Stephens, who has been associated with the Royal Naval College at Esquimalt, B.C., for the past two years, has been appointed in charge of the naval dockyard there, vice Engineer-Commander Clarke, who is stated to have been transferred to H.M.C.S. Patriot at Halifax, N.S. It is also stated that H.M.C.S. Patrician is to be taken to Esquimalt, to be used as a training ship in connection with the formation of a naval militia.

The Icebreaking Steamship J. D. Hazen, originally built for work in the St. Lawrence ship channel, which was sold to the Russian Imperial Government, during the war, for service in the White Sea, and since bought by the Dominion Government from the French Government, is now at Sorel, Que., for the winter, during which she will be overhauled in readiness for her work next spring. The statement, by a Toronto contemporary, that she "was lying idle in the port of Archangel when the Canadian Government purchased her," is incorrect, as at the time negotiations commenced, she was at Cherbourg, France, and had been there for some time. Authorities have been absurdly silent as to how, and when, she got to Cherbourg from the White Sea.

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during September, 1922:

Articles	Canal	U.S. Canal	Total
Lumber	114	34,305	34,419
Flour	959,320	600,730	1,560,050
Wheat	1,678,300	35,841,914	37,520,214
Grain, other than wheat.....	876,201	14,852,198	15,728,399
Copper	3,880	5,261	9,141
Iron Ore	5,152	6,652,996	6,658,148
Pig Iron	100	5,690	5,790
Stone	1,300	2,842	4,142
General Merchandise	8,348	1,406	9,754
Passengers	2,930	1,496	4,426
Coal, Soft	15,340	2,338,405	2,353,745
Coal, Hard	10,805	10,805	10,805
Iron Ore	843	2,893	3,736
Manufactured Iron and Steel..	979	8,590	9,569
Salt	19,437	19,437	19,437
Oil	71,202	71,202	71,202
Stone	29,480	36,951	66,431
General Merchandise	2,566	1,508	4,074
Passengers	491	1,991	2,482
Summary			
Vessel Passages			
Registered Tonnage	645,291	7,144,848	7,790,139
Freight—Eastbound	184,733	8,266,398	8,451,131
Westbound	46,642	2,488,283	2,534,925
Total Freight	231,375	10,754,681	10,986,056

Canadian Government Merchant Marine Operations, Etc.

Officers of Steamships.—The following appointments and changes in captains and chief engineers have been made since those published in our last issue: s.s. Canadian Adventurer, Capt. A. M. Wright, chief engineer, W. P. Craig; s.s. Canadian Commander, Capt. R. V. Bennett, vice Capt. D. H. Maclean; s.s. Canadian Engineer, Capt. J. Williams, chief engineer, E. G. Rankin; s.s. Canadian Farmer, Capt. A. J. Edgecombe, vice Capt. W. J. Boyd; s.s. Canadian Navigator, Capt. A. J. Gilbert, vice Capt. D. M. Dickson; s.s. Canadian Pathfinder, Capt. W. Carson, chief engineer, W. Lamb; s.s. Canadian Sailor, Capt. A. Stenson, chief engineer, J. M. Bowden; s.s. Canadian Sower, Capt. O. V. Percival, chief engineer, J. A. Crepeau; s.s. Canadian Squatter, Capt. R. A. Goudey, vice Capt. F. W. Boulton; s.s. Canadian Trader, Capt. R. D. Simpson, chief engineer, L. Lambert.

The s.s. Canadian Cruiser, which arrived on this side recently, with about 9,000 tons of coal from Hull, Eng., is one of the largest of the C.G.M.M. ships. On her eastbound trip she took about 8,000 tons of cargo to London, which was discharged in 4½ working days. She then proceeded to Hull for coal. She attracted considerable attention there, as the largest steel ocean freight steamship built in Canada, and comments on her appearance and equipment were complimentary. Her estimated speed is 12 knots, on 4 boilers, but the captain stated that on that trip, he made 13½ knots on 3 boilers.

The s.s. Canadian Voyageur, which has been laid up at Halifax, N.S., since the autumn of 1921, when she dragged her anchors in Bedford Basin, during a gale, afterwards going ashore and causing considerable bottom damage, was docked at the Halifax Shipyards plant, Sept. 18, for the renewal and repair of 31 bottom plates, which was completed Oct. 4.

Great Lakes Grain Service.—The steamships Canadian Engineer and Canadian Sailor, which have been laid up for some time at Goderich, Ont., and the steamships Canadian Adventurer, Canadian Pathfinder, Canadian Sower and Canadian Trader, which have been laid up at Midland, Ont., have been chartered to carry grain from the head of the Great Lakes to Goderich and Georgian Bay.

Montreal sailings.

Liverpool service.—Canadian Miller Nov. 8, Canadian Mariner Nov. 22.

London service.—Canadian Commander Nov. 11, Canadian Leader Nov. 22.

Cardiff & Swansea service.—Canadian Otter Nov. 15.

Glasgow service.—Canadian Carrier Nov. 15.

Australia & New Zealand service.—Canadian Planter, Nov. 18.

Barbados, Trinidad & Demerara service.—Canadian Coaster Nov. 8, Canadian Harvester Nov. 22.

Hamilton, Nassau, Kingston, Belize, Bermuda, Bahamas, Jamaica, British Honduras service.—Canadian Forester Nov. 16.

Newfoundland service.—Canadian Sapper Nov. 18.

Vancouver sailings.

Australia service.—Canadian Highlander Nov. 10, Canadian Skirmisher Nov. 20, Canadian Traveller Dec. 20.

Oriental service.—Canadian Winner Nov. 5.

India service.—A steamship in Jan. 1923.

Atlantic and Pacific Oceans.

A general reduction in ocean freight rates to United Kingdom ports, effective Oct. 9, by steamship companies, members of the United Kingdom conference, was announced in New York, Oct. 6. The reductions range from 5 to 40% below previous rates.

The Royal Mail Steam Packet Co's motorship Loch Gail, which was launched at Govan, Scotland, recently, is expected to be ready for operation to British Columbia ports during this autumn. She is a twin screw ship of 9,500 tons gross, and engined for a speed of 12½ knots an hour under full load. Her dimensions are: Length, 502 ft.; breadth, 62 ft.; depth, 35.6 ft.

A Vancouver, B.C., press dispatch of Oct. 7, stated that an irregularity had been discovered in the turbine shaft of the s.s. Empress of Australia, and that she had been brought back to port while on her second voyage to the Orient, to have the matter attended to. It was stated that the necessary repairs would probably have to be made in the U.S., owing to the difficulty of finding equipment to lift the shaft.

The White Star Line has announced that it will inaugurate a cabin and third class steamship service, this autumn, between New York and Bremen, with the steamships Canopic and Pittsburg, calling at Halifax, N.S., westbound, and possibly eastbound as well. The Canopic has been operated on the St. Lawrence route during the summer, and the Pittsburg is a sister ship of the Regina, and is new this year. She has accommodation for 600 cabin and 1,700 third class passengers, and burns oil. The first sailing on this route is scheduled to take place from Bremen, Nov. 10, with the Canopic.

Maritime Provinces and Newfoundland.

A whistling buoy, which broke from its moorings off the Nova Scotia coast, near Guysboro, during the winter of 1921-22, has been reported off the coast of Ireland.

The Newfoundland Marine Department gives notice that the acetylene gas light at La Scie, lat. 49° 48' 59", long. 55° 44' 10", has been re-established, and now shows a white instead of a red light.

The Southgate Import & Export Co., Norfolk, Va., is reported to be opening a branch agency at St. John, N.B., and will, it is stated, operate a steamship service from St. John to southern U.S. and West Indian ports.

The U.S. s.s. Lake George, which went ashore on Indian Island, near Petite Riviere, N.S., towards the end of September, was released after two days, by the wrecking s.s. Maggie Marshall, of Halifax. She was en route from Philadelphia to the Great Lakes.

We are officially advised that the Reid Newfoundland Co's s.s. Home, which grounded off the Labrador coast at the end of August, was refloated, and continued her voyage with little damage. Press reports, as mentioned in our last issue, indicated that she had been seriously damaged, and was expected to become a total loss.

The ferry revenue at St. John, N.B., for September decreased \$654.58, the total figures being, revenue, \$1,933.54; passengers, 126,972; compared with, revenue, \$2,438.46; passengers, 156,212, for Sept., 1921. The team travel by the ferry, for September, was 7,914, and the revenue, \$692.83, compared with 9,991 and \$841.49, respectively, for Sept., 1921.

The schooner Madeline Constance, of St. John's, Nfld., was abandoned on fire in lat. 48.03 north, long. 37.05 west, late in September. The crew were taken off by another ship. The Madeline Constance, which was owned by Job Brothers, was 418 tons gross, equipped with auxiliary power, and inbound to St. John's, from Rotterdam.

Reports at Sydney, N.S., Oct. 11, from three sources, stated that an unknown coal freighter had sunk off Cape Breton, about 2 miles north of Cape North, at the entrance to the Gulf of St. Lawrence. Advices from the Dominion Coal Co. and the Nova Scotia Steel and Coal Co., stated that all their ships were accounted for, and it was thought that it might possibly be a tramp steamship bringing coal from England.

A number of harbor improvement works have been commenced recently, at various ports in Newfoundland. These include the breakwater at Twillingate, general improvements at Bonavista, commenced last year, and accommodation for motor boats at English Harbor. The work proceeding at Bonavista includes the construction of a harbor for motor boats, about 300 of which have to be accommodated.

While no definite move is reported in the matter of a steamship service between St. John's, Nfld., and the British West Indies, tenders for which were invited by the Newfoundland Government recently, it is stated that the s.s. Kriton, at present under charter to the Union Trading Co. for a voyage to Mediterranean ports, will, on her return to St. John's, be placed in the West Indian service.

The Red Cross Line's s.s. Sylvia, bought from Russian owners recently, to replace the s.s. Stephano, which was torpedoed by a German submarine, while on her route between St. John's, Nfld., and New York, during the war, is 337 ft. long, 5,000 tons gross, and has a speed of 16 knots an hour. She has accommodation for 150 first and 50 second class passengers. She is being operated on the St. John's, Halifax, New York route, with the s.s. Rosalind, on a weekly schedule.

The s.s. Bay Queen, owned by Mayflower Shipping Co., Halifax, N.S., was reported at the end of September, to have been abandoned in a sinking condition, near Grand Etang, N.S., when bound for Boston, Mass., with a cargo of fish. She sprang a leak when about an hour out, and the crew were compelled to abandon her immediately. She later drifted ashore. She was built at Levis, Que., in 1917, and was screw driven, by engine of 24 h.p. Her dimensions were: Length, 84 ft.; breadth, 19.2 ft.; depth, 10.3 ft.; tonnage, 99 gross, 42 net.

The Oconee Steamship Co's steamboat Dream foundered in the St. John River, N.B., near The Mistake, Oct. 20, and 5 out of 7 passengers were drowned, the crew of four being saved. She was built at Newark, N.J., in 1881, and was screw driven by engine of 12 h.p. Her dimensions were: Length, 63.9 ft.; breadth, 14.1 ft.; depth, 5 ft.; tonnage, 66 gross, 45 net. She had been operated in the river service for about 18 months, and was formerly owned by Senator W. H. Thorne, as a pleasure yacht.

The s.s. Strathcona, attached to the Grenfell Labrador mission, foundered near Cabot Island, Oct. 2, when on her voyage from St. Anthony to Bay Roberts, Nfld. A few days prior to this, she sprang a leak, during heavy weather, but it was

not regarded seriously. When about 10 miles from St. John's, the water had made such serious headway that she had to be abandoned, and she sank within half an hour of the crew having been taken off by the schooner Grace. The Strathcona was built at Dartmouth, England, in 1899, and was screw driven by engine of 30 h.p. Her dimensions were: Length, 90 ft.; breadth, 18 ft.; depth, 8.7 ft.; tonnage, 84 gross, 28 net.

Province of Quebec.

The Sincennes-McNaughton steam tug Spray, has had its name changed to Gerald Morgan.

During September, 48 seagoing ships left Quebec for overseas, carrying 298,159 tons, and 26 coasting schooners also left, with a tonnage of 10,100.

Government advances to the Montreal Harbor Commissioners, for harbor improvements, now total \$20,048,000, out of an authorized total of \$26,055,000. An additional advance of \$627,000 was made recently to cover work done up to the end of June.

The Sincennes-McNaughton Line's tug Matilda struck the s.s. Meropi, which was lying at the jetty alongside elevator no. 2, at Montreal, Oct. 4, and damaged one of her stern plates about 8 ft. above the water line. The damage was repaired without delaying the ship.

The Dominion Government has passed an order in council confirming Montreal Harbor Commissioners' new bylaw 93, fixing rates to be charged for handling grain between ships and elevator, and elevator and ships, at the G.T.R. elevator at Windmill Point.

A number of members of the American Association of Port Authorities, who had been attending the annual meeting at Toronto, Sept. 12-14, and who later, visited Montreal, were the guests of the Quebec Harbor Commissioners during the last week of the month, and inspected the harbor. They were also the guests of the C.P.R. on the s.s. Empress of Scotland, for luncheon.

The s.s. Richelieu, owned by Mrs. J. L. Leclaire, Sorel, Que., and operated as a ferry between Verdun and Laprairie, was practically destroyed by fire, at the end of September, while tied to her wharf at Laprairie. She was built at Sorel in 1915, and was screw driven by engine of 13 h.p. Her dimensions were, length 96.3 ft., breadth 22.5 ft., depth 6.9 ft., tonnage 194 gross, 118 net.

It is said that during September, three world's records for unloading and loading grain, were broken at Montreal. In one day, 1,569,393 bush. were loaded for sea, while 800,000 were unloaded, a total of 2,369,393 moved in one day. In another case, a ship arrived in port at 5.30 a.m., was berthed at 7 a.m., delivery of grain commenced at 8 a.m., and the ship put out to sea, the same evening, with 242,000 bush. in her hold.

The Canadian Government ship Arctic, which sailed from Quebec, about the middle of July, for northern waters, returned to Quebec, Oct. 2, having accomplished the objects for which she set out, earlier than was anticipated. It was not expected that she would return until about the end of November. It is said that the object of the voyage, which extended to Ellesmere Land, was to land mounted police at northern points for the maintenance of order, and to prevent the landing of nomad Eskimos from Greenland into Canadian territory.

From reports issued by the Montreal Port Warden, it is anticipated that the

current season at that port will be a record one. Up to Oct. 8, 722 ocean steamships had arrived, against 636 for the same period last year. The tonnage for the 1922 period was 2,618,506, against 2,080,567 for the 1921 period. To the same date, 175 coasting ships had arrived, against 138 for the same period 1921. Of the 722 arrivals, the owning countries and numbers were as follows: Great Britain, 502; Norway, 75; Italy, 39; U.S., 38; Denmark and Holland, 21 each; France, 8; Greece, 7; Sweden, 6; Spain, 2; Jugo-Slavia, Finland and Germany, 1 each.

Ontario and the Great Lakes.

The Mathews Stamship Co. has bought the s.s. Dornoch, formerly Iroquois, from A. B. Mackay, London, Eng., and formerly of Hamilton, Ont., and is having her name changed to Brookton.

The Mathews Steamship Co's s.s. Mathewston, built by the Port Arthur Shipbuilding Co., sailed from Port Arthur, Oct. 8, on her maiden trip to Port McNicoll, with over 400,000 bush. of grain.

Canada Steamship Lines' s.s. W. D. Matthews, which ran aground at Cove Island, Lake Huron, Oct. 7, was released Oct. 10, and proceeded to Port McNicoll with her grain cargo. It was expected that, after unloading, she would be dry-docked at Midland for overhaul.

The Northern Navigation Co. discontinued its passenger service on the Great Lakes for the season, with the sailing of the s.s. Hamonic, westbound, from Sarnia, Oct. 24, Sault Ste. Marie, Oct. 25, and Port Arthur, Oct. 26, and eastbound from Duluth, Minn., Oct. 27, Port Arthur, Oct. 28, and Sault Ste. Marie, Oct. 29.

The masts of the schooner Oliver Mowatt, which was sunk in collision with Keystone Transports' s.s. Keywest, about 1½ miles west of Main Ducks Island, Lake Ontario, Sept. 1, 1921, have been removed, and as the wreck is no longer a menace to navigation, the green gas buoy which had marked it has been removed.

Considerable additions have been made during this year to the grain elevator capacity at Fort William. The Northwestern Elevator Co. has built an annex to its elevator for an additional 2,000,000 bush., and it was expected to be ready to receive grain during October. N. M. Paterson Co's 1,000,000 bush. addition was also expected to be ready to receive grain during October.

The U.S. Lake Survey reports the mean stages of the Great Lakes for September, in feet above mean sea level, as follows,—Superior 602.69; Michigan and Huron 580.33; St. Clair 575.19; Erie 572.33; Ontario 246.03. Compared with the average September stages for the past 10 years, Superior was 0.07 ft. below; Michigan and Huron 0.43 ft. below; Erie 0.18 ft. below, and Ontario 0.19 ft. below.

The Northern Navigation Co's s.s. Louis Philippe which was placed in the ferry service between Sarnia and Port Huron, in the spring, has been withdrawn owing, it is stated, to a lack of patronage by foot passengers, due to the Port Huron terminal being farther from the center of the city, than the Port Huron and Sarnia Ferry Co's terminal. The service had been in operation for about 18 weeks, during which, 27,000 automobiles and 160,000 pedestrians were carried.

The Toronto City Council has sanctioned additional repairs to its steam tug G. R. Geary, which is being overhauled at Toronto by the All Weld Co., under

contract, for \$1,806. The additional repairs were considered necessary after an examination of the hull in drydock, when it was found that the frame between the forward and coal bunker bulkheads and also two plates attached to them, were badly deformed.

A. F. Hamelin has been awarded \$625 against Canada Steamship Lines Ltd., under the Canada Shipping Act, by the Superior Court, for wages due while chief engineer of the company's s.s. Syracuse in 1917. He stated that he had been engaged as chief engineer of the Syracuse for the season, at \$1,200, but that after a time he had been changed to another ship, and later dropped from the service. The company pleaded that the contract had been cancelled, provision to that end having been made. The court held that there was no evidence of this.

Th dredging operations, which have been in progress in the southbound channel of the St. Clair River, since June 2, were concluded during October, the entire Middle Ground shoal between Sarnia and Port Huron having been removed to a depth of at least 22 ft. By Oct. 20, the total width of the river was available for ships. Two red and black horizontally striped gas buoys showing occulting red lights were placed on the International Boundary, and a black gas buoy showing an occulting white light near the shore in front of Port Huron. All up-bound ships should hold to the east of the two red lights, making such a sweep above the upper one as to leave ample width for downbound ships, which should use the white light as an approximate location for beginning their down sweep, having available all the water to the west of the two red lights in mid stream for that purpose.

The s.s. Wahcondah has been bought by A. B. Mackay, London, Eng., and formerly of Hamilton, resold to Capt. J. B. Foote, Toronto, and associates, and placed in service carrying grain from Port Colborne to Montreal. She was built at Glasgow, Scotland, in 1903, with a steel hull, and is screw driven by engine of 148 h.p. Her dimensions are: Length, 230.4 ft.; breadth, 37.1 ft.; depth, 21.8 ft.; tonnage, 1,554 gross, 996 net. She was originally owned by the New Ontario Steamship Co., Hamilton, Ont., R. O. and A. B. Mackay, Managing Owners. She was transferred, with other of the Mackay properties, to the Inland Navigation Co., in 1908, which company was later absorbed by the Richelieu & Ontario Navigation Co., and which, in turn, became one of the constituents of Canada Steamship Lines Ltd. The Wahcondah, which has always been on the British register, was sent overseas, with other of the company's ships, during the war, and has been owned by the Hartlepool-Seaton Steamship Co., West Hartlepool, England, and the Bride Steamship Co., Cardiff, Wales.

Humor in Radiotelegraph Messages. Sir Thomas Fisher, General Manager, Canadian Pacific Steamships Ltd., who arrived in Canada recently from England, on a business trip, states that the Marconi operators on the C.P.R. ships have many stories to tell of humorous radiotelegraph messages sent by passengers to their friends. A message frequently sent, and which has almost become standard is "Third epistle St. John, verses 13 and 14," which read "I have many things to write, but I will not with pen and ink write unto thee, but I trust I shall shortly see thee and we shall speak face to face."

Manitoba, Saskatchewan, Alberta and Northwest Territories.

The Hudson Bay Co's steamboat Liard River, running between Fort Simpson, Fort Nelson and Fort Liard, was wrecked about 20 miles from Fort Nelson, recently, and became a total loss. Owing to the exceptionally low water in the river this year, the boats have experienced much difficulty in navigating. The boiler, engines and other machinery were removed from the hull. She was built at Fort Smith in 1919, and was paddle wheel driven by engine of 3¼ h.p. Her dimensions were: Length, 81.8 ft.; breadth, 16.8 ft.; depth 3 ft.; tonnage, 113 gross, 77 net.

Provincial Treasurer Black, of Manitoba, is reported to be looking into the possibilities of the development of northern Manitoba for tourist traffic, and has arranged with Capt. G. Robertson, formerly of the C.P.R. British Columbia Lakes and Rivers Service, for a report on the situation generally. A trip has been made to various points on Lake Winnipeg and tributary waters, on the s.s. Wolverine, and the matter is to be discussed by a committee of Winnipeg business men, with the possibility of forming a company, with headquarters at Selkirk, to co-operate with existing services.

British Columbia and Pacific Coast.

The cable repair steamship Restorer sailed from Esquimalt, recently, after having undergone some minor repairs at Yarrows Ltd. yard, for Midway Island, to do repair and overhaul work on the Pacific cable.

The Pacific Salvage Co's salvage steamship Algerine was dispatched Sept. 30, to Icy Strait, Alaska, to assist the Alaska Steamship Co's s.s. Ketchikan, which had been beached there following collision with an iceberg.

The navigation season on the lower Yukon River, closed Oct. 9, with the sailing of the steamboat Dawson, from Dawson City, for White Horse. The river was reported free from ice, and it was expected that several motor boats would make the trip later in the month.

The Hudson Bay Co's s.s. Baychimo, which arrived at Esquimalt, in the early part of the year, and was operated in the northern trade during the summer, is reported to have been chartered to G. Amsinck & Co., to load lumber at Eureka, Cal., for Belfast, Ireland.

H.M.C.S. Patrician sailed from Halifax, N.S., Oct. 1, for Esquimalt, B.C., via the Panama Canal, calling at Bermuda, Jamaica, Balboa, Libertad and San Pedro. She is due at Esquimalt, about Nov. 1, and will be used for instruction purposes on the Pacific coast.

The Canadian Navigators' Federation is protesting against what it claims to be an infringement of the Canada Shipping Act, by a number of comparatively large ships being operated along the Pacific coast by uncertificated Japanese. The Canada Shipping Act provides that coast steamships of over 500 tons must be commanded by a certificated master.

The ferry steamboat Harvester King, which was operated between Anacortes, Wash., and Sidney, B.C., during the summer, is considered to be too small for the traffic, and it is stated that a larger and faster boat will be built shortly, to be ready for next summer. During the last summer, the boat made 159 trips in 158 days, and carried 3,600 automobiles and 15,000 passengers.

The Vancouver Harbor Commissioners stated recently that a new tug, equipped for fire fighting, to be supplied by the Dominion Government for the harbor, was expected to be ready, on the St. Lawrence River, about the middle of October, and that she would sail thence, about the end of that month, and arrive at Vancouver, about the end of January, or early in February, 1923.

Negotiations are reported in progress by Japanese interests for the purchase of the steamships City of Vancouver and City of Victoria, owned respectively by Vancouver Steamship Co., and British Canadian Steamships, Ltd., both subsidiaries of J. Coughlan & Sons, Ltd., which built them in 1920. Each is screw driven by engines of 266½ h.p. They have the following dimensions: Length, 411.5 ft.; breadth, 54.1 ft.; depth, 27.5 ft.; tonnage, 5,699 gross, 3,530 net.

A board of conciliation, consisting of R. S. Lennie, chairman; E. A. James, for the company, and John Fyfe, for the men, has been appointed to deal with the dispute between the C.P.R. British Columbia Lakes and Rivers Service and its employees, members of the Canadian Navigators Federation and the National Association of Marine Engineers. The number of employees involved is about 55, engaged on steamboats on the Kootenay, Slokan, Arrow and Okanagan Lakes. The actual number of men affected by the dispute is 1,250.

The C.P.R. s.s. Princess Charlotte has been withdrawn from service between Victoria, Seattle and Vancouver, for the winter, owing to the closing of the tourist season. She has been berthed at Victoria, and will be prepared for a general machinery overhaul. The steamships Princess Adelaide and Princess Victoria are continuing on the route, and the night service between Vancouver and Victoria is being carried on by the steamships Princess Alice and Princess Louise. The Alaska service will be continued during the winter by the s.s. Princess Mary.

The British Columbia Towboat Owners Association and the Puget Sound Towboat Owners Association have agreed that tugs with tows from either side of the International Boundary will tow only to the nearest port of entry, and there release the tow to a tug of some concern at that point, which will agree to continue the haul to its destination. The associations also agreed that drift logs picked up on either side of the boundary and belonging to parties on the other side shall be collected and towed to the line and turned over to tugs of the country in which the owners are located.

J. W. Troup, Manager, Capt. G. D. Neroutsos, Marine Superintendent, British Columbia Coast Service, C.P.R., W. H. Snell, General Passenger Agent, and H. G. McNab, Division Freight Agent, C.P.R., Vancouver, are stated in a press report to have visited Sidney and the neighborhood early in October, to consider the establishment of a new short ferry route between the mainland and Vancouver Island. It is stated that the mainland point to be selected will probably be Bellingham, Wash., and that Sidney will likely be the island terminus. The plans for a ferry steamboat are said to be well forward, and it is expected that a contract for its construction will be awarded in the near future.

The Dominion Public Works Department received tenders to Oct. 24, for the construction of a training wall 4,100 ft. long, opposite buoy 30 in the Woodward channel of the Fraser River, near Steveston. This wall will occupy the south side of the King Edward cut in the main

channel, and is intended to confine the flow of water, so as to maintain the work now being done by dredge 303. The estimated cost of the construction is \$100,000. This work is stated to be a portion of a comprehensive scheme for the improvement of navigation in the Fraser River. It is stated that tenders will be asked for shortly for the completion of the last 1,000 ft. of the jetty at the sandheads. The original contract was awarded to J. S. Connell Co., Vancouver, but was abandoned owing to unfavorable weather, after about 2,000 ft. had been built.

Dangers of Cargo Shifting.

The British Board of Trade has issued a warning to shipowners and masters, in regard to the dangers occasioned ships and crews by the shifting of cargoes, and this warning has been embodied among the notices to mariners, issued by the Dominion Marine Department, as follows: Cases have been brought to the Board of Trade's notice where ships have been lost or abandoned through the shifting of the cargo or ballast. These accidents would not have occurred if the cargo had been well and carefully stowed, and if proper steps had been taken to prevent shifting. The following kinds of cargo and ballast are particularly liable to shift: Sludge iron ore or bog ore; flint stones; coal, especially anthracite (peas) and small nuts; shingle ballast. Where these or similar kinds of cargo or ballast are loaded, shifting boards should be fitted fore and aft at the middle line of the ship, extending from the keelson, or ceiling, to a reasonable height above the cargo (say 3 ft.). It is the duty of those concerned with sending British ships to sea to see that proper precautions are taken to prevent the cargo or ballast from shifting, and it will be remembered that under the Merchant Shipping Acts, a heavy responsibility is incurred by any person who sends, or is a party to sending, a British ship to sea in such a condition that the life of any person is likely to be thereby endangered.

James Bay & Nottaway River Development & Navigation Co.—A Detroit, Mich., press dispatch recently said: "Capt. Ben Tripp, Vice President and General Manager, James Bay & Nottaway River Development & Navigation Co., has return from England, where he went with plans and specifications for two new steamships to be built for African West and South Coast trade. One of them will ascend the rivers and collect various kinds of raw material, conveying it to the coast, to be stored in warehouses until loaded on the larger ship for delivery at port of destination." Canadian Railway and Marine World has no information as to any company of the name mentioned, nor has it been able to obtain any from any of the shipping people it is in constant communication with. It has been impossible to secure any confirmation of the dispatch, and we think that the statements contained in it should be taken with a grain of salt. Capt. Tripp was, many years ago, in command of the old s.s. Chicora, when she ran on the upper lakes.

T. H. Angell, chief engineer, Canadian Government Merchant Marine's s.s. Canadian Sapper, writes: "I am pleased to tell you I am receiving Canadian Railway and Marine World quite regularly, and I enjoy the contents very much. There is certainly a pile of news in it. You must be an energetic bunch of fellows to get it all together."

Mainly About Marine People.

Hugh Allan, formerly of Allan Steamship Line, and Mrs. and Miss Rachael Allan, returned to Montreal, early in October, after spending the summer in England.

John Russel Binning, Manager for Canada and Newfoundland, Furness, Withy and Co., died at the Royal Victoria Hospital, Montreal, Sept. 30, after a prolonged illness. He was born at Hamilton, Scotland, Aug. 16, 1866, and was for some time, engaged in shipping business in Scotland. He came to Canada in 1888, and entered C.P.R. service in the Foreign Freight Department, at Montreal, of which he became chief clerk. He entered Furness, Withy and Co's service in 1898, as Assistant Manager, and in 1903 was appointed Manager at Montreal, and in 1920 Manager for Canada and Newfoundland. He was Treasurer of the Shipping Federation of Canada, a member of the Montreal Board of Trade and the Montreal Corn Exchange. His son, A. R. Binning is with Furness, Withy & Co. The Shipping Federation of Canada, at a general meeting, Oct. 9, adopted a resolution of sympathy with his relatives, and expressing appreciation of his services to the shipping trade, pointing out that he was one of the incorporators of the Federation, and served as a member of the executive committee, and, as Treasurer, was responsible for its successful financing.

St. George J. Boswell, B.A.Sc., who resigned his position as Chief Engineer, Quebec Harbor Commission recently after 46 years service, has been superannuated, but will continue to act as Consulting Engineer to the Commission. He has been succeeded as Chief Engineer by Brigadier-General T. L. Tremblay, who is also one of the commissioners.

Capt. J. W. Christie, formerly commander of the s.s. Canada, who has retired from the White Star-Dominion Line's service, after 51 years at sea, sailed from Montreal on the s.s. Canada, at the end of September, as a passenger, and will make his home at Weston-Super-Mare, Eng. He went to sea when 10 years old, and in 1877 as an apprentice served on the old sailing ship Seaforth, which carried the famous Hudson's Horse from India to the Dardanelles, at the time of the Russo-Turkish war, and landed the troops under Turkish fire at close range. During the recent war he served on the steamships Manxman, Irishman, Canada and Dominion, and with the last named ship was in charge of the conveying of low powered ships sailing out of New York. In 1914 he was presented with a silver loving cup by the King, for saving the crew of the schooner Banshee, which had been wrecked in the North Sea. In addition to the two wars named, he also served on transport duty during the Egyptian War of 1882 and the Boer War 1898-1902.

E. L. Cousins, General Manager and Chief Engineer, Toronto Harbor Commission, is reported as contemplating resigning, to engage in a private practice, but it is said that he will probably also act as Consulting Engineer to the Commission.

P. A. Curry, Manager, White Star-Dominion Line, who returned to Montreal, Oct. 7, after a six weeks trip to Great Britain, expressed the opinion that the shipping business generally was improving there. He announced that the new s.s. Doric, which is being built at Belfast, Ireland, will, most likely, be

ready to sail on her maiden voyage to Montreal, May 12, 1923. He also stated that the company intends, as soon as traffic shows sufficient signs of improvement, to build another steamship of about 17,400 tons, to replace the s.s. Laurentic, which was torpedoed by the Germans during the war.

G. J. Desbarats, C.M.G., B.Sc., C.E., Deputy Minister of the Naval Service, has been appointed acting Deputy Minister of Militia and Defence, the Deputy Minister, Major General Sir Eugene Fiset, C.M.G., D.S.O., having been granted a year leave of absence, on the expiration of which he will be superannuated. On the formation of the National Defence Department, which will come into existence on the proclamation of the act providing for its organization, the Militia and Defence Department, the Naval Service Department and the Air Board will cease to exist, and will be merged in the National Defence Department.

Lieut. - Commander C. P. Edwards, Superintendent, Radiotelegraph Service, Marine and Fisheries Department, left Ottawa early in October, with Mrs. Edwards, for England, expecting to return early in December.

Miss Grace Harling, daughter of Thos. Harling, steamship agents, etc., Montreal, was married there, Oct. 7, to Lt.-Col. W. C. Nicholson, D.S.O., M.C.

A. W. Hepburn, who died in London, Eng., Oct. 3, aged 66, following an operation, was born at Montreal, and at an early age, was taken to Scotland, and returned to Canada in the early 70's, when he engaged in steamboat, lumbering and milling business at Picton, Ont. For some years he operated the steamboats Alexandria and Empress, between Montreal and Rochester, N.Y., by way of the Bay of Quinte. He also owned the steam barges Argyle, Rob Roy, Reid and Water Lily. He subsequently organized the business as the Ontario & Quebec Navigation Co., which formed one of the constituents of Canada Steamship Lines Ltd. The body was brought to Canada by the s.s. Montcalm, and was buried at Picton.

A Johnston, Deputy Minister of Marine and Fisheries, who left Ottawa, Sept. 7, for the Pacific Coast, returned early in October, after having visited Vancouver, Victoria and Prince Rupert.

G. W. Kyte, M.P. for Cape Breton South and Richmond, N.S., was appointed by the Dominion Government to represent Canada at the international fishing schooner races at Gloucester, Mass., recently.

Walter Lambert, M.I.N.A., naval architect, Montreal, has been instructed by United States interests to prepare plans and specifications for 2 steel tugs to be used in U.S. waters.

A. B. Mackay, ship owner, formerly of Hamilton, Ont., who has been living in England for several years, visited Canada recently for some weeks.

T. J. Robitaille, formerly Superintendent of Construction, Quebec Harbor, died at Lake Edward sanitarium, Que., Oct. 6.

W. J. Sergeant, who retired as Superintendent Engineer, Canadian Pacific Steamships Ltd., Liverpool, Eng., recently, was presented with a mahogany bureau and bookcase and wardrobe, and Mrs. Sergeant with a gold brooch, by the Liverpool staff. He had been connected with seafaring for 54 years. He served as an apprentice with the Northumber-

land Steamship Co., and later entered the service of T. and J. Harrison, Liverpool, with which firm his father served for 47 years, and he remained there for 25 years, rising through the various grades and sailing as chief engineer on a number of the firm's ships. Of the 25 years, about 14 were spent at sea, and the remainder in superintending the construction of ships. He was appointed Superintendent Engineer, Allan Line Steamship Co., in July, 1899, and was of great assistance in putting into service the first two turbine driven ocean going mail steamships, the Victorian and Virginian, in 1904. He continued in the service when the Allan Line was taken over by the C.P.R., and was associated with designing and construction of the later C.P.R. ships.

Robert Smith, K.C., Cornwall, Ont., who has been appointed a judge of the Supreme Court of Ontario, a member of the High Court Division, and ex officio member of the Appellate Division, vice Mr. Justice Sutherland, deceased, was Secretary-Treasurer, a director, and one of the largest stockholders in the Montreal & Cornwall Navigation Co.

R. Brock Thomson, whose appointment as Secretary, Canada Steamship Lines, Ltd., Montreal, was announced in our last issue, was born there, Sept. 5, 1886, and was, from Sept., 1903, to Apr., 1907, clerk, Canadian Bank of Commerce; Apr., 1907, to Feb., 1911, clerk, Royal Trust Co.; Feb., 1911, to June, 1917, accountant and transfer officer, Prudential Trust Co.; June, 1917, to Nov., 1918, Assistant to Comptroller, Canada Steamship Lines; Nov., 1918, to Feb., 1920, Assistant Treasurer, same company, all at Montreal; Feb., 1920, to Aug., 1921, representative, same company, London, England; Aug., 1921, to Sept., 1922, Assistant to Managing Director, same company, Montreal.

Senator Lorne C. Webster, President, Webster Steamship Co., Montreal, Mrs. Webster, Right Hon. Arthur Meighen and Mrs. Meighen, made a motor trip from Montreal to Lake Placid, N.Y., recently.

Franco-Boston Navigation Co.—A Boston, Mass., press dispatch recently stated that a bill in equity had been filed in the Superior Court there, on behalf of Canadian Government Rys., asking the appointment of a receiver for Franco-Boston Navigation Co. The bill states that the company was organized in 1919 with capital stock issued for \$25,400, and that the only assets consist of the schooner Addie P. McFadden, which was wrecked off the Azores, two months after the company's organization. It is claimed that \$15,000 was paid by the insurance company on account of the loss, and the possession of that amount is in dispute, it being held by an independent party. It is stated that half of the stock is owned by Canadian Government Rys., and the other half by A. Farvacque, St. Malo, France, who has given his consent to the filing of the bill, and who, with the C.G.R., claims the insurance.

G.T.R. Windsor-Detroit Ferry. — A press report states that G.T.R. engineers have made surveys at Windsor, Ont., and Detroit, Mich., with a view of securing landing places for a ferry to operate between those points. The matter was taken up with the Minister of Railways by the Windsor City Council, which is dissatisfied with the Detroit and Windsor Ferry Co's service.

Canadian Notices to Mariners.

The Marine Department has issued the following,—

51. Aug. 26.—142, New Brunswick, Bay of Fundy, St. John harbor and approaches, chart issued. 143, Canada, Atlantic coast, Cape Race to Cape Sable, new edition of radiotelegraph direction finding chart. 144, Nova Scotia, south coast, south entrance to Gut of Canso, wreck no longer a menace to navigation. 145, Quebec, St. Lawrence, entrance to Bersimis River, shoal, buoys established.

52. Aug. 30.—146, Nova Scotia, south coast, vicinity of Port Medway, changes in buoyage. 147, Nova Scotia, south coast, Pearl Island, fog horn to be established. 148, Quebec, Lower St. Lawrence River, Serpent Reef, Cloridorme and Magdalen Bay, shoals, change in position of buoy.

53, Sept. 6.—149, New Brunswick, St. John River, Musquash Island, light to be discontinued. 150, Nova Scotia, south coast, Barrington Passage, radiotelegraph station discontinued. 151, New Brunswick, Gulf of St. Lawrence, South Tracadie, light to be re-established.

54, Sept. 8.—152, Ontario, Lake Ontario, Main Ducks Island to Presqu'ile, new edition of chart. 153, Ontario, Lake Ontario, west end, Burlington, changes in lighting. 154, Ontario-Michigan, lower Detroit River, rules and regulations for navigating the Amherstburg and Livingstone channels not being observed, warning to mariners.

55, Sept. 13.—155, General, warning to ship owners and ship masters, danger of cargo shifting. 156, New Brunswick, Northumberland Strait, Richibucto harbor entrance, change in positions of bar and channel range lights. 157, Quebec, St. Lawrence River, below Quebec, The Traverses, new edition of chart.

56, Sept. 14.—158, New Brunswick, Bay of Fundy, St. John harbor entrance, positions of gas buoys to be changed. 159, Nova Scotia, Northumberland Strait, Merigimish harbor, French River, stakes placed. 160, Quebec, Gulf of St. Lawrence, St. Maurice de L'Echourie, light established. 161, Quebec, Saguenay River, Chicoutimi, lighthouse destroyed, temporary light.

57, Sept. 16.—162, Ontario, Great Lakes and River St. Lawrence, dates to which lights will be kept in operation.

58, Sept. 26.—163, Nova Scotia, south coast, Cockerwith passage, Woods harbor, color of light to be changed. 164, Quebec, Gulf of St. Lawrence, channel north of Anticosti Island, uncharted shoal.

59, Sept. 27.—165, British Columbia, Burrard Inlet, English Bay, False Creek, depths in channel. 166, British Columbia, Observatory Inlet, Granby Bay, Alice Arm and approaches, new edition of chart. 167, British Columbia, Chatham Sound, Tree Bluff, character and color of buoy.

60, Sept. 29.—168, Ontario, Lake Ontario, east end, between False Ducks and Main Ducks Islands, wreck no longer a menace to navigation. 169, Ontario, Lake Ontario, entrance to Niagara River, character of buoys to be changed temporarily. 170, United States, St. Clair River, southbound channel in front of Port Huron to be opened to navigation. 171, United States, St. Mary River, Rains Island shoal, spar buoy replaced by gas buoy.

61. Oct. 6.—172, Ontario, Lake Erie, Rondeau harbor, Shrewsbury wharf, light to be discontinued. 173, Ontario, Georgian Bay, Collingwood harbor, changes in buoyage.

Canal Statistics for August.

The Dominion Bureau of Statistics, Transportation Branch, has issued the following summary for August:—

Sault Ste. Marie.—Total traffic through the Canadian and United States locks at Sault Ste. Marie increased 2,787,476 tons, or 37% despite the fact that practically no coal moved west during the month. The increase was due to heavier shipment of grain and iron ore, while copper salt and stone, also increased over August 1921. Passenger traffic declined 6%.

Welland.—Total traffic increased 13,121 tons, or 3% over August 1921, the principal increases being in wheat, iron, steel and pulpwood. Soft coal moved in both directions, 9,703 tons being upbound, and 7,100 tons down. For the season, soft coal decreased 331,150 tons, while hard coal shipments were only 45 tons as against 9,269 last year.

St. Lawrence.—Cargoes of corn and coal decreased, but practically all other commodities increased, the net increase being 51,273 tons or 9% over August 1921. Wheat increased 93,833 tons or 3,127,760 bush., iron and steel increased 11,404 tons and pulpwood 25,016 tons, while no hard coal moved, and soft coal decreased 52,700 tons. There were 53,982 tons of soft coal passed through the canals, 45,326 west bound and 8,656 east bound. Passenger traffic increased 4,367 passengers or 19%.

Scotch Shipbuilding Trade's Conditions.

D. S. Cole, acting Canadian Trade Commissioner, Glasgow, Scotland, writes as follows:—Clyde shipbuilders have at least four contracts for new ships, as well as some reconditioning, and it is understood that work on these is commencing shortly. At present there is no information regarding further new orders. A tram ride along Dumbarton Road indicates that in some of the yards on the upper reach of the Clyde there are two and in some cases three ships ready for launching. When these are put into the water, their berths it is understood will be empty, and the firms state they have nothing to lay down. In the vast majority of the yards there is nothing but long stretches of empty berths. In the lower reaches there are very few ships on the stocks. After being closed down for about 9 months, Yarrow & Co. announce their intention to re-open their boiler department immediately apparently on a contract for some boilers for the Far East.

Speed on Trans-Pacific Voyages.—Complaints are reported to have been made to the U.S. Shipping Board, regarding the restrictions placed on its passenger ships on the trans-Pacific route, it being stated that by the limitation placed on them regarding speed, the best possible advertisement is being missed. The record for the fastest trans-Pacific passage, is, at present, held by the C.P.R. steamships, and these are also being operated under certain restrictions, as to speed, and times for making quarantine in order to avoid delay. Indications point to the retention of this record by the C.P.R. ships, on merit, and it would be unfortunate if such voyages were to degenerate into a series of races across the ocean. Speed is excellent as an advertisement, but if safety be endangered by taking chances in the course of a race, the advertisement would be of the wrong variety.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Metal & Thermit Corporation, 120 Broadway, New York, N.Y., has issued the fourth edition of its Thermit locomotive pamphlet 21, which is of special interest to railway superintendents of motive power, general foremen, blacksmith foremen and Thermit welders. It contains many revisions since the last edition was published, chief among which are instructions for applying improvements in practice in Thermit welding which have been developed by exhaustive research. The drawings and instructions illustrating and describing making Thermit welds in various parts of locomotive frames and other locomotive and railway equipment have been revised to conform to the improved practice.

B. F. Sturtevant Co. of Canada, Ltd. has been granted Dominion supplementary letters patent, increasing its capital stock from \$50,000 to \$200,000, the increase to consist of 1,500 shares of \$100 each.

The Universal Directory of Railway Officials, for 1922, which has just been issued, is the 28th annual volume, and gives the names and addresses of directors, and chief, assistant, divisional and district officers in all departments of all railways in the world, including not only the great systems, but also the thousands of small lines of various types, and those tramways which are technically railways. Particulars are also given of associations and other organizations, foreign as well as British, connected with the railway industry. In the respective sections the numbers of railways covered are: England and Wales, 431; Scotland, 73; Ireland, 60; Europe, 1,100, classified in accordance with the changed international situation and with particulars as complete and up-to-date as practicable in the case of Russia and other unsettled countries; Asia, 368; Africa, 64; Australasia, 26; North America, 189; Central America, Mexico, etc., 101; South America, 217. In each case a few statistics as to mileage, gauge, numbers of locomotives, etc., are given. The indices to countries covered and to individual railways and tramways by name, include about 2,700 entries, with a personal index to railway directors and officers, 190 pages, 22,000 entries. The book is substantially bound with a view to frequent office reference. It is published by the Directory Publishing Co., 33 Tothill St., Westminster, London, S.W., England; price, £1 net.

Calders' St. Croix Shipping Co. Ltd. has been incorporated under the Dominion Companies Act, with authorized capital of \$50,000, and office at Welchpool, N.B., to carry on business as common carrier by water and land, to act as agent and representative in Canada for importation of European products, and to own and operate ships in or out of Canada. The provisional directors are: A. Calder, transportation manager; E. E. Calder, ship operator, Welchpool, N.B.; D. H. Spence, Glasgow, Scotland; A. Holland, Miami, Fla., and W. R. Bonton, St. Stephen, N.B.

Montreal Tramways Company.

Report of President and Directors for the year ending June 30th, 1922.

To the Shareholders:—Your Directors beg to submit their eleventh Annual Report, accompanied by the Financial Statement, which shows the following results:—

REVENUE:	
Allowance from Contract	\$2,377,417.55
Other Revenue	64,061.28
Gross revenue	\$2,441,478.83
EXPENSES:	
Interest on Bonds and Loans	\$1,043,099.61
Interest on Debentures	857,500.00
Other Expenses	16,875.48
Total Expenses	\$1,917,475.09
Net Income	\$ 524,003.74
Less Dividends for the current year:—	
2½% for the quarter ending Sept. 30, 1921....	\$ 98,819.50
2½% " " " " Dec. 31, 1921....	99,064.00
2½% " " " " Mar. 31, 1922....	99,684.25
2½% " " " " June 30, 1922....	99,864.25
Total	\$ 397,432.00
Surplus for the year	\$ 126,571.74
Add Surplus at June 30th, 1921	916,709.35
Total	\$1,043,281.09
From which has been appropriated for:	
Deferred Dividend paid on Common Stock	
2½% quarter ending June 30th, 1919	\$ 98,819.50
2½% quarter ending Sept. 30th, 1919	99,568.50
	198,388.00
General Surplus	\$ 844,893.09

The Gross Revenue received by the Company after providing for all Operating Charges under the provisions of the Contract amounted to \$2,377,417.55, which, added to the other Revenue received outside the Contract of \$64,061.28, makes a total Gross Revenue for the year of \$2,441,478.83. The Expenses amounted to \$1,917,475.09, leaving a net income of \$524,003.74, from which there has been declared four quarterly dividends of 2½% each, amounting to \$397,432.00, leaving a balance carried to the credit of the General Surplus Account of \$126,571.74, which, added to the amount of \$916,709.35 at the credit of this account last year, makes a total of \$1,043,281.09, from which there has been appropriated the sum of \$198,388.00 on account of the two remaining deferred dividends paid during the year, leaving a balance at the credit of the General Surplus Account of \$844,893.09.

FINANCIAL.—Your Directors desire to point out that for the first time since the coming into force of the Contract, viz., February 10, 1918, the Revenue has been sufficient to meet the requirements of the said Contract for the year and to provide a Surplus of \$187,947.51 as shown by Statement of

Operations under the Contract. Said Surplus has been applied to the reduction of the shortage accruing from previous years, which amounted to \$1,967,834.44, leaving an accrued shortage amounting to \$1,779,886.93 at the close of this year, which consists of accruals for City Rental and the Contingent Reserve Fund as provided under the terms of the Contract, which amounts are payable only when the revenue received by the Company is sufficient to pay these charges after payment of all prior charges.

ISSUE OF BONDS.—During the year the Company disposed of \$1,750,000.00 of its 5% Thirty Year Gold Bonds, One Million Dollars of which were Bonds issued last year and held in the Treasury, and \$750,000.00, representing Bonds issued against Capital Expenditures made from November 1, 1920, to October 31, 1921, in conformity with the Trust Deed, which provides that Bonds can only be issued to the extent of 75% of the Capital Expenditures.

REDEMPTION OF UNDERLYING BONDS.—During the year the Company redeemed the balance outstanding of two issues of its 4½% Underlying Bonds maturing on May 1, aggregating \$2,688,953.33. Of this amount, \$763,700 was for the balance outstanding of the issue of \$1,500,000.00 Canadian Currency Bonds, and \$1,925,253.33 for the balance outstanding of the issue of £460,000.

GUARANTEE FUND.—Under the terms of the Contract the Company has to provide from its own funds a Guarantee Fund amounting to \$500,000.00, in amounts of not less than \$100,000.00 per year. Your Directors beg to report that the sum of \$100,000.00 has been paid into the Guarantee Fund since the close of the Company's fiscal year, making \$400,000.00 now in said Fund, according to the terms of the Contract.

DIVIDENDS.—During the year the Company paid its usual quarterly dividends on its Common Stock, at the rate of 2½% per quarter, and also paid the remaining two quarterly dividends in arrears for the quarters ended June 30, 1919, and September 30, 1919.

GENERAL.—Your Directors are pleased to report that two additional units in the Sub-Station at Cote Street referred to last year were put into operation during the year, which completed the equipment of this Station, which has a total capacity of 10,000 Kilo Watts.

In conclusion, your Directors desire to place on record their appreciation of the valuable and faithful services rendered by the Officers and Employees of the Company.

Respectfully submitted on behalf of the Directors.

E. A. ROBERT, President.

General Balance Sheet.

ASSETS	
Cost of Road and Equipment	\$43,508,262.01
Guarantee Fund	300,000.00
Investments	266,137.50
Accounts Receivable	\$ 575,737.84
Stores	538,399.18
Cash	124,548.18
Underlying Securities Redemption Fund	3,362.24
Suspense Account (Interest)	220,287.25
	1,462,334.69

N. B. The contract provides that the City shall receive out of Gross Revenues a sum of \$500,000.00 per annum and that there shall be paid annually into a Contingent Reserve Fund 1% of the Gross Revenues until such Fund shall amount to \$500,000.00. There has accrued to the above accounts since the commencement of the Contract to June 30th, 1922

For the City of Montreal.....	\$2,192,694.05
For the Contingent Reserve Fund	458,402.10
	\$2,651,096.15
Less earned to date	871,209.22

which amount or any portion thereof will only be payable when sufficient revenues are received from the operations of the Contract over all prior charges under the Contract.

\$1,779,886.93

\$45,536,734.20

LIABILITIES	
Capital Stock (Common) Subscribed	\$4,000,000.00
Less unpaid and subject to call	6,830.00
	\$3,993,170.00
Debenture Stock	* 17,150,000.00
First and Refunding Mortgage 5% Gold Bonds due July 1, 1941	18,085,000.00
Underlying Bonds:—	
4½% due August 1, 1922	\$681,333.33
Less redeemed and cancelled to date	97,333.22
	584,000.11
Mortgages	\$43.00
	\$39,313,913.11
Loans and Notes Payable	\$ 910,000.00
Accounts and Wages Payable	1,080,726.65
Accrued Interest	224,452.40
Employees' Securities	20,860.88
Unclaimed Dividends	1,956.57
Undeclared Tickets	442,020.84
Suspense Accounts	587,675.02
Dividends Payable August 1, 1922	99,864.25
Due account City Rental and Contingent Reserve Fund	260,748.88
	3,623,305.49
Reserve Account	\$ 600,000.00
Maintenance and Renewals Reserve	210,964.30
Reserve for Financing	439,558.21
Surplus	844,893.09
	2,095,415.60
	\$45,536,734.20

Verified, Jno. J. Dobson, L.I.A., Auditor.

Certified correct, H. E. Smith, Comptroller

*This includes the amount due on shares not yet exchanged.

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SEALED tenders addressed to the undersigned and marked "Tender for Rebuilding Dam at Young's Point, Trent Canal," will be received at this office until 12 o'clock noon on Tuesday, November 7th, 1922.

Plans, specifications and form of contract to be entered into can be seen on or after this date at the office of the Chief Engineer of the Department of Railways and Canals, Ottawa; at the office of the Superintending Engineer, Trent Canal, Peterborough, Ont.

Copies of plans and specifications may be obtained from the Department on the payment of the sum of ten dollars. To bona fide tenderers this amount will be refunded upon the return of the above in good condition.

An accepted bank cheque for the sum of \$10,000 made payable to the order of the Minister of Railways and Canals, must accompany each tender, which sum will be forfeited if the party tendering declines entering into contract for the work at the rates stated in the offer submitted.

The cheque thus sent in, will be returned to the respective Contractors whose tenders are not accepted.

The lowest, or any tender not necessarily accepted.

By order,

J. W. PUGSLEY,
Secretary.

Department of Railways and Canals
Ottawa, October 19, 1922.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries, unless otherwise stated:—

American Association of Port Authorities—T. S. McChesney, New Orleans Port Commission, New Orleans, La.

Canadian Car Demurrage Bureau, Eastern Lines—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal. Western Lines—F. A. Thompson, acting Chairman, Winnipeg, Man.

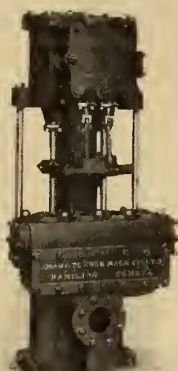
Canadian Electric Railway Association—D. N. Gill, 248 Albert St., Ottawa, Ont.

Canadian Freight Association—Eastern Lines, G. C. Ransom, Chairman, 909 Shaughnessy Building, Montreal. Western Lines, F. W. Thompson, acting Chairman, 805 Boyd Building, Winnipeg.

Canadian Passenger Association—Eastern Lines, G. H. Webster, 54 Beaver Hall Hill, Montreal. Western Lines, E. J. Stone, 306 Union Station, Winnipeg.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club—W. A. Booth, 53 Rushbrooke Street, Montreal. Meetings at Mont-




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Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Canadian Traffic League—R. J. Fitzgerald, 93 Wright Avenue, Toronto.

Dominion Marine Association—F. King, K.C., Counsel, Kingston, Ont.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield Street, Montreal.

Express Traffic Association of Canada—C. N. Ham, 137 McGill Street, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, Des Moines, Iowa.

Niagara Frontier Summer Rate Committee—James Morrison, Canadian National Rys., Montreal.

Quebec Transportation Club—A. F. Dion, 131 Dalhousie Street, Quebec, Que.

Railway Association of Canada—C. P. Riddell, General Secretary, 263 St. James Street Montreal.

Western Operating Committee, E. J. Stone, 306 Union Station, Winnipeg.

Shipping Federation of Canada—Thomas Robb, Manager, 42 St. Sacramento Street, Montreal.

Transportation Club of Toronto—W. J. Hotrum, 595 Rummymede Road, Toronto.

Transportation Club of Vancouver—C. A. Dorflier, 450 Hastings Street West, Vancouver, B.C.

Winnipeg Traffic Club—A. J. Barber, 114 Cado-

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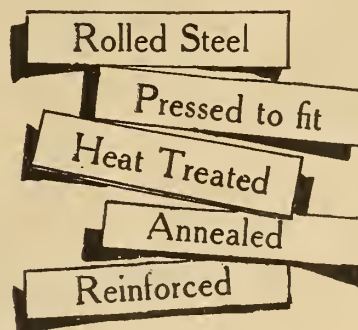
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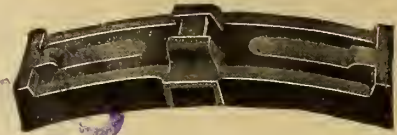
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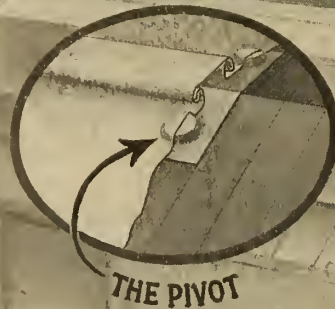


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What I Learned In Our Hardest Year

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"But now that we have turned the corner and business is coming back, I want to say that in our 'hardest year' I learned one of the greatest lessons of my life. Because I got closer to the men in our organization than ever before and from that contact I discovered what I call 'a new factor of safety' in this business.

"It was in May of last year that it became necessary to lay off some of our people. We had a conference. The General Manager, the Office Manager and the Employment Manager, all were there. It was simple enough to cut down the unskilled help—for we knew we could get them back or replace them whenever business picked up. But when we came to the office it was different.

"For instance, we had five bookkeepers. Four had been with us for more than ten years; one for only a year and a half. The first thought was to let this man go. But when we called in the Chief Accountant, he surprised us by saying he would rather sacrifice any other two men than young Watson. He had made himself the most valuable man in the department and was the only one who had a real grasp of costs.

"Well, we called Watson in and found that for months he had been studying Cost Accounting. The result was that we actually did make a change, relieving two men and giving Watson more responsibility and more money.

"Then we turned to the Sales Department. The Sales Manager came in with a list of men in the home office. Four in particular he had starred—they should be kept under any circumstances. And when we asked him why, he said that of all his men, these four had shown the greatest initiative—they had not only made good as salesmen, but they had been making a systematic study of salesmanship in their spare time, and all of them sooner or later would qualify for positions as branch managers.

"Well, I began for the first time to realize that something had been going on behind the scenes in our own business that had become a really great factor in our development. Right down through the list in every department the men who stood out—the men who showed a skill frequently unexpected for their years—were the men who had the initiative and ambition to devote part of their evenings and other spare time to study. And I said then and there that such men were the men we wanted in this business—the men among whom we would find our executives—the men this firm could never afford to lose.

"And then I went a step farther. I found that nearly all the men on our staff who were preparing themselves for advancement were studying with the International Correspondence Schools. And when I realized that that institution, by its work among our men, was doing us a great and constructive service, I made it my business to find out more about it.

"I had known something of its work—that it was the first and the oldest and the largest correspondence school, but I had to

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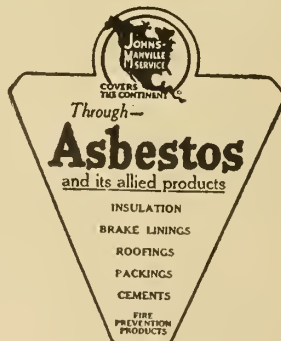
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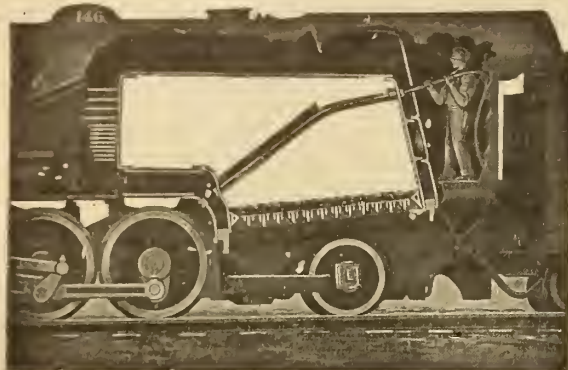
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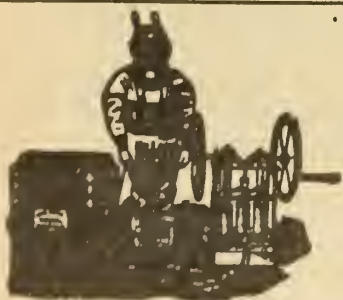
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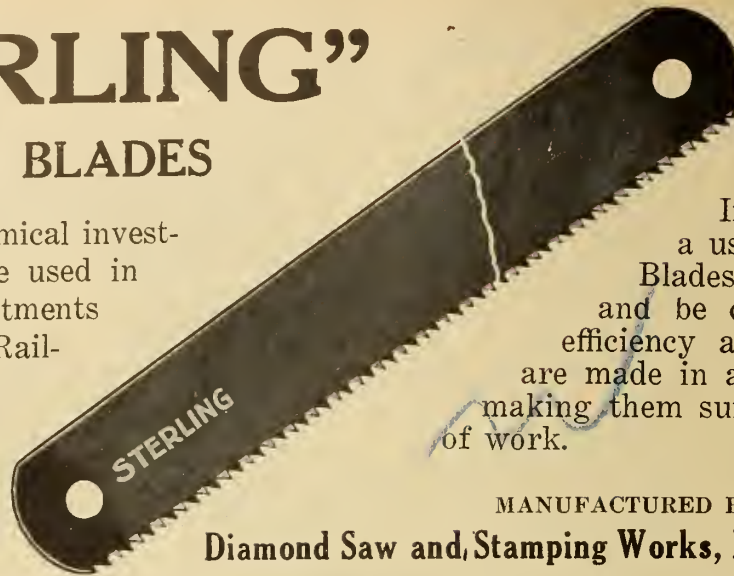
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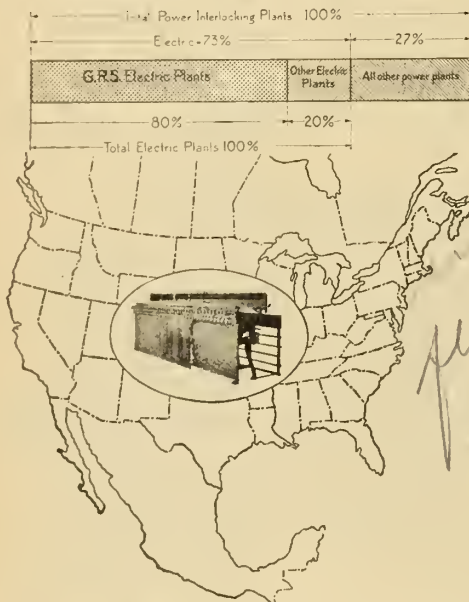
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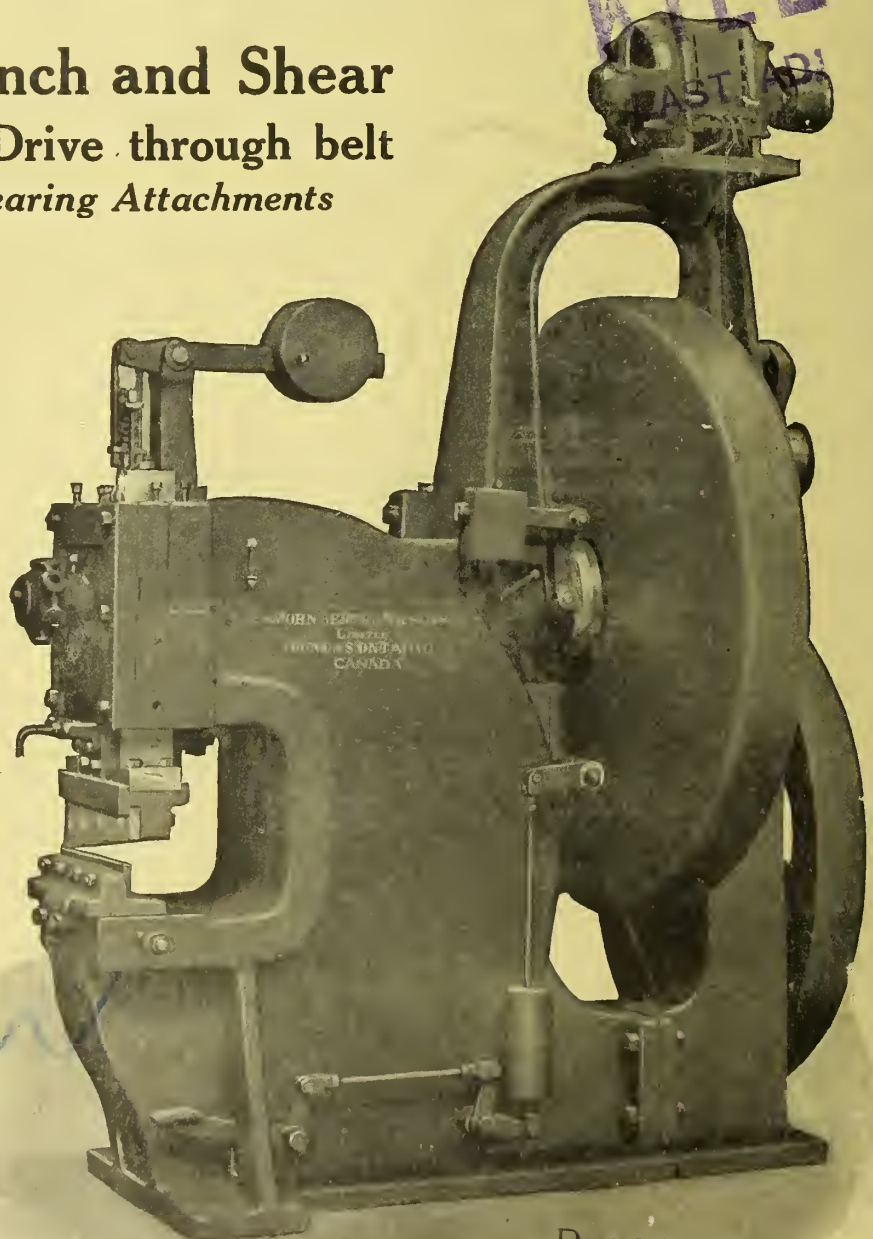
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P12224

Canadian Railway AND Marine World

Founded in 1898 by Acton Burrows.

Number 298.

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TORONTO, CANADA, DECEMBER, 1922

See page 607 for
Subscription Rates



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Two heads on cross
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—Equipped with Re-
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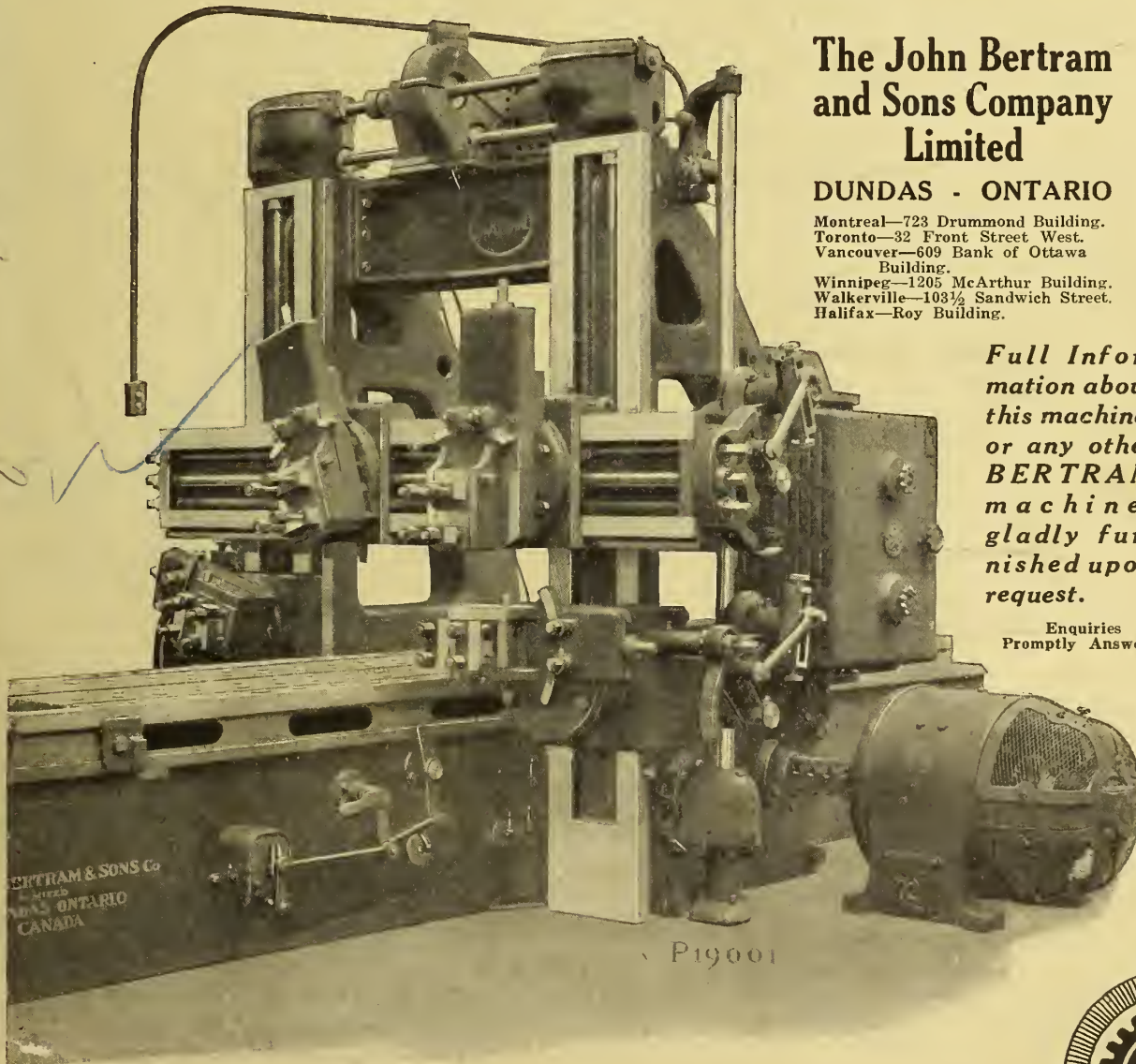
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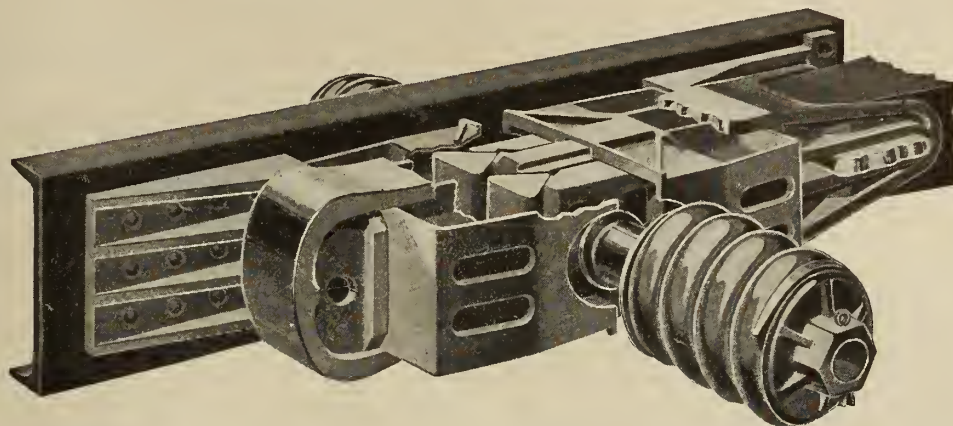
The Canadian Malleable Iron Co., Ltd.

In Consolidation with The Wm. Kennedy & Sons, Limited.

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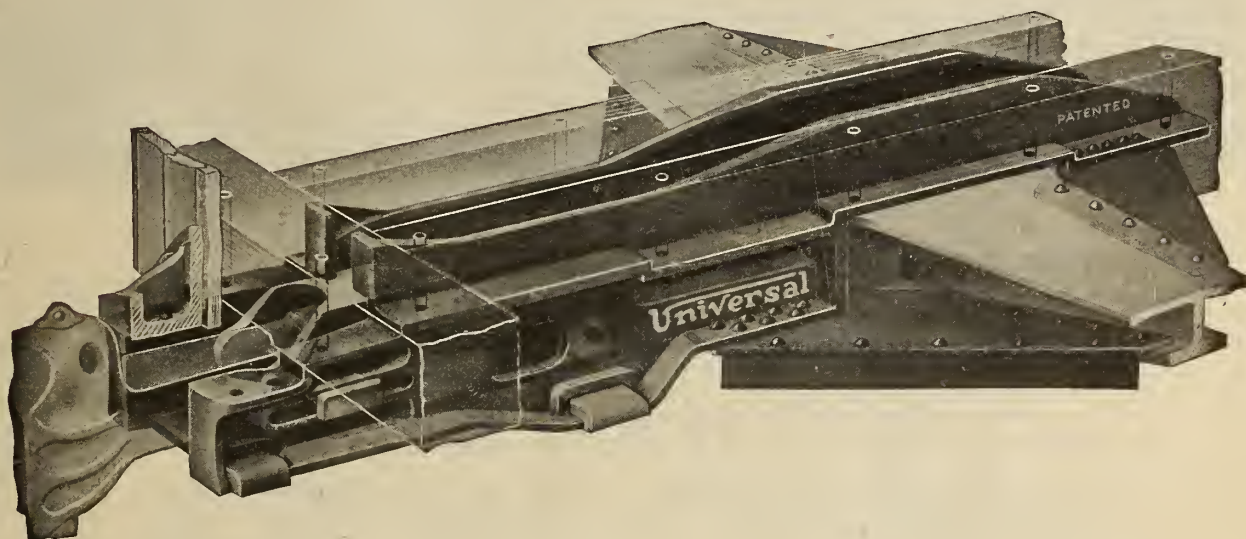
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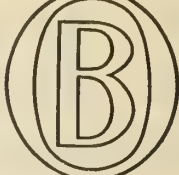
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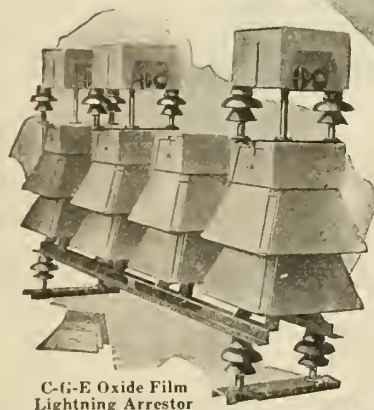
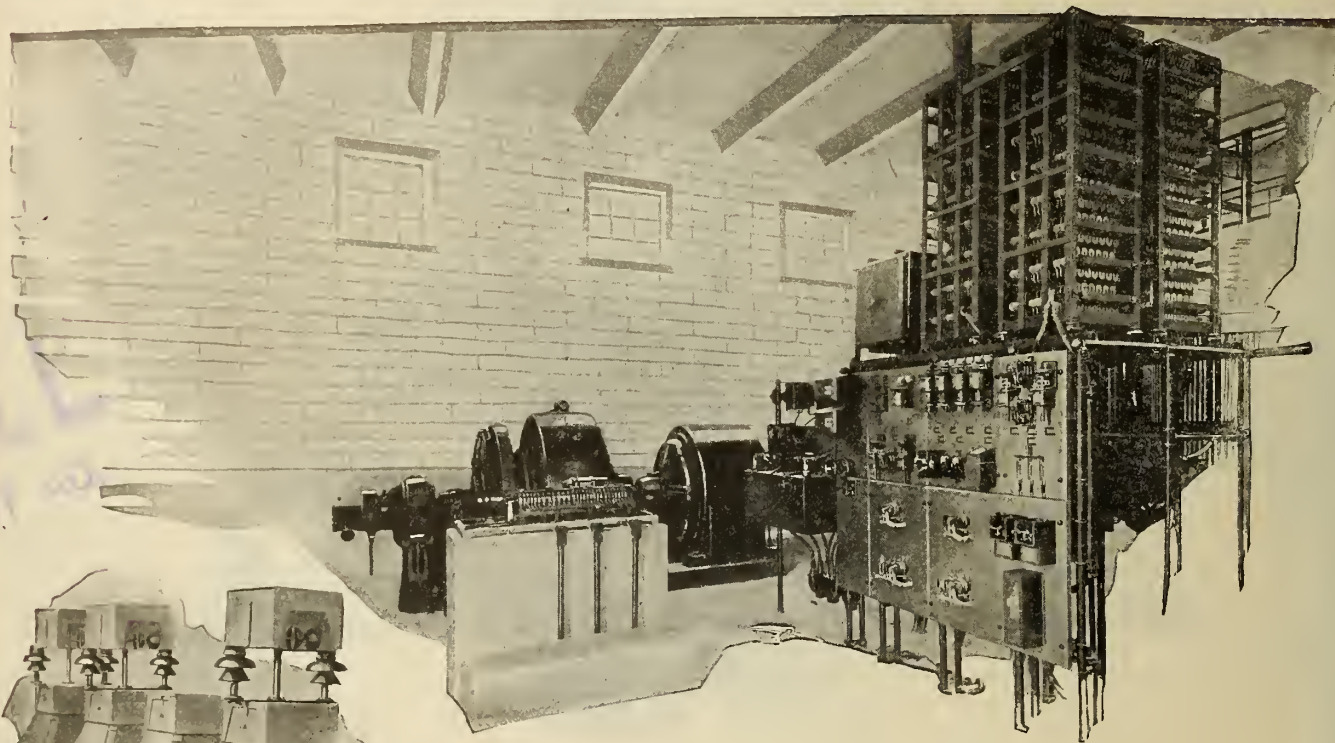
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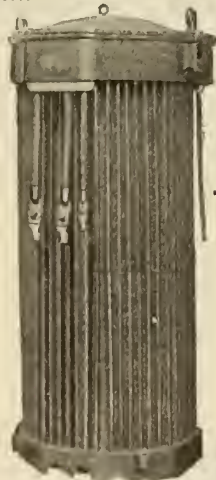
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A5-122

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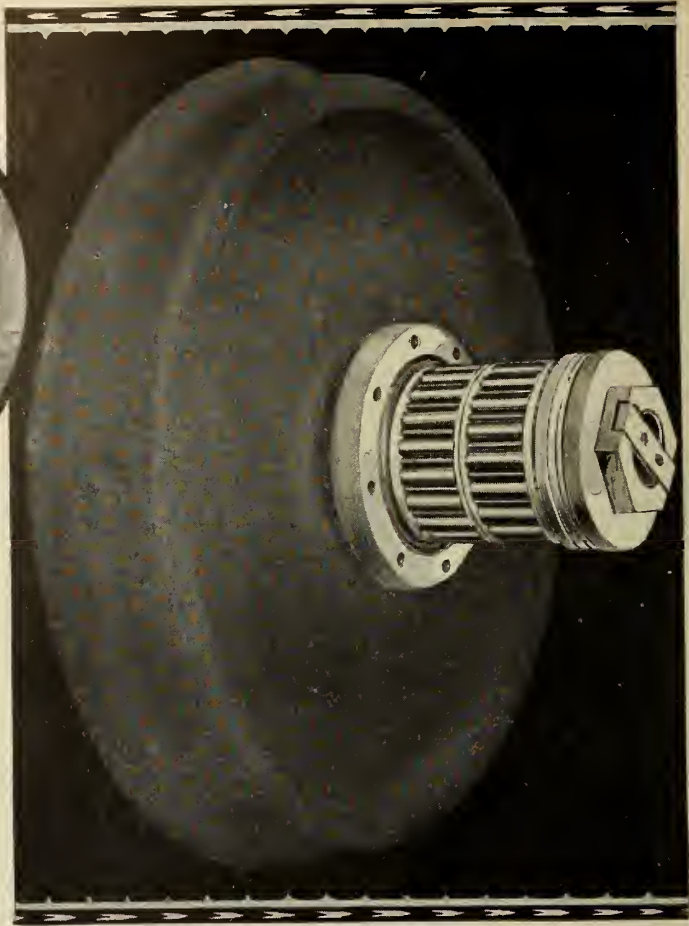
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Toronto

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Start now investigating the performance of Stafford Roller Bearings in actual service on car trucks. They are guaranteed for three years.

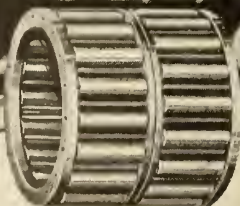
**STAFFORD ROLLER BEARING
CAR TRUCK CORPORATION**

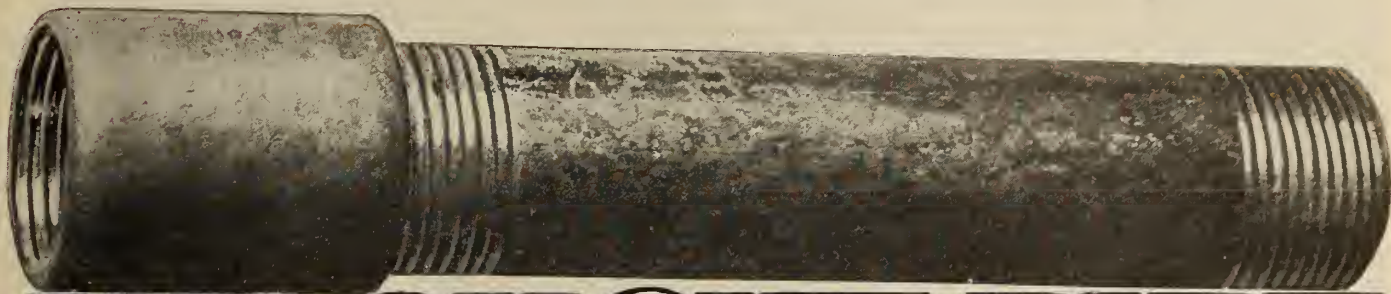
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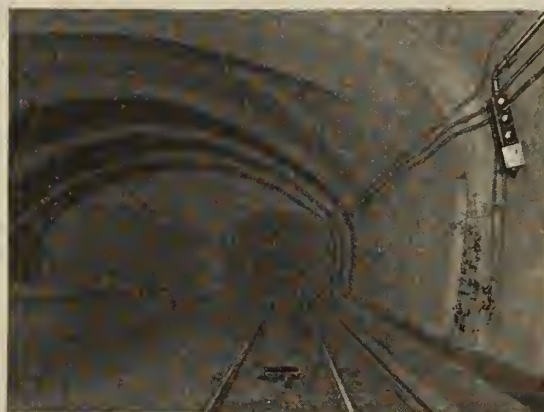
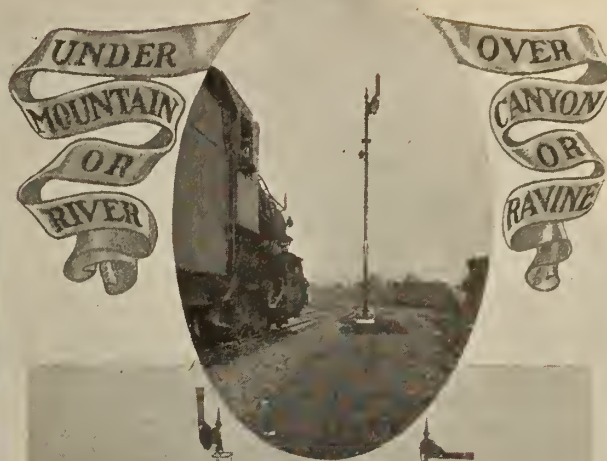
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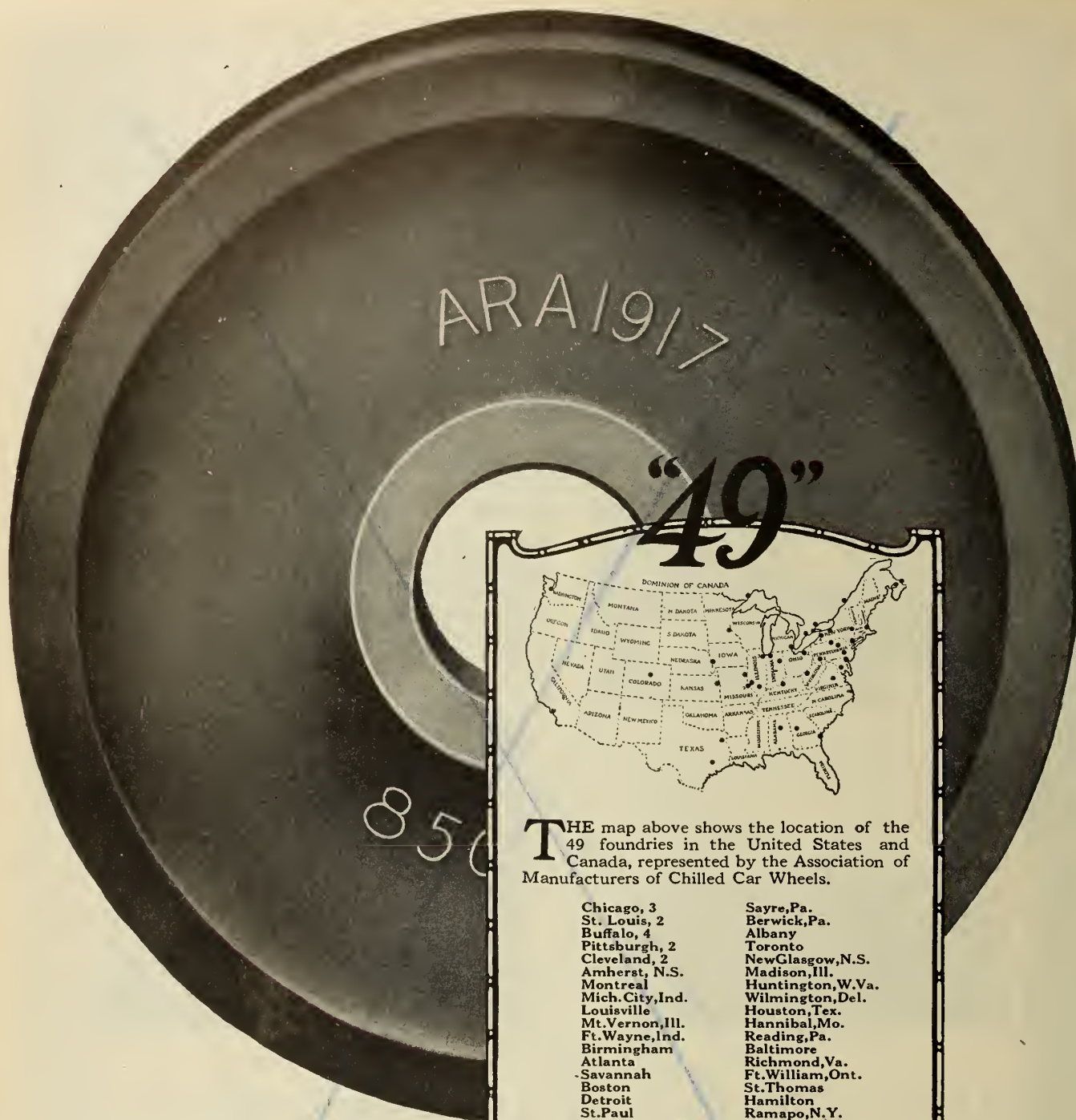
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THE map above shows the location of the 49 foundries in the United States and Canada, represented by the Association of Manufacturers of Chilled Car Wheels.

Chicago, 3	Sayre, Pa.
St. Louis, 2	Berwick, Pa.
Buffalo, 4	Albany
Pittsburgh, 2	Toronto
Cleveland, 2	New Glasgow, N.S.
Amherst, N.S.	Madison, Ill.
Montreal	Huntington, W. Va.
Mich. City, Ind.	Wilmington, Del.
Louisville	Houston, Tex.
Mt. Vernon, Ill.	Hannibal, Mo.
Ft. Wayne, Ind.	Reading, Pa.
Birmingham	Baltimore
Atlanta	Richmond, Va.
Savannah	Ft. William, Ont.
Boston	St. Thomas
Detroit	Hamilton
St. Paul	Ramapo, N. Y.
Kansas City, Kan.	Marshall, Tex.
Denver	Los Angeles
Tacoma	Council Bluffs
Rochester, N. Y.	

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650 lb. wheel for 60,000 Capacity Cars
 700 lb. wheel for 80,000 Capacity Cars
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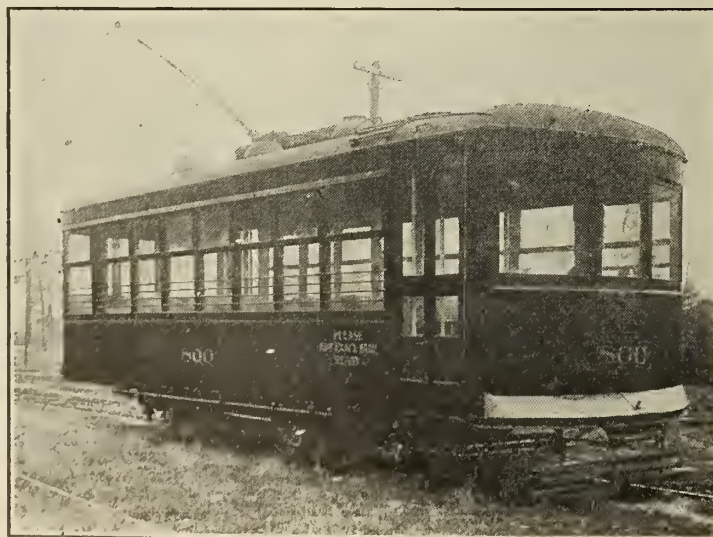
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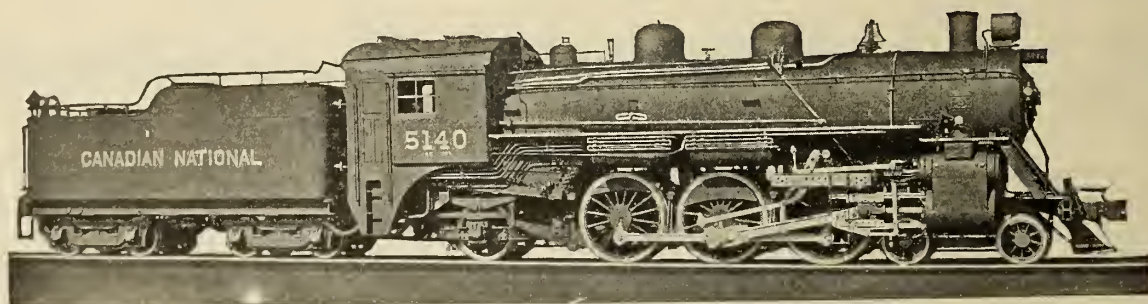
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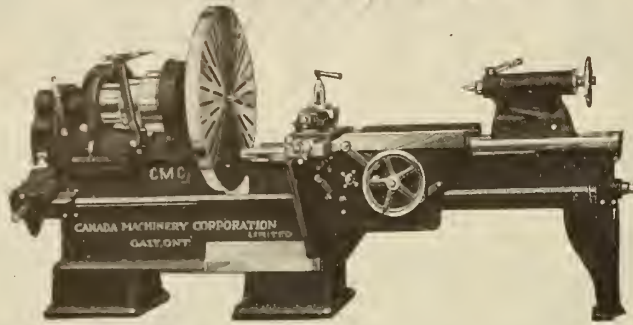
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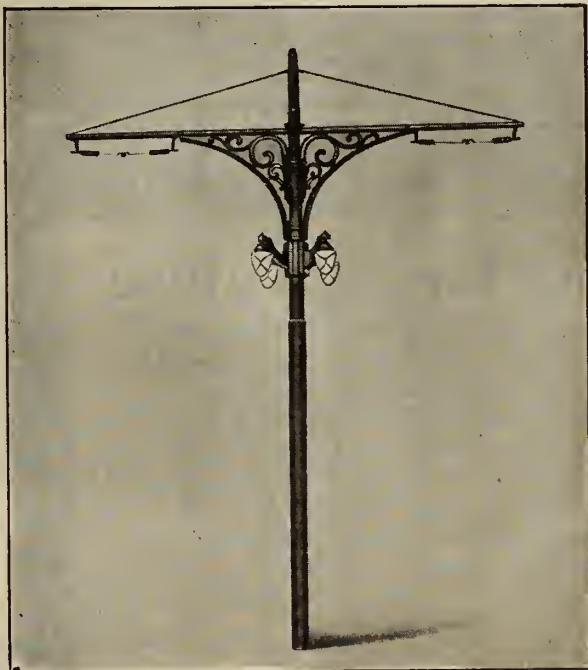
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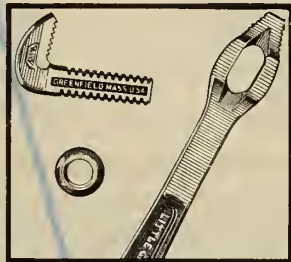
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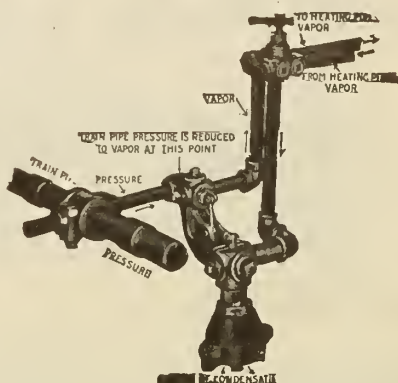
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Records Are Kept of Tap Performance

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The "Con-eccentric land," an exclusive Pratt & Whitney feature—coupled with superior workmanship and rigid inspection both of the steel and the taps—are the secret of their long life.

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Canadian Railway and Marine World

December, 1922

Reclamation of Railway Steel Rails.

By E. J. McVeigh, General Storekeeper, Grand Trunk Railway.

The rails used by American railways have gradually increased in weight from the standard of 40 years ago of 56 lb., to the yard until today railways are using a rail of 100 lb. to the yard, and to a limited extent even heavier; but due to the fact that all rails, both light and heavy expand and contract in the change of temperature, they must be laid with a space between the ends to allow for this expansion and contraction. To allow this space naturally introduces a hammer-blow on the end of the rail, by the wheel passing over it. Also due to the practical impossibility of having a coupling to join the rails that will fully equal the strength of the rail section, the joint of the rail is the weakest point in it. This results in the pounding down of the ends of the rail, so that while the remainder of the rail may be, to all practical purposes, unworn, the end of the rail, and for some inches back of it, is rendered unfit for use. American railways have disposed of enormous quantities of such rails at a scrap price, replacing them with new rails.

The reclaiming of these rails, by the removal of the battered end, is not altogether a new thing, as it has been done spasmodically, and to a limited extent, for a number of years, but only recently has it received the attention that it deserved, and the railways have taken the matter up systematically, and are carrying it out as a regular policy. One reason for this is that the light rails, formerly in use, were naturally considerably worn by the time the ends were battered, rendering the rails totally unfit for use, and the rail being much cheaper than the heavier section, it was not considered advisable to spend money reclaiming. A second reason for the non-reclamation of rails in past years was the fact that the railways were gradually changing to the heavier rails, being forced to do so to keep the permanent way in step with increase in weight of equipment. As the use of heavier rails became more general, this condition changed, and the 100-lb. rail of today, while still battered at the end, is much less worn in other parts, and, being more costly, there is more reason for reclaiming it by the removal of the battered end.

The Grand Trunk Ry. has adopted the policy of reclaiming rails, and is probably the best equipped road on the continent for carrying out this work, as it now has three rail sawing plants in operation in the provinces of Quebec and Ontario, viz., at Montreal, Belleville and London. The idea of putting in a number of plants was to save the hauling of the rails to and from the point where they are to be sawn and drilled. The cost of hauling will soon eat up the value of rail sawing plants. The first road in America to adopt the sawing of rail as a regular policy, erected a very costly plant, and hauled its rails a great distance, but this was found to be a mistake. Other roads experimented with the portable plant, and while this was an improvement on the large central plant, it was not altogether satisfactory, and the best

thought today is that a number of compact and comparatively inexpensive plants, situated permanently at proper intervals on the railway, would best serve the purpose, and it is in carrying out this idea that the G.T.R. now has the three plants mentioned above, their aggregate cost being less than one-half of the first extensive rail sawing plant mentioned. By adopting electric current as power for the operation of the plants, instead of the cumbersome and costly steam outfit, the cost of the operation has been reduced to a minimum.

The reclamation of rails fits in naturally with the larger question of general reclamation. The operation of any single and special unit on a railway, something that does not co-ordinate with something else, leads always to more or less "lost motion," which, in the mechanical world, as elsewhere, means loss of money. The use of a portable rail sawing outfit would be such a thing, and the movement of the plant from place to place, the setting up and taking down, etc., would be the lost motion. The haul is, of course, not entirely eliminated on rails sawn by a portable plant, and none of the handling, and such a plant would naturally be a steam or gasoline driven affair if it is to be at all portable, and it is not possible to secure full efficiency by the use of steam or gasoline for this class of work.

The organization of a rail sawing unit, even of a permanent nature, at a point isolated from other activities, would also lead to loss, as it would be practically impossible to keep the supply of rails continuous, and with no other work for the rail sawing men to take up, we would have loss of time, for which the railway would have to pay in order to keep its force intact. On the other hand, with the rail sawing plant situated in a general scrap and reclamation yard, and the plant operated by electric current, you have no lost motion whatever, as the plant is ready at all times to stop, or start, work at a moment's notice, and the men are used in the interval when there is no rail, in unloading, loading and sorting of scrap material. To an isolated portable or permanent rail sawing outfit you could send only rails that were to be resawn, while to a plant situated in the general scrap and reclamation yard you would send all of your rails, and when not actually engaged in sawing rails for the main line, you can select from your scrap rail large quantities that may be sawn in shorter lengths, and be most valuable for terminal yards.

As an example of how this business of reclaiming rails works out, we will say that a railway has 200 miles of rails that have been in use for a sufficient length of time for the ends to become battered as described, and, in order to secure a good riding track, these rails must be removed and replaced by new rails or reclaimed rails. Instead of buying 200 miles of rails and selling the old rails as scrap, they buy 20 miles of new rails, and at two points on this 200 miles they replace 10 miles of battered rails with new rails, sending the released 10 miles from

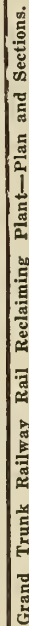
each point to the nearest sawing plant. These rails are sawn, redrilled and returned to where they came from, being used to release a further 10 miles, and this is repeated until the rails for the entire 200 miles have been replaced by 20 miles of new rail and 180 miles of the sawn rail. Two plants such as the G.T.R. now has in operation will handle the above job in about 200 days, or during the season when work of the kind may be best handled in Canada. This might leave the railway with a surplus of 20 miles of rails, but this 20 miles is required for replacement of rail lost by sawing. To provide for emergency we have the 5 or 6 miles of rails on racks that must be changed from 33 ft. to 30 ft. as the work proceeds.

It is found that at least 98% of such rails as described above requires to have 18 in. sawn from each end, so that a standard 33-ft. rail is sent back from the mill in 30-ft. lengths, while a 30-ft. rail goes back into use as a 27-ft. When rails have to be cut shorter than this, they are diverted to use on subsidiary lines or yards.

Experience has taught us many interesting things in connection with rail reclamation. For instance, it was generally supposed that, after a rail was sawn, it would be necessary to caliper the rail and match it up, in order to get a smooth riding road, but having the rail come out of the track in continuous lengths, not being mixed at the mills, where they never touch the ground and pass through the mill, and being reloaded quite frequently on the same car, the rail is naturally matched, as it is invariably worn equally in any given territory, and it goes back into the track quite as evenly and in many cases more evenly than new rail, and it actually gives a smoother riding rail than will the new rail when first put in, and the life of a rail, after sawing, will be quite equal to that of a new rail, that is, the main body of the rail may still be in good condition when the ends require a second sawing.

Another interesting development is the fact that the scrap value of the crop ends removed from the rail and sold at the low figure of \$13 a ton as scrap will reimburse the railway for the entire expense of handling the rail at the mill, that is, unloading, sawing, drilling and reloading. The expense of removing from the track and haulage will, of course, be about equal to the expense of the handling of a new rail, so that these items, balancing each other, may be dropped from the calculation. This operation put down in figures would give us the following example:—

To 200 miles of new rails, 31,428 tons	\$1,414,260
Cost of sawing 200 miles of rail	\$47,142
Plus value of rail as scrap, if same had been sold and new rail purchased	628,560
Cost of 20 track miles of new rail	141,435
	\$817,137
	\$17,137
	\$597,123
By sale of crop ends	57,140
Net gain on 200 track miles (\$3,271 per track mile)	\$654,263



In the foregoing example we use an average price for crop ends, their value changes almost every month.

The handling of the rails, that is, the removing from track, hauling and replacing in track, is omitted, for the reason that whether you replace by new rails or sawn rails, the haul, removal from track and replacing is about equal, except that you may, by using the sawn rails, save freight charges on new rails. If these charges were taken into account, they would add to our net gain.

It may be objected that we now have a second-hand rail in place of a new rail which might offset our net gain, but this has no weight, as the 100-lb. section rail, sawn the first time and replaced in track, is as good, if not better, than the new rail, first, because it is now a proved and tested rail, all culls and weak rails having been eliminated. The sawn rails give a smoother riding track than new rails, and their life, which is controlled by the end of the rail, or joint, will be just as long as would be that of the new rails. It will, in fact, be longer, as rail hardens in use, and wears more slowly as it becomes older. It remains to be seen how many times the 100-lb. section rails may be sawn and used in main line. Judging from what we now know of this matter, they should stand at least a second cutting, and go back to main line, but they can, without question, be cut a second, and even a third, time and still be a good rail for side lines, and after that for sidings and yards, so that our claim of a net saving of \$654,263 on the 200 miles of rail may easily be only one-third of the eventual saving on 200 miles of rail so handled.

The accompanying plan gives a fair idea of the rail sawing plants in use on the G.T.R. These plants were designed by, and erected under the direction of the company's General Storekeeper, and operated under the jurisdiction of the Supply Department as part of the larger general reclamation plant, and they are the only ones of the kind in use in America. They occupy small ground space, and are, by comparison with others, very efficient. The machinery consists of one large friction saw, two heavy drill presses, and one small tool sharpener, each run by independent electric motor, at much less cost than the fuel required in a plant using steam power, to say nothing of fireman's wages, upkeep of boiler, engine, etc., etc.

The rails go in to the mill on flat cars and are pushed off on to a skidway, where they are inspected and marked for sawing; from the skidway they pass to the rollway and are pushed up to the saw by hand. One end is cut off, and the rail travels past the saw, stopping to have the second end cut off, then forward a few feet, to clear the wall of the building, and then on to the second skidway where the fin left by the saw is knocked off with a hammer; then to the drill rollway and up to the first drill, where the two holes are drilled by the use of a gig, then forward to the second drill, where holes are drilled in the other end of the same rail, while a second rail coming along behind is having its first end drilled. By this method two ends of rail are always being drilled at the same time, but not both ends of the same rail. The sawing of both ends of the same rail by the setting up of drills the exact distance required apart has been tried, and this plan may work when all the rails are of equal lengths, and require the same number of inches removed in all cases, but there is no such condition, and the machines set up as they are in

the G.T.R. plants will handle rails of any length, from 10 to 33 ft., without the slightest change or decrease of efficiency, except that, with shorter rails, there is the same number of rails, but less tonnage, turned out in a day. After leaving the second drill the rail passes to the loading skid, where it is again inspected, and then on to the outgoing car. This may be on the same track it came in on, or a second track on the opposite side.

One very important item in the sawing of rail, as described herein, is the disposal of the crop ends with the minimum cost. The old saw mill man of years ago would tell you that he had no trouble in sawing lumber, but that the disposal of the debris was always a problem, and so it is with sawing of rail. If your plan does not provide for this, you are sure to have trouble. The G.T.R. plants provide for the handling of the crop ends in what we believe to be a most efficient manner. A 2-ft. gauge track leaves the building from in front of the saw table; on this track are one or more small cars; the crop end is slipped from the saw table to the car, and the short pieces of rail are run out clear of rollways, and loaded later by crane and magnet.

When the first of these plants was designed, the movements of rails through the plant from car to car was figured out on a basis of seconds, and they have done just what was expected of them. This does not mean that each mill turns out an equal number of rails each day, and all at the same cost. These things are governed by conditions apart from the machinery, but where they fall below the mark set there is a reason. There is no reason for lost motion here, the machines are timed to follow each other without a pause, and if a man on saw or drill has to step aside for even a few seconds some one must take his place. To make this possible we might have to pay a spare man, and it would be economy to do so if we had to, but the saw itself, the cutting blade, must be changed at least once every five hours, for trimming of the burred face, and the man who does this trimming and sharpening of the drills is always available for relief.

When laying out plants of this kind attention should be given to the matter of shunting, and matters should be so arranged that the use of engine and crew be reduced to a minimum, as these cost money. On the G.T.R. the mills and sidings are so arranged that in their operation only one shunt a day is required. This is one of the reasons why a second siding is recommended, even though the mill may be operated with one only, but this is contingent on all cars coming in with loads for the mill being in condition to take out a load; unfortunately many of them are "duds" and would have to be shunted out of the way if we had only the one siding; with two sidings this is not necessary.

The Grand Trunk Ry's management is fully alive to the importance of reclamation in all its phases, and may be relied on to check enthusiasm that might lead us across the line that divides paying reclamation from reclamation for reclamation's sake, and it will be interesting to watch this rail reclamation project in the coming years. If, as seems likely, the railways can save \$500,000 or over on 200 miles of road after new rails have been in use 5 to 7 years, and repeat this with the same rails in another 6 or 7 years, and at the end of a third period still have the rails fit for sidings and yards, it should mean much to American railways.

Railway Rolling Stock Orders and Deliveries.

The G.T.R. is reported to be in the market for 20 switching locomotives.

The C.P.R., between Oct. 12 and Nov. 13, received a new track snow plough from its Angus shops, Montreal.

The Timiskaming and Northern Ontario Ry. has given the National Steel Car Corporation an order for rebuilding 50 steel underframe, single sheathed, box cars.

The G.T.R., during October, received 14 steel underframe cabooses from its Montreal shops, and 1 Industrial steam wrecking crane, 160 tons capacity. It has on order at its Montreal shops, 11 steel underframe cabooses and 5 transfer type locomotives.

A recent press report stated that the G.T.R. had invited tenders for 700 forty-ton refrigerator cars and for from 1000 to 3000 steel frame, 40-ton, box cars. Another report stated that tenders for from 8,000,000 to 15,000,000 ft. of lumber for use in these cars had been asked. The decision as to orders to be given will rest with the new President, Sir Henry Thornton, and his co-directors and the matter will doubtless be dealt with at an early meeting of the board, as well as the Canadian National Rys. requirements.

Donaston Breakey, Breakeyville, Que., has ordered from Montreal Locomotive Works a 4-wheel switching locomotive (0-4-0). Following are the chief details: Weight on drivers.....79,000 lb. Wheel base, driving.....7 ft. Cylinders, diar. and stroke.....14 x 22 in. Driving wheel, diar.....40 in. Driving wheel journals.....7 x 8 in. Boiler, type.....Straight top Boiler, diar, first ring.....46 in. Boiler, pressure.....190 lb. Firebox, length and width.....46½ x 50¼ in. Tubes, length and diar.....112-2 in. Heating surface, tubes.....680 sq. ft. Heating surface, firebox.....60 sq. ft. Heating surface, total.....740 sq. ft. Grate area.....16.2 sq. ft. Tractive power.....17,400 lb. Factor of adhesion.....4.5 Tank, type.....Saddle Tank capacity.....1,700 galls. Fuel capacity.....1,600 lb.

The G.T.R. has ordered, for the Chicago, New York & Boston Refrigerator Co., 250 refrigerator cars, from American Car & Foundry Co. Following are the chief details:—

Length over end sills.....37 ft. 2½ in. Length over striking plates.....37 ft. 11½ in. Height, rail to top of running board.....13 ft. 5 5/16 in. Height, rail to eaves.....12 ft. 6 15/16 in. Width over eaves.....9 ft. 9½ in. Wheel base.....5 ft. 6 in. Length inside.....36 ft. Width inside.....8 ft. 7 in. Height inside.....7 ft. 9½ in. Length between bulkheads.....23 ft. 8 in. Height, top of floor rack to under side of ceiling.....7 ft. 4¾ in. Cubic capacity.....1,883 cub. ft. Journal boxes.....5 x 9 in. Couplers.....A.R.A. type D 6 x 8 in. Air brake.....Westinghouse K.C. 1012 Side doors.....60 x 75¾ in. Draft gear.....Miner A-18-S. Side bearings and door fixtures.....Miner Door insulation.....LaPlare Brake beams.....A.R.A. 2 Underframe.....Steel Roof.....Outside metal

The Essex Terminal Railway Co. has ordered from Montreal Locomotive Works one locomotive. Following are the chief details:—

Weight on drivers.....145,000 lb. Weight, total.....145,000 lb. Weight of tender.....98,000 lb. Wheel base, driving.....10½ ft. Total engine.....10½ ft. Cylinders.....20 x 26 in. Driving wheel.....50 in. Driving journals, main.....9 x 12 in. Driving journals, front.....9 x 12 in.

Boiler, type.....Straight top Diam. first ring.....64½ in. Boiler pressure.....180 lb. Firebox, length.....62½ in. Firebox, width.....65¼ in. Tubes.....140-2 in. Flues.....22-5½ in. Heating surface, tubes.....984 sq. ft. Heating surface, flues.....425 sq. ft. Firebox.....113 sq. ft. Arch tubes.....12 sq. ft. Total heating surface.....1,534 sq. ft. Grate area.....28.1 sq. ft. Tractive power.....31,860 lb. Factor of adhesion.....4.5 Superheater.....Locomotive Superheater Co. Reverse gear.....Alco standard type E Tender frame.....Steel channel Tender truck wheels.....33 in. Tender journals.....5 x 9 in. Tank type.....U shape Water capacity.....4,500 U.S. gall. Coal capacity.....8 tons

President Beatty Speaks in Toronto.

E. W. Beatty, K.C., President, C.P.R., was the principal guest at a luncheon given by Lieutenant Governor Cockshutt, at Government House, Toronto, Nov. 18, and in speaking, said that the C.P.R. does not attempt to exert any political influence. He knew of no corporation that exerted what influence it had less frequently. He repeated what he had told a meeting of the Empire Club in Toronto in 1919, that the C.P.R. would not project itself into any controversy in connection with the establishing of electric railways radiating from Toronto. The company had kept aloof from the controversy about the radial railway entrance, and had not said or done anything to attempt to influence the people's decision for or against any scheme submitted in that connection. In referring to charges in a Toronto newspaper that the C.P.R. owned or controlled a Toronto paper (The Mail & Empire), he said emphatically that there was not one dollar of C.P.R. money at stake in any Toronto newspaper. If the company had any protests to make, they would be made frankly, honestly and publicly, and the people could determine the merits for themselves. Political intrigue and machinations are not a part of the C.P.R. policy, because it lives by the sale of transportation. He reviewed briefly the Toronto waterfront grade separation history. He had suggested to the Government some time ago that the situation in regard to the waterfront was intolerable, and that it devolved on someone to bring about a situation under which the most handsome and most expensive station in Canada could be made use of by travellers. The Government has said that its own railway organization was undergoing change, and that it did not feel it could act without executive and expert advice at a time when the former officials were leaving and had not been replaced. The promise was made that when the changes were effected the problem would get immediate attention. The general railway situation in Canada is unique, involving as it does two great railway systems, one owned by the Government and one owned by private interests. He expressed confidence that the transportation problem would be solved, because both lines, the C.P.R. and the Canadian National Rys., are, in themselves, essentially national in character. He could not conceive anything more national than the C.P.R. In the war it had been a real adjunct to the British and Dominion Governments in carrying out war work. Sixty-five per cent. of the stock is held in Great Britain and Canada and 85% of the other securities are held in Great Britain.

Self Propelled Cars on Steam Railways.

Canadian National 'Railways' self propelled cars are, or very soon will be, assigned to service as follows: No. 15,800, the gasoline-electric car, which has been operating for some time between Winnipeg and Transcona, Man., will be withdrawn from service and remodelled, probably at the Transcona shop. Thorough overhauling of the motor is necessary. It will be replaced by storage battery car 15,802, one of those received from the Cambria and Indiana Rd. no. 15,801, the storage battery car which has been furnishing satisfactory service between Bathurst and Campbellton, on the Maritime District, is operating between Toronto and Beaverton, Ont., 64.3 miles, on the Muskoka Subdivision, Nipissing Division, Ontario District. The first trip was made Oct. 15. It was originally intended to give the service between Toronto and Washago, 89 miles, but in view of the latter place receiving adequate service without the car, the Toronto-Beaverton run was decided upon. The car handles a large milk traffic, in addition to local passenger traffic, and operates daily except Sunday, leaving Beaverton as train

and illustrated herewith, has been placed on the Bathurst-Campbellton run, on the same schedule as the storage battery car operated there heretofore. Particulars of this schedule have been given in preceding numbers of Canadian Railway and Marine World. No. 15,810, the small gasoline car with the Winton engine, is still in operation between Souris and Elmira, on Prince Edward Island. Particulars of this run were given in Canadian Railway and Marine World for August, pg. 418. No. 15,811, the first gasoline car to be received from Ledoux, Jennings, Ltd., Montreal, is still in service between Cross Creek and Stanley, N.B., 5.74 miles, on the Nashwaak and Stanley Subdivisions, Edmundston Division, Maritime District. Gasoline car 15,812 is in service between Brockville and Westport, Ont., but will be replaced by car 15,803, as stated, after which it will be kept as a spare on the Trenton-Picton-Napanee run. Gasoline car 15,813 has been sent to the Pacific coast, where it will operate between Victoria and Sooke, some 22 miles out of Victoria, on the Victoria-Alberni line. Gasoline car 15,814 is in service on the Ottawa Divi-

vise to be afforded by any car built according to the said plans, and the substitution thereof of other service."

We understand that the Canadian National Rys. are about to order an additional gasoline rail motor car from Ledoux, Jennings, Ltd.

Full details as to the operating costs of the various self-propelled cars are not available. It may be stated, however, that they have been running between 20c and 40c a car mile. In 1921, the average train mile operating expense on the Canadian railways as a whole was \$4.02, but this of course, covered all items of expense. What the average cost per passenger train mile is, is impossible to determine, although from time to time some railway accountant announces that he has devised a method of segregating operating costs as between freight and passenger service. It is evident that such a distribution of expense would at best be but a scientific guess. At all events, while exact costs and savings are not yet available, it may be stated that the self-propelled cars on the Canadian National Rys. have demonstrated their ability to economically pro-



Self Propelled Steam Car, Canadian National Railways.

316 at 8.30 a.m., and arriving at Toronto Union Station at 11.30 a.m., and leaving Toronto as train 315 at 3 p.m., and arriving at Beaverton at 6.05 p.m. Power for charging the batteries is available at both Toronto and Beaverton. Contrary to the original intention, car 15,802 will not be remodelled at the Niagara, St. Catharines & Toronto Ry. shops at St. Catharines, Ont., but at the Transcona shops, near Winnipeg. The baggage compartment will be fitted up as a smoking compartment and a few other small changes will be made. Storage battery car 15,803, also from the Cambria and Indiana Rd., is being rehabilitated at the Niagara, St. Catharines & Toronto shops at St. Catharines. New batteries are being put in, the car is being rewired, and equipped with locomotive bell, seats in the baggage compartment, standard headlights, and marker lights, and a lavatory, and generally is being made to conform with the Board of Railway Commissioners' requirements. When hydro power becomes available, this car will run between Brockville and Westport, 44.4 miles, Brockville Subdivision, Ottawa Division, Ontario District. Steam car 15,805, described in Canadian Railway and Marine World for October,

sion, Ontario District, between Picton and Trenton, 30.6 miles, on the Picton Subdivision; between Trenton and Trenton Jct., 1.6 miles, on the Maynooth Subdivision, and between Trenton and Napanee, 34.6 miles, on the Rideau Subdivision. Battery cars 15,801 and 15,802 are equipped with Edison storage batteries, which have proved satisfactory in every way. Battery car 15,803 will be equipped with ironclad exide batteries.

The Board of Railway Commissioners passed order 32,842 on Sept. 9, authorizing the operation of gasoline car 15,813, as follows: "The Board orders that the Canadian National Rys. be authorized to operate the passenger car known as the Ledoux, Jennings gas car, propelled by gasoline, and constructed according to the detail plans approved under order 32,224, March 25, 1922. The Board reserves the right, at any time hereafter, upon the report of its Chief Operating Officer or its Mechanical Appliance Specialist, to order any change or improvements in the said plans, or in any car constructed thereupon, which it may seem necessary for the safety and convenience of the public or the employees of the applicants; and the Board further reserves the right at any time to direct the discontinuance of the passenger ser-

vice services that steam trains could not provide except at a large loss.

The two storage battery cars bought by the Canadian National Rys. from the Cambria & Indiana Rd. were in service formerly between Colver Heights and Nant-Y-Glo, Pa., 13.1 miles, making two round trips daily. It was decided by the Cambria & Indiana management to get rid of them, owing to the high cost of power, which was 5c per k.w.h. The cost of operating the cars was as follows: current, \$490; attendant for storage battery charging plant, \$110; and repairs, labor and materials, \$115 monthly; making a total of \$715 monthly. The cars were replaced by a service gasoline motor car.

We are informed that the Board of Railway Commissioners has decided to require air brakes on all self-propelled cars put in service in future. All of the Canadian National Rys. self-propelled cars are equipped with air brakes except 15,810; 15,811; 15,812 and 15,813.

Grand Trunk Ry. The National Steel Car Corporation, Hamilton, Ont., is preparing plans for a gasoline car for the G.T.R. The Boards of Trade of Kitchener, Galt, Doon and Waterloo, Ont., recently petitioned the Railways Department for a gasoline car service on the

G.T.R. Galt-Elmira branch. A Kitchener press report of Sept. 25 stated that the Department had decided to grant the request. As this is a matter which cannot conceivably be under the Department's jurisdiction, but is one for the railway management's determination, the press report is probably in error. We are officially advised that the car will be tried on several G.T.R. branch lines.

The Toronto Mail and Empire in referring recently to the proposal to operate a gasoline car on the G.T.R., said: "Why not put rubber tires on it and have a truck for road operation? It would probably be much more useful." The Mail and Empire, like many other daily papers, does not offer much encouragement to the men who are trying to reduce transportation costs, to the end that railway rates may be reduced. Besides, its remarks were silly.

Greater Winnipeg Water District Ry. gasoline motor car operation has shown the service gasoline car with which it is being carried on to be satisfactory, according to Chief Commissioner W. M. Scott. A Winnipeg press report quotes Mr. Scott as stating that, as the Commission had been given the option of using the car for 6 months by paying only the interest on its cost, with the right of returning it if unsatisfactory, and as the car had been satisfactory, he recommended that it be bought outright and that the first payment on its total cost of about \$23,000 be made. This car was described and illustrated in Canadian Railway and Marine World for May, pg. 231.

Quebec Central Ry. gasoline railway motor car 1, which was loaned to the C.P.R. for operation between Highlands and Cote St. Paul, 5.85 miles, on the Lasalle Loop Subdivision, Montreal Terminal Division, Quebec District, was, at our last advice, still in the latter railway's possession. Car 2 was delivered by Ledoux, Jennings, Ltd., on C.P.R. tracks at Montreal on Sept. 20, and ran under its own power to Sherbrooke, the same day. It was placed in Q.C.R. service as trains 9 and 10 between Levis and St. George, on Sept. 24, and has been operating on that run since then. Train 10 leaves Levis at 2.45 p.m., arrives Scotts Jct. at 4.05 p.m.; leaves Scotts Jct. at 4.08 p.m., arrives Valley Jct. at 4.35 p.m.; leaves Valley Jct. at 5 p.m. and arrives at St. George at 6 p.m. Train 9 leaves St. George at 6.40 p.m., arrives at Valley Jct. at 7.45 p.m.; leaves Valley Jct. at 8.12 p.m., arrives at Scotts Jct. at 8.40 p.m.; leaves Scotts Jct. at 8.43 p.m. and arrives at Levis at 10.10 p.m. The distance between Levis and St. George is 66 miles. We are officially advised that, while it has not been decided whether the gasoline cars will operate on the Q.C.R. during the winter, it is not expected, in view of the severe winter conditions, that operation will continue after Dec. 15.

Quebec, Montreal & Southern Ry. The gasoline railway passenger car acquired by the Quebec, Montreal & Southern Ry. was described and illustrated in Canadian Railway and Marine World for October, pg. 527, and the schedule on which it is operating was given in full. Since that description and accompanying data were published, we have been officially advised that during September the car made 5,830 miles, the receipts being at the rate of 34.39c per train mile, the out-of-pocket cost of operating the car being 18.69c per train mile, and the earnings being 15.70c per train mile above out-of-pocket cost of operation. During the month, the car carried 2,206 passengers, and passengers carried one

mile totalled 56,127. The revenue per passenger was 90.89c, and the revenue per passenger mile 3.57c. The car operated satisfactorily and maintained schedule throughout.

Timiskaming & Northern Ontario Ry. —A recent Swastika, Ont., press report stated that mining and business men in Swastika and Kirkland Lake, as well as in the Cobalt district greatly desire self propelled car service on the T. & N.O.R., as an auxiliary to the steam train service, and that G. W. Lee, Chairman of the T. & N. O. R. Commission, had stated that money had been appropriated for purchasing a railway motor car, but that the actual purchase was deferred. We are officially advised that, while the Commission has been giving serious consideration to the self propelled car question, the necessary investigations have not been completed, and that pending their completion no decision will be made.

Lord Shaughnessy on Canadian Immigration Problems.

Lord Shaughnessy, Chairman of the Board, C.P.R., spoke on immigration matters at a Kiwanis Club luncheon in Montreal, Nov. 16. He said that nothing in the Kiwanis' programme was of greater importance than its campaign for the promotion of a sound, sane immigration policy for the Dominion, to be promulgated immediately, and carried out with intelligence and vigor. Practically nothing had been done during the last eight years to attract immigration. In 1911 Canada had a population of 7,200,000, and the census returns for 1921 show a total population of 8,700,000. But in that period the vital statistics show that there was a natural increase of 1,836,000, and immigration into Canada from other countries of 1,975,000. Had Canada received no immigrants at all, the natural increase should have given a population of 9,000,000, so that in these 10 years we apparently not only lost the equivalent of all the immigrants who came in, but did not even maintain, according to the census returns the increase due to natural increase after making full allowance for war losses. The burden of carrying the present Dominion debt is too great for a population of 8,700,000 people. There are ample assets to meet all the liabilities, provided the natural resources of the country are developed by industry. Canada's policy should therefore be to bring information of the great resources of Canada under the notice not only of the people of Great Britain and the United States, but also of many of the European Continental countries as well. There should be some amendment to the immigration laws and regulations, and there should be appointed, without delay, a thoroughly capable enterprising Minister of Immigration and Colonization. The Interior Department, which now has charge of immigration matters, is overburdened with work, and should be relieved of immigration questions. The Minister of Immigration should have a capable staff of assistants, not only at headquarters, but also in Great Britain, the United States and on the European Continent, and the Minister should be empowered to take whatever steps may be necessary to see that the settlers on arrival in Canada are advised, directed properly and cared for. In working along such lines as this the Government would have the active co-operation of the C.P.R. and other transportation companies,

who expended such vast sums of money in co-operation with the Government to secure colonists a few years ago. With the proper machinery in operation there could be little doubt that selected and directed settlers would come in large numbers with all the resultant advantages to the country.

Freight and Passenger Traffic Notes.

Shipments of apples from Halifax, N.S., to the United Kingdom during this season to Sept. 30, were 134,839 barrels, against 69,249 for the same period of 1921.

The Canadian National Rys. are reported to have handled 36,803 cars of wheat, totalling 46,352,000 bush., from Sept. 1, to Oct. 5, and the C.P.R. is reported to have handled 35,484 cars, totalling 51,180,789 bush., in the same period.

Eighteen steamships, with 173,000 barrels of apples, are reported to have sailed from Halifax, N.S., during October, making a total of 309,799 barrels shipped during this season, against 230,787 barrels for the corresponding period of 1921.

The Canadian National Rys. are reported to have handled, during October, 11,420 cars of coal from Alberta mines, against 5,650 in Oct., 1921. This increase shipment is stated to be almost entirely due to the enlarged area over which the coal is shipped.

The C.P.R. has been acting as host to five members of the Baseball Writers' Association of the United States on a moose hunting trip in Nova Scotia. The party, elected by their fellow members, proceeded with guides to Kedgemakooke Lake, south of Annapolis Royal.

The Board of Railway Commissioners passed order 32907, Sept. 30, rescinding order 32685, July 31, reducing train service on the G.T.R. between Doucet's Landing Subdivision and Victoriaville, Que., owing to the urgency of the coal situation, which has since been relieved.

The Canadian National Rys. has, a press report states, arranged to operate a weekly train service from Pas, Man., to mile 120, on the Hudson Bay Rys., near Herb Lake, to provide accommodation for the mining population there. From that point to mile 214, the fortnightly service will be continued.

A. Chard, Freight and Traffic Supervisor for the Alberta Government, is reported to have asked the Canadian National Rys. for a substantial reduction in coal rates from the Alberta coal fields to eastern points. The present tariff from the mines to Ontario is stated to be \$12.70 a ton.

The Canadian National Rys. discontinued its double daily, except Sunday, car ferry service between Prince Edward Island and the mainland, Oct. 28, and put in force on Oct. 30, a single daily service except Sunday, leaving Borden, P.E.I., 9.10 a.m., arriving at Tormentine, N.B. 10 a.m., leaving Tormentine at 2.50 p.m., and arriving Borden at 3.45 p.m.

The Canadian Pacific and the Canadian National Rys. have announced that special return fares will be put in operation on their lines from the prairie provinces to the Pacific coast on certain dates in December, January and February. The C.N.R. tickets will for small additional charge give passengers the opportunity of going to, or returning from, Vancouver, via Prince Rupert.

Locomotive Stoker Applications on Canadian Railways.

Canadian National Rys.—Canadian Railway and Marine World for October, gave particulars of the application of duplex locomotive stokers to C.N.R. locomotives at Moncton, N.B., and Transcona, Man. We are officially advised advised that the 10 Santa Fe locomotives have been equipped at Moncton: viz., 4025, 4026, 4027, 4029, 4031, 4032, 4033, 4034, 4036, and 4040. At Transcona, work is proceeding on the application of stokers to 10 mikado locomotives and 5 heavy consolidations.

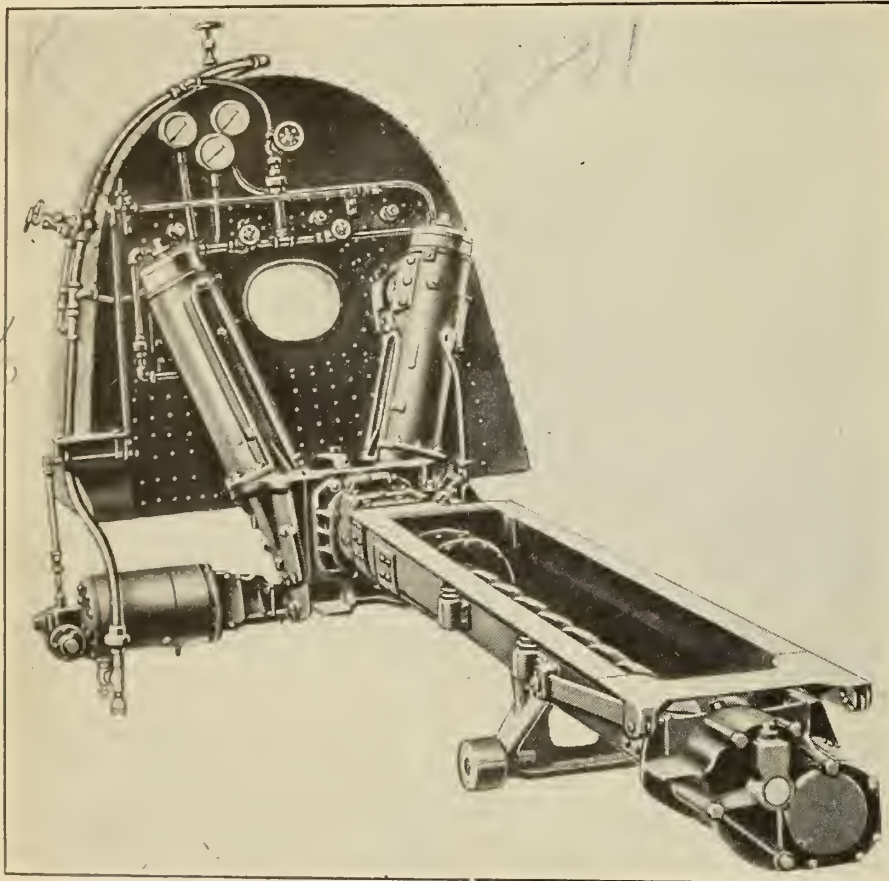
In the application of the stokers, an illustration of one of which is given herewith, to the Santa Fe locomotives at Moncton, two holes had to be cut through the boiler back-head and fire-box door sheet, one on either side of the fire door, and 12 in. diam. tubes were

provided with an opening 18 in. wide, extending from the coal gates to the tank's slope sheet. The opening is covered by slides 20 in. long. After the coal passes through the opening to the trough below, it is conveyed by the helicoid conveyor screw, through the crusher zone to the transfer hopper, where it is divided, equally or unequally, according to the position of the dividing rib, between the two elevators. The elevator screws elevate the coal and drop it into tubes fitted with elbows, the tubes extending through the holes in the back-head on each side of the fire door. Constant steam jets in the elbows blow the coal through the tubes, the ends of which form distributors, which deflect and spread the coal over the fire. The elevating screws are driven by gears, which mesh with a

Regulative Proposals.—A memorandum prepared jointly by the legislative representatives of the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen, dealing with the application of power grate shakers and automatic locomotive stokers to locomotives, was submitted some time ago to the Board of Railway Commissioners, as part of a list of railway operating conditions for which consideration and regulation were asked. Among other things it asked for an order requiring the equipment of coal-burning locomotives, weighing over 140,000 lb. on drivers with automatic stokers and power grate shakers. The matter was listed for hearing at Ottawa on July 4, but a request was made by the Brotherhood of Locomotive Firemen and Enginemen's legislative representative for a postponement, which was made until Sept. 19, but on a further request by the legislative representative the hearing was postponed indefinitely to allow negotiations to take place with the railway managements.

A Liberal M.P. on the Canadian National Railways.

S. W. Jacobs, K.C., who represents the George Etienne Cartier Division of Montreal, in the House of Commons, in addressing the Westmount, Que., Women's Liberal Club, recently, referred to the railway situation. He is reported to have said it had been part of the Liberal party's avowed policy to give national ownership of railways a fair trial. How long the trial could go on, without landing the country into bankruptcy, was the question. He did not believe in national ownership. He thought that, if the present effort to deal with the situation did not succeed, the Government should formulate some other plan. He considered that operation of the railways by a private corporation—whose business it was to run railways—under Government control, was the most promising. If it was found necessary ultimately to turn the national railways over to some private enterprise, he thought the C.P.R. Co. the most capable of conducting them successfully. He hoped that the newly appointed directors would make a success of the operation of the Canadian National Rys., but he had doubts, and added that it was possible Lord Shaughnessy's suggestion would be given consideration in the not distant future.



Locomotive Stoker arrangement.

applied by electric welding, to accommodate the stoker's distributing tubes. The foot plate casting had to be cut away in one or two places, to clear the stoker mechanism, and the cab had to be reconstructed at the bottom, to clear the conveyor trough and drive shaft, a new cab bracket being used on the right side, and a substantial plate applied to brace the cab together at the back of the foot plate. Two 20 x 22½ in. openings were made in the top of the cab, directly above the elevators, to facilitate lifting them, if necessary, for repairing, and the cab vestibule was extended down to clear the conveyor trough. The tenders had been equipped previously with horizontal coal pushers. In installing the stokers, the coal pushers were removed and the tanks cut out, and side plates and supports, angles and brackets were applied to take the stoker conveyor trough.

The shovel sheet on the locomotives is

rack reciprocated by the driving engine, and the conveyor screw is driven by a driving shaft also meshed into this rack. The driving engine has a cylinder of 11 in. bore and 17¼ in. stroke. The steam to supply it is taken from the locomotive turret, reduced in pressure by throttling through a ½ in. globe valve. The operation of the cylinder piston is controlled by valves in a main cylinder head, similar to the top head used on the standard 11 in. Westinghouse air compressors.

Canadian Pacific Ry.—We are officially advised that Santa Fe type locomotive 5813 has been equipped with a duplex locomotive stoker at Angus shops, for experimental purposes.

Grand Trunk Ry.—We are officially advised that the G.T.R. has ordered 12 automatic locomotive stokers from the Elvin Stoker Co., to be applied to mikado locomotives, 6 at the company's Montreal shops and 6 at its Stratford, Ont., shops.

Canadian National Railways Revaluation.—Hon. T. A. Crerar in addressing a meeting of Progressive members of the House of Commons at Winnipeg, Nov. 10, in announcing his retirement from their leadership, said, "The improvement in the situation of the national railways gives good promise that these roads will in a few years emerge from their difficulties. I have long advocated that the national railway system should be revalued, and a fair opportunity given to the management to make good on a fair basis of capitalization. The time is opportune to do that now, when a new board and new management are assuming control. The national railways must have a full and fair trial, and if they are given this, there is no question of their success. There is no reason why they should not become a great unifying influence in Canada, affording a common bond of interest to our population."

Mountain Observation Cars, Canadian National Railways.

The Canadian National Rys. recently converted two sleeping cars, which had seen long service, into observation cars for use in the Rocky Mountains, the work being done at the Leaside shops, Toronto. Their dimensions are as follows:—

Length over buffers.....	78 ft. 3 in.
Length over end sills.....	70 ft. 6 in.
Length between truck centers.....	54 ft. 6 in.
Length of interior compartment.....	44 ft.
Length of exterior compartments.....	15 ft. 5 in.
Width over side sills.....	9 ft. 8 in.
Width at eaves.....	9 ft. 10½ in.
Width over grab irons.....	10 ft. 1½ in.

thus given the underframe was to make it as strong and rigid as possible. Reinforcing angles, 3 x 3 x ¾ in., continuous from end to end of car, placed one on top and one below each side sill, were provided, incidentally still further reinforcing the underframe, and to these longitudinal angles, connections for the side posts were furnished by using 6 x 6½ in. angles, riveted to the top longitudinal angle, and bolted through the side sill to the bottom one, two angles to each side post. The longitudinal angles also

each corner, and end and side railings are provided on the platforms at each end, with end and side gates. The railings are of steel bar and 5-in. tubing construction.

The interior of the cars is finished in British Columbia cedar, stained mahogany, and as is shown by the illustrations, the arrangement, particularly as regards the window position and area, is such as to permit an unobstructed view by travellers from a natural and comfortable position in their seats. The windows are



Mountain Observation Car, Canadian National Railways.

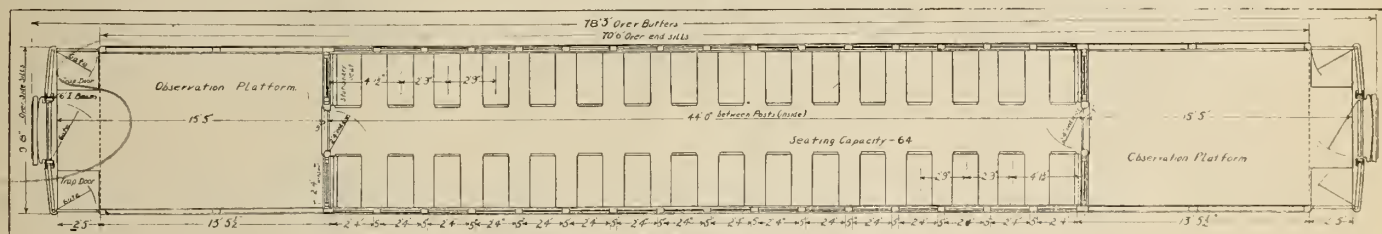
Height, rail to top of roof.....	13 ft. 2 in.
Truck wheel base.....	10 ft. 6 in.

As shown by the accompanying plan, these cars consist of an enclosed central interior portion, with an open observation platform at each end. In constructing them, the sleeping cars from which they were made were stripped, all superstructure being removed, and the underframes were used as the underframes for

provided connections for riveting the steel side sheets to the side sills.

The entire car side framing is of steel, and in order to economize in superstructure construction, certain sizes of second-hand angles and shapes, the length of which were suitable for the work, were used. The posts are 3 x 3 x 7/16 in. Z bars and T shapes, made up of 2 x 2 x ¼ in. angles, back to back. The sheathing

4 ft. 5 in. high by 28 in. wide, having two panes of glass 24 x 24 in. one above the other. They compare with the commonly accepted railway standard of 28 in. high by 25 in. wide, so it is evident that, with 16 such large windows in each side, the facilities for viewing the scenery are all that could be desired. The windows used were originally on the sleeping cars from which the observation cars were



Floor plan, Mountain Observation Car, Canadian National Railways.

the observation cars, the same trucks also being used. The sleeping car underframes were reinforced by plates and angles, and the longitudinal spaces between the center and intermediate sills were filled with 2 long wooden sills, continuous from end to end of car, making practically two continuous 16 x 8 in. center sills in the observation cars' underframes. In addition, the underframe was strengthened by the inclusion of 4 fitch plates of ½ x 6½ in. material, one at each side of the underframe, extending from the end of car to the needle beams, and a fitch plate of similar material extending across each end. The side and end sills were tied together by 10 in. channel forged angle shapes at each corner, and the whole frame was tied together with tie rods, plates and angles. The result of the reinforcement

is of 3/16 in. plate, riveted to the angles on the side sills and the upright posts. The belt rail is 2½ x 2½ in. steel plate under the side windows. The carlines were constructed of 2 x 2 x ¼ in. angle irons, and connected to the top of each side post with gusset plates. The roof extends over the entire car, and nailing strips, bolted to the angle carlines for fastening roof to same, were employed. The roof is of the plain arch type, of 10 ft. radius, and is of wood and canvas construction. The cars are equipped with double floor, the lower course being laid diagonally, and the upper course longitudinally, with tar paper between. Below the floor proper, a deafening floor is provided, the space between this and the diagonal layer of flooring being filled with shavings. The cars are equipped with C.N.R. standard 4-tread steps at

built, but on the observation cars the windows were used one above the other, instead of one outside the other, as on the sleeping cars. In addition to the side windows, the interior compartment has two windows of the same dimensions at each end, one on each side of the exit door. The interior compartment is equipped with 8 x 24 in. ventilators, and there are 16 double seats arranged transversely on each side of the central aisle, providing seating capacity in the interior for 64. The cars are wired and equipped with electric lights and standard shades, but are not equipped with generator or batteries, current being supplied from the car ahead by a wire connector.

The cars are equipped with 6-wheel trucks, 10½ ft. wheelbase, with 36 in. steel tired wheels and 5 x 9 in. journals. All running gear conforms with M.C.B. stan-

dards, and standard passenger equipment air brake apparatus is applied. An advantage of the double-end feature of the construction is that the necessity of turning the cars at each end of the run is obviated.

The cars are to be used in transcontinental passenger train service between Jasper and Kamloops, B.C., 275.1 miles, the run from Jasper to Red Pass Jct., 44.2 miles, being on the Tete Jaune Subdivision, Edson Division; from Red Pass Jct. to Blue River, 88.7 miles, on the Albreda Subdivision, Kamloops Division, and from Blue River to Kamloops, 142.2 miles, on the Clearwater Subdivision, Kamloops Division of the British Columbia District. The cars were built at the Leaside shops, Toronto, under the supervision of G. E. Smart, Mechanical Assistant, Car Department, to Vice President, Maintenance and Operation, and H. J. White, General Car Foreman.

Illinois Central Railroad Electrification.

In accordance with an agreement entered into by the Illinois Central Rd. and the city of Chicago, providing for the electrification of the I.C.R. terminals, President C. H. Markham, of that railway, appointed a commission in Dec., 1920, to report upon the matter in its entirety, and this commission has recommended the adoption of the 1500-volt direct current system, with overhead current collection. The commission considered the possibility of using a 3-phase alternating current system, requiring a double overhead contact, which was quickly eliminated on account of complicated construction; it also considered a 750-volt direct current system, with third rail, 3000-volt direct current, with overhead current collection, and 11,000-volt alternating current with overhead contact, the third rail system being eliminated on account of its undesirability, and the latter two systems being demonstrated as inferior, by thorough study of the matter, to the 1500-volt direct current system, with overhead contact, as finally selected.

According to the agreement, the suburban passenger service is to be operated electrically by 1927, and the entire freight service within the city by 1935. The suburban passenger service will cover the main line from Chicago to Matteson, 28 miles; the South Chicago Branch, 4.5 miles, and the Blue Island Branch, 4.4 miles. The total track mileage involved will be 125. Last year the I.C.R. bought 20 all-steel suburban cars which will be suitable, with few small alterations, for electric operation, and these are being operated in steam train service out of Chicago. It is estimated that an additional 240 electrically equipped cars will be required, for multiple unit train operation.

The expense of this electrification project will be very heavy, as the amount of work preliminary to the starting of actual electrification will be very large. A great deal of track depression and elevation will be necessary, and in addition to this, there will be the construction of additional sewers, power house and sub stations, a new through passenger terminal at East Roosevelt Road, a new suburban passenger terminal at Randolph St., new interlocking plants, and a new signal system, while changes and additions to present stations and platform will be required, much trackage will have to be rearranged, and grade crossings with other railways will be eliminated. Con-

siderable of this preliminary work is under way.

It is evident that this work, involving, as it does, a large suburban passenger service, freight transfer and switching movements in congested yards, and finally the through passenger service within the terminal area, will constitute one of the greatest problems in railway electrification yet met with, but the plans provide for an efficiently-operated electrified terminal, with adequate provision for future growth, and the mere fact that the railway is prepared to spend its money in the project indicates its belief that the resulting economies to be secured will make the investment well worth while.

Stewart and McDonnell's Gold Coast Colony Railway and Harbor Contract.

Major James McGregor, D.S.O., C.E., formerly Superintending Engineer, Halifax Ocean Terminals, Canadian Government Rys., now Chief Engineer for Stewart and McDonnell, who are consulting constructional engineers for the Crown Agents for the Colonies; in connection with railway and harbor construction in the Gold Coast Colony, British West Africa, has written Canadian Railway and Marine World from Sekondi, as follows:—"You will no doubt be pleased to learn that the monthly copies of Canadian Railway and Marine World as they reach here are eagerly read and much appreciated by the Canadians on my staff, and also by many others, who, like myself, spent many pleasant years on railway and marine works in Canada before coming here to carry out the new Takoradi deep sea harbor and railway works at Accra.

"Takoradi is about six miles southwest of Sekondi, and it will form the main seaport of the Gold Coast Colony, Ashanti and the Northern Territories, and also the principal railway terminus. Good progress is now being made with the railway works and the first section of the harbor works, which are estimated to cost \$8,000,000. The water supply has been extended to the new harbor and townsite. A large area of land has been acquired by the Government, and surveyed in great detail, and plans for the new town, which is to be a model one for West Africa are being prepared. A splendid new highway 100 ft. wide, is being built from Sekondi to Takoradi. An excellent headquarters camp, to accommodate 60 Europeans, has been constructed at Sekondi, and further camp accommodation is being provided at Takoradi, where, except for two native fishing villages on the shore, the whole area of the proposed townsite, was, until recently, covered with the dense tropical bush and undergrowth so characteristic of West Africa. Medical and sanitary services, and the layout and design of the new European and native hospitals for Takoradi, (matters of supreme importance in tropical Africa) are under the personal direction of Lt. Col. R. H. Ker, M.D., of Vancouver, B.C. Up to date there has been remarkably little sickness among Europeans and hindrance to the works on that account.

The improvement works at Accra are in charge of the Assistant Chief Engineer, Major J. C. Craig, D.S.O. They include import buildings and railway shed with a floor area of over two acres, and are being built of concrete and steel, with tiled roofs. They also include new road and railway connections, and an im-

proved marshalling yard and approaches. These improvement works are estimated to cost \$500,000 and are to be completed early next year.

"The harbor and railway works at Takoradi and Accra are being carried out by the Chief Engineer of the new Government Harbor Works Department, and under the direction and supervision of Stewart & McDonnell, consulting constructional engineers, Westminster, London, Eng., and Vancouver, B.C., the two principal partners of the firm being Major-Gen. J. W. Stewart, C.B., C.M.G., and Col. the Hon. Angus McDonnell, C.B., C.M.G., who are well known in Canada as railway and harbor builders."

Freight and Passenger Traffic Notes.

The Canadian National Rys. winter time table, which went into effect Oct. 1, shows that operation of trains had been extended over certain recently completed extensions of lines as follows:—The service on Regina-Swan River Line has been extended from Lintlaw to Kelvington, Sask., 13.6 miles; on the Humbolt-Melfort route from Melfort to Ridgedale, Sask., 26 miles; and on the Brazeau line from Red Deer Jct. to Red Deer, Alta., 6 miles.

The Board of Railway Commissioners at its Winnipeg sittings recently heard Lakeview rural municipality's complaint as to the service on the Canadian National Rys. Oakland branch, which it was proposed to reduce. C.N.R. officials stated that while the freight traffic on the branch was satisfactory, the passenger traffic could be handled by one train in two weeks. The total earnings of the branch were so low that a tri-weekly service was not warranted, particularly in summer. The Chairman stated that strong reasons should be given for reducing a three-times a week service, and that railways should not reduce any service without obtaining an order.

The C.P.R. is reported to have decided to abandon its car ferry service across the Detroit River between Windsor, Ont., and Detroit, Mich., and to run all its freight trains through the Michigan Central Rd. tunnel, as its passenger trains have been for some time. It is stated that the C.P.R. car ferries Ontario and Michigan have been laid up for several months, and are in need of very considerable repairs. At present C.P.R. freight cars are being moved across the river by the Pere Marquette Ry. car ferries. Since the foregoing was put in type, we have been officially advised that no arrangement has been made to run all C.P.R. freight trains through the M.C.R. tunnel, nor is it in contemplation.

The C.P.R. is reported to have handled 79,365 cars of grain from Western points to Fort William, Ont., from the commencement of this crop year to Nov. 15, against 53,492 cars in 1921, an increase of 13.4%. The approximate quantity of grain handled during the period was 118,000,000 bush., of which 82,923,908 were sent out by steamship, and 3,598,971 bush. by rail. The C.P.R. also carried 2,915 cars of grain from prairie points to Vancouver during the same period. The Canadian National Rys. in the same period handled 61,885 cars containing 79,948,000 bush. to Port Arthur, against 51,583 containing 66,173,000 bush. in the same period of 1921. There were reported to be in store at the head of the lakes on Nov. 15, 25,441,000 bush. of grain, against 13,377,000 bush., on Nov. 15, 1921.

Automatic Train Control Recommended in Great Britain.

A committee, appointed in Oct., 1920, to enumerate the possible functions of automatic train control, to examine devices under trial, and to form conclusions as to adoption, has recently reported to the British Ministry of Transport. The committee considers that the disadvantages of continuous control, i.e., apparatus subject to application or release at any point in the section, outweigh the advantages, and that the non-contact type, i.e., by induction, necessitates the use of somewhat complex electrical arrangements and is comparatively costly. Speed control and devices with time element relays were not considered suitable to British conditions. The benefits of train control in fog are alluded to, but it was decided that no case was made out for its use on single lines where the token system is in use. The committee calculated that the first cost of completely equipping the passenger routes on which there are two or more lines would be £4,660,000, and the annual charge would be £407,000.

The committee's conclusions are as follows: 1. The committee are of opinion, after careful examination and analysis of statistics during the past 10 years, that automatic train control presents the only reliable method of preventing a large proportion of train accidents directly occasioned by failures of locomotive men to obey signals, which amounts to about one-third of the total. 2. They consider, therefore, that a case for the installation of control upon British railways has been made out, and recommend its gradual adoption, in accordance with the list of requisites given. 3. They consider that the system likely to prove most suitable to prevailing conditions will be of the contact type, designed to operate in conjunction with existing methods of signalling. 4. They regard it as essential that the system of control should be uniform in character, and that all working parts should be of standard design, in order to facilitate replacements and to ensure interchangeability. Non-working parts, i.e., connections between the locomotive apparatus and framing, may be varied to suit individual requirements, subject to the provisions of requisite no. 2. 5. They are of opinion that a complete system of automatic train control should include a train-stop device at selected stop signals, and train control generally at distant signals. They are satisfied, from their investigations, however, that control at stop signals is of first importance, as a means for providing additional security. 6. If, therefore, owing to financial considerations, the complete scheme cannot at present be entertained, the committee consider that the preliminary step should be the introduction of control at selected stop signals. They point out, however, that such a partial system would be of comparatively little benefit in places where exemptions from general rules 3 and 4 of the regulations for train signalling by block telegraph are permitted, and where the necessity for the warning arrangement cannot be obviated by the provision of outer home signals. 7. They recommend the immediate formation by the railway companies of a committee of experts, to determine and standardize track and locomotive apparatus, having regard to differences in structural and loading gauges, and the position of conductor rails on electrified railways.

The requisites recommended, as mentioned in conclusion no. 2 above, are as follows:—

1. The control apparatus to be constructed to work in conjunction with any system of fixed signalling, mechanical, power worked or automatic.

2. To be so constructed in respect of both track or train elements as to ensure the undermentioned effects being produced upon locomotives when running upon either home or foreign lines in Great Britain.

3. The control to be capable of producing three alternative effects, viz.: danger, warning, clear. (a) The danger effect to be produced at a 2 or 3-position stop signal, when this indicates, or should indicate, danger, and to consist of a full application of the power brake. In the case, however, of purely automatic signals, the danger effect is required to be produced only when the signal correctly indicates danger. The brake application to be capable of release by the driver, only by an action entirely distinctive in character from that required for the release of the warning brake application. (b) The warning effect to be produced at a 2-position distant signal or at a 3-position signal, whenever these indicate or should indicate caution, and to consist of an unmistakable brake application and audible warning. The brake application in this case to be capable of immediate release by the driver. The action for brake release in respect of both danger and warning effects must necessarily re-set the locomotive apparatus in the normal receptive position. (c) The clear effect to be produced at a 2-position distant signal, or at a 3-position signal, when these correctly give the clear indication, and to consist of an audible signal distinct from that required for the warning effect. The control of this locomotive apparatus to be in the hands of the driver, so that he may render it operative or inoperative at will. The clear effect shall be produced only when this condition is indicated both by the signal concerned and by the position in the frame of the corresponding signal lever; and in the case of automatic or semi-automatic signalling also by the condition of the corresponding track controls. In all other circumstances either the danger or the warning effects, as the case may be, shall be produced.

4. To be so constructed that the correct position of all track and train elements of the device shall be assured under all conditions of speed, atmosphere, weather, wear, oscillation and loading; and that the device shall operate under all conditions which permit of traffic movements.

5. The track apparatus, in event of failure of any of the actuating mechanism, electrical energy, or connections, and in the event of other electrical faults, to assume the danger or warning condition, as the case may be, and give the corresponding indication. The integrity and correct position of all moving parts of the track apparatus, which are designed to come in contact with the locomotive apparatus, must be continuously indicated to the signal man or detected in the case of automatic signalling. Failure of any portion of the locomotive control apparatus, which prejudicially affects the brake control in connection with the danger or warning effects, to give an unmistakable application of the power brake.

6. To be capable of operation upon locomotives fitted with air, vacuum, steam or other power brakes, or any combination thereof.

7. The locomotive apparatus to be such as not to interfere with or impair the efficiency of the normal working of the power brake.

8. The apparatus to be such that it will be operative when the locomotive is running in forward or backward gear, without involving any action additional to that normally necessary for reversing the direction of travel of the locomotive.

9. The apparatus to be inoperative automatically in respect of the danger effect, when a train passes a signal not applicable to the direction of its movement.

10. To be of simple standardized construction, with easily interchangeable parts, so that maintenance, inspection and tests to ensure efficiency of all the parts shall be easily carried out. Any part of the apparatus which is liable to be destroyed, by shock of impact, must be capable of rapid replacement.

11. To be so constructed and installed as not to constitute a source of danger to railwaymen or passengers.

12. Where there are a number of signals at any point applicable in the same direction to one road, the track apparatus for that road must be capable of operation in conjunction with any one of the signals in question.

Railway Carriers' Liability Fixed by Bill of Lading.

The Quebec Superior Court heard an action, recently, in which Hatfield & Scott Co., sought to recover \$2,087.73 from the C.P.R. Co., geing the value of three car loads of potatoes shipped by the plaintiffs over the C.P.R. for delivery to W. Vipond, Belleville, Ont., and not delivered. Two of the cars were shipped from Bonaventure, Que., and the third from Caplin, Que., and all three were refused by Vipond on their reaching Belleville. Notice of the refusal to accept was served by the railway company on the plaintiffs as well as on Vipond, under the Railway Act, sec. 356, but neither party paid any attention to it. The railway company, having kept the potatoes in storage for some time, finally sold them to defray freight and other charges, and claimed that it had acted in a proper and legal manner, and that there was no lien de droit between plaintiff and defendant in the matter. It was shown that one of the conditions of the bill of lading was that the amount of any loss or damage for which the carrier might be liable was to be computed on the value of the goods at the time and place of shipment. Mr. Justice MacLennan said there was no evidence of the value of the goods at the time and place of shipment, and therefore it was not necessary to express any opinion upon the other questions raised, and the action was dismissed with costs.

From Ballynea to Ballyfar in Ireland the railway is a single track. The station-master at Ballynea once started the train without consulting any one. While he was watching it disappear in the distance, the signalman stuck his head out of his box and said, "Did ye shart her?" "I did," replied the other. "An' me just callin' the wan from Ballyfar!" cried the signalman. The other rubbed his hands, saying, "Be gor, she'll meet her match!"

British Press Opinions of Sir Henry Thornton.

Canada, London:—"The choice, seems to be an excellent one. Sir Henry is a railwayman of experience and eminence. His American training was of great assistance in reforming the workings of the Great Eastern line, with its heavy suburban traffic and important continental services. His work during the war has also given him valuable experience that will stand him in good stead in his new post. Had he not accepted the offer made to him at Ottawa, he would have been the obvious head of the Eastern Group of English railways under the scheme of amalgamation."

Canadian Gazette, London:—"For the Great Eastern he worked wonders. In all departments of the line his individuality and enterprise were felt. He revolutionized the suburban traffic of the line, which is said to be the largest in the world, he brought prosperity to the holiday resorts on the East Coast, and was lately engaged in improving continental traffic, which has not yet recovered from the disorganization due to the recent war."

Morning Post, London:—"Under Sir Henry Thornton, the Great Eastern Ry's suburban service was brought to a standard unequalled in the world by steam trains. In the opinion of those best qualified to judge, he did all that ever can be done in the handling of vast suburban traffic by steam operated trains in and out of a London terminal. The results obtained at Liverpool St. station prove that the solution of the great suburban traffic problem is no longer the frequency of the service, as much as the speed with which trains and platforms can be emptied. Steam has been shown capable of giving the frequency at present required, and the Great Eastern has been saved the expense of installing electric traction. Sir Henry's name was recently mentioned as a likely nomination for the post of controller of the eastern group of railways when the scheme of amalgamation is completed."

Railway Gazette, London:—"A few weeks ago a leading railway officer remarked to us that in his opinion it would be little short of a calamity if the services of Sir Henry Thornton were lost to British railways. That calamity is about to take place, for Sir Henry has accepted the position offered to him of President of the newly formed Canadian National Rys. system. Lord Claud Ham-

ilton's speech at the annual meeting of the Great Eastern Ry. in Feb. 1914, announcing the appointment of an American General Manager, and the reasons which led the directors of that company to make the appointment, raised much controversy. Starting with such a 'wet sail', many smaller personalities would have accomplished little. Considered at first as an intrusion, Sir Henry Thornton has come to be regarded as an institution in the British railway world. Everyone now quite understands why the General Superintendent of the Long Island Division of the Pennsylvania Rd. made such an impression on Lord Claud Hamilton. If the latter had not done anything else in his thirty years' chairmanship of the Great Eastern this one act would always be a striking example of his perspicacity.

"Within a few months of Sir Henry Thornton's Great Eastern appointment came the outbreak of the Great War in Aug. 1914. His services during the war are recorded elsewhere in this issue. He became a naturalized British subject and so to speak, burnt his bridges behind him, and most of us thought that his genial personality, always suggestive of fresh breezes from the west, would long continue to be a powerful force in the counsels of those responsible for British railway management and operation. What he has already accomplished on the Great Eastern even in the difficult period subsequent to the war, has been the subject of many articles in our columns. He had no abhorrence of anything new because it happened to be new. His attitude towards labor and labor leaders sometimes made those of the older school shake their heads.

"In his conception, one of the most important functions of a railway general manager, president, managing director, or whatever may be his title, is to make his line popular with the public, and never to let supposed grievances rankle. In fact, we have heard him described as an ideal publicity agent. Those who made this criticism, if criticism it was intended to be, overlooked that it was quite in their power to do the same, but it was the fact that he was at the top, and yet always accessible, and not afraid to speak, that gave him his public. Though instinctively a diplomat, Sir Henry is by no means superficial. A student of labor problems, a good engineer and a

trained operating officer, he can talk in the vernacular on any of these subjects. Evidently an admirer of Napoleon, he would sometimes speak of that great Frenchman's wonderful sense of leadership, and how he would inspire thousands who had never seen him face to face, and how that same spirit must dominate both the officers and the rank and file of the four great railway groups, unless they are to be conducted on the slothful, lethargic and promotion-by-seniority principles, which characterise so many Government departments. Undoubtedly Sir Henry Thornton's personality has dominated the Great Eastern these last few years and the officers and rank and file regard his impending departure as a personal loss.

"There is no point in ignoring the fact that although such speculations are in railway parlance, quite premature, Sir Henry Thornton had been freely mentioned as a possible general manager or joint general manager of the great railway company into which the Eastern Group of railways are to be amalgamated and absorbed. But evidently the potentialities of the newly-formed Canadian National system have appealed to his imagination. He has remembered the old adage about a bird in the hand being worth two in the bush, and has accepted the Presidency of the new system, which is a combination of the old Grand Trunk, the Grand Trunk Pacific, the Canadian Northern, the Intercolonial and other Canadian Government railways. The total mileage of the system is something over 22,000, and its annual gross earnings over £25,500,000. It owns 3,217 locomotives, 3,302 passenger vehicles, and 129,121 freight and service cars. It is interesting to compare these figures with the totals of the railways which will shortly comprise the Eastern Company. The total mileage will be 6,700; and the annual gross earnings are about £90,000,000. It will own 7,500 locomotives, 20,500 passenger vehicles, and 302,000 freight wagons. Thus, two great experiments are being entered on; judging from its present position, the Canadian proposition is the more difficult of the two. Sir Henry Thornton's temperament and qualifications will make him an excellent President of the Canadian National Railways. This country's loss is Canada's gain, but all here will wish him the best of good fortune."

Sir Henry Thornton's Farewells in England.

Sir Henry W. Thornton, who was appointed President, Canadian National Rys. on his arrival in Ottawa on Oct. 4, and who sailed from New York on the s.s. Olympic, Oct. 14, after his brief visit to Canada and some points in the United States, arrived at Southampton, Eng. Oct. 21, accompanied by Lady and Miss Thornton, and was met there by S. A. Parnwell, Assistant General Manager and Land Agent, Great Eastern Ry., who has since been appointed General Manager. On reaching his office at Liverpool St. station, London, Sir Henry found himself practically inundated with invitations for a number of farewell dinners, etc., of a semi public nature, and with many private invitations which were far too numerous to be accepted in the short time at his disposal.

The Canada Club entertained Sir Henry

at dinner at the Savoy Hotel, London, on Oct. 31, over 100 guests being present including Lieutenant Governor Nichol, of British Columbia; Sir George E. Foster, Canadian Senator; Hon. Rodolphe Lemieux, Speaker, Canadian House of Commons; the Permanent Under Secretary for the Colonies; the United States Ambassador and the U.S. Consul General to Great Britain; the Agents General of British Columbia, Nova Scotia, Ontario and Quebec; several directors of the Great Eastern Ry.; the general managers of the Great Central, the Great Western, the London & South Western, the Midland, and the North Eastern Rys.; a number of Great Eastern Ry. officials, and the following Canadian National Rys. and Grand Trunk Ry. officials: Wm. Phillips, European Manager; A. H. Concybeare, Assistant Local Secretary, G. E.

Cowie, General Freight Agent, United Kingdom Traffic; P. A. Clews, General Freight Agent, European Traffic, and E. J. Wearing, European Express Agent, Canadian National Express Co.

Hon. P. C. Larkin, Canadian High Commissioner in London, who presided, read a telegram received by Wm. Phillips, European Manager, Canadian National Rys., from R. P. Ormsby, Secretary, C. N.R., Toronto, as follows: "Directors very much interested in Canada Club's dinner in honor of Sir Henry Thornton, the President and Chairman of Board of Directors of the Canadian National Rys. Sir Henry may feel assured that, on his arrival in Canada, he will receive a hearty welcome and loyal support from directors."

Mr. Larkin said: "It gives me a great deal of pleasure to propose the health of

our guest, who we can welcome as a new citizen of the Dominion. Sir Henry comes from the great nation to the south—brothers in blood, and, indeed, in all that constitutes brotherhood. He rendered his native country great service, and since has worked hard and successfully in the land of his forefathers. The position which he is now assuming in Canada is one of vast importance to Canadians, and, indeed, to the world." Mr. Larkin then gave some particulars of the Canadian Northern and Grand Trunk systems, and said: "I have good authority for saying that this year, the two transcontinental systems will more than pay operating charges, but there will still remain the enormous deficit caused by the dividends to be paid to debenture and share holders, liabilities which were undertaken in the goodness of its heart by the Canadian Government. The task of bringing the roads to such a state of efficiency that they will earn their fixed charges lies with our guest, Sir Henry Thornton. I think it is due to my friends, Sir Joseph Flavelle and D. B. Hanna, to say a word as to the great public service they have rendered the Dominion. Sir Joseph, well known as a great public servant, at the request of the Government, abandoned his own private affairs to take the Chairmanship of the Grand Trunk Ry., which, from the financial point of view, was in a most deplorable state, its operating loss being enormous. This year, under his management, leaving out the fixed charges, it will show a profit. Very much the same pleasant story can be told of the management of the Canadian National Rys. by Mr. Hanna, and all Canadians owe those two gentlemen a deep debt of gratitude. Sir Henry Thornton enters his new office in perhaps the most favorable year that the Dominion has ever experienced. Crops have been most bountiful, which will react on all kinds of business; the Imperial Government has concluded to remove the embargo on Canadian cattle, which will provide traffic for at least 200,000 head annually; our finances are in a healthy state, in spite of the enormous drain of the war. At one time our currency was at a discount of 20%, compared with the United States dollar; for days past it has been at a premium—showing the recuperative power of a people willing and able to produce wealth."

E. R. Peacock, President, Barcelona Traction, Light & Power Co., one of the Bank of England governors, and formerly of Toronto, supported the toast.

Sir Henry Thornton, in replying, paid a tribute to his predecessors in Canada, and those who had made the Canadian Pacific the magnificent property it is. He hoped if there was any rivalry it would consist of giving the people of Canada an efficient and adequate transportation system. He agreed with previous speakers that the chief problem confronting the Dominion in its development is population. There is no country which beckons so alluringly to the man of courage and industry and enterprise. In a country where there are so great natural resources and where the temperament of the people is based upon what is greatest and best in the French and Anglo-Saxon races there could be no doubt about its future. He was proud that he had been given an opportunity to cast in his lot with such a people. The Canadian National Rys. proposed to lend every effort to encourage emigration on the part of those from the old country who would make self-respecting and self-supporting citizens. It seemed to him they should

pursue a policy of intensive and selective emigration. They must avoid the mistake which was made in the United States in throwing down the barriers and allowing every sort of emigrant to enter the country. They wanted so to develop their immigration that they should have in Canada a united people, of common stock, and common tradition, and common aspirations, and not a mixture of all the nations of Europe. The Canadian people had embarked on what might be characterized as an adventure in the Government ownership of railways. Such adventures had not usually been successful in other countries, but there was no reason why the government administration of railways should not be successful if it was done on a businesslike basis, and if politics were kept out of it. He had the assurance of the Prime Minister, an assurance which any government would give, and which every government must maintain, that there was to be no political interference in the administration of the Canadian railways, and he wanted to make it just as emphatic that there was not going to be any interference. It was the only basis upon which they could hope to make a success of their administration. Quoting Lincoln, he said they proposed to give to the Canadian people a railway administration which was of the people, by the people, and for the people. The board and himself were at the service of the people of Canada, and they hoped to administer the railways in the interests of no section, but in the interests of all. In every large undertaking two things were essential for success: correct organization, and an able and loyal personnel. There must be a personal and responsible contact with the employee and the public. Both the employees and the public expected their difficulties to be dealt with in a speedy and responsible fashion. That could only be done through a proper local responsible representation. The responsible officers of the railway system must also know accurately what its performance was, and there must be a speedy and effective control of expenses. Lastly, there must be a knowledge of the needs and conditions of each region served by the company. He was satisfied there were on the Canadian railways a sufficient number of men to officer the system adequately in an efficient fashion. There would be no place on the Canadian National Rys. for the vicious, incompetent, or disloyal, if such there were, but every advantage and inducement would be held out for those who faithfully and honorably served the company and the people of Canada. Sir Henry said he was not so foolish as to imagine that he was the only man who could successfully operate the Canadian National Rys., but he had been asked to accept responsibility, and he proposed to see it through.

The U.S. Ambassador, who responded to the toast to the visitors, in referring to a remark made by Mr. Peacock that the U.S. had never been able to produce a transcontinental railway, said that did not bother his countrymen at all. They were prepared to accept any reason for not working railways through the Government. In alluding to the attempts to bring about reciprocity between the U.S. and Canada, he said that, outside politics, there had been a good deal of reciprocity between the two countries, particularly in men. "You gave us that great railway man, James J. Hill; we gave you Sir William Van Horne," he said, "and now that we have given you

Sir Henry Thornton I think Canada, like most other countries of the world, is in our debt, but as long as you tell us you will pay, we will give you plenty of time to pay it in." He said Sir Henry had ignored the usual advice to go west; from Indiana he had gone east, where, among other activities, he had added a Pennsylvania girl to his system; now that he was returning west he wished him every success.

The Great Eastern Ry. Musical Society held its opening meeting, for the 1922-1923 season, in London, on Nov. 1, Lord Claude Hamilton, Chairman of the company and President of the society, being in the chair. H. T. Bailey, one of the company's directors, in proposing a vote of thanks to the chairman, paid a high tribute to Sir Henry Thornton, who, in expressing thanks for the kind and appreciated remarks, said he owed more to Lord Claude Hamilton than to anyone else. The Musical Society had done much to promote not only that harmony which is pleasing to the ear, but also the harmony which promotes esprit de corps. He hoped to be able to transfer some of the harmony found on the Great Eastern Ry. to the Canadian National Rys.

The Great Eastern Ry. officials, and members of the staff, bade farewell to Sir Henry, Lady and Miss Thornton at the Abercorn Rooms, Liverpool St. Hotel, London, on Nov. 2, when they were all the recipients of gifts, and Sir Henry was given the National Union of Railway Men's gold medallion, by its General Secretary, J. H. Thomas, who said that he had proved to be one of the best general railway managers England had ever known. During his short stay he had broken down class barriers and hatreds, and would leave behind him a record of fair play and fair dealing that other general managers would be compelled to live up to in the days to come.

Personal friends.—Sir Henry was entertained at dinner at the Savoy Hotel, London, on Nov. 2 by a number of his personal friends. Wilson Cross, Chairman of the American Society of London, presided. Lord Dewar, in wishing Sir Henry God speed, said that all who knew him respected and revered him. An acute, well stored, mind had gained him the confidence of his friends, and the respect of the whole community. It was their hope that when he was supervising the destinies of the 20,000 miles of railways in the west, he would retain a kind thought for the old mother country. Other speakers were Lord Riddell, Sir Guy Granet, director, Midland Ry., and Sir Herbert Walker, General Manager, London & South Western Ry.

The general managers of British railways entertained Sir Henry at dinner in London on Nov. 10, when he was given souvenirs by the General Managers' Conference. Frank Tatlow, General Manager, Midland Ry. said Sir Henry had a difficult and arduous task before him, but one he could and would face up to, and if he was given fair play, and freedom from political influence and interference, Canadians would find they had placed their national railways under the control of a man capable of seeing the thing through.

Canadian Railway Club.—Grafton Greenhough, Vice President, Baldwin Locomotive Works, Philadelphia, Pa., addressed the club in Montreal on Nov. 14, on some recent developments in locomotive construction.

Sir Henry Thornton in Canada.

Sir Henry Thornton sailed from Southampton, Eng., on Nov. 22, for New York, by the s.s. Olympic, and arrived there, Nov. 28, when he stated that he would probably leave for Ottawa within a couple of days. The G.T.R. business car Bonaventure was sent to New York for him, and Hon. G. P. Graham, acting Minister of Railways and Canals, and Major Graham A. Bell, went there to meet him.

Offices have been taken for him on the sixth floor of the Jackson Building, 122 Bank St., Ottawa. Canadian Railway and Marine World is advised that these offices have been taken for a temporary purpose, probably until the question of permanent headquarters has been settled. The Canadian National Ry. Co's Act, 1919 provides that its head office shall be at such a place as the Governor in council may from time to time determine. Members of the Government have stated that the selection of headquarters will be left to the board, but, of course, in the final analysis, the decision rests with the Government, as provided in the act.

It is probable that a meeting of the C.N.R. directors will be held as soon as possible after Sir Henry reaches Ottawa, to take action in regard to ordering rolling stock, rails, etc., for the Canadian National Rys. as now constituted, and for the G.T.R., and to decide on some at least of the construction and betterments for next year, after which Sir Henry will probably make an extended inspection of all the lines to be co-ordinated.

Sir Henry has already accepted several invitations from public bodies, including a luncheon by the Ottawa Board of Trade, a dinner by the Montreal Board of Trade, and a luncheon by the Empire Club, Toronto. It is stated that he will be invited to attend a dinner to W. D. Robb, Vice President and General Manager, G.T.R., in Belleville, Ont., on Dec. 11.

Traffic Orders by Board of Railway Commissioners.

Freight Rate on Box Shooks.

General order 371. Nov. 3.—Re Canadian Lumbermen's Association, Dominion Canners, et al, against proposed change published in tariffs of various railways to be applicable on box shooks, in carloads. Upon reading the submissions filed in support of the complaints, the Board orders that the change in tariffs or supplements filed by railways qualifying the wording of the item providing for box shooks, in carloads, by stipulating that the same will not apply on material cleated, or glued together, or otherwise made up, and providing on such material the box shook minimum weight and rate plus 4c per 100 lb., be disallowed, as from Nov. 1, 1922, pending hearing on a date to be fixed by the Board.

Express Classification of Oysters in Glass Jars.

33,021. Oct. 23.—Re complaint of Connecticut Oyster Co., Toronto, relative to express classification of oysters in glass jars: Upon hearing the complaint at Ottawa, July 5, 1922, the complainant and the Express Traffic Association of Canada being represented at the hearing, and what was alleged, and upon the report of its Assistant Chief Traffic Officer, the Board orders that the complaint be dismissed.

Express Rates on Oysters.

33,056. Nov. 8.—Re application of the Express Traffic Association of Canada

for approval of Supplement 3 to Express Classification for Canada 5, providing for a weight allowance of 15% from the gross weight on shipments of oysters, in glass, when packed in ice. Upon reading the submissions filed, and the report and recommendation of its Assistant Chief Traffic Officer, the Board orders that the said supplement be approved.

Maritime Coal, Railway & Power Co's Tariffs.

33,088. Nov. 14.—Re application of the Maritime Coal, Railway & Power Company, under sec. 331 of the Railway Act, 1919, for approval of its standard freight tariff, C.R.C. 1. Upon the report and recommendation of its Assistant Chief Traffic Officer, the Board orders that the said tariff be approved.

33,089. Nov. 14.—Re application of Maritime Coal, Railway & Power Company, under sec. 334 of the Railway Act, 1919, for approval of its Standard Passenger Tariff, C.R.C. 1. Upon the report and recommendation of its Assistant Chief Traffic Officer, the Board orders that the said tariff, be approved.

33,090. Nov. 14.—Re application of Maritime Coal, Railway & Power Co., under sec. 323 of the Railway Act, 1919, for approval of bylaw R, passed Oct. 11, 1922, authorizing Norman T. Avar, General Manager of the company, to prepare and issue freight and passenger tariffs of the tolls to be charged in respect to the railways owned and operated by the company, and to specify the persons to whom, the place where, and the manner in which such tolls shall be paid. Upon the report and recommendation of its Assistant Chief Traffic Officer, the Board orders that the said bylaw be approved.

The Privy Council Judgment in the G.T.R. Arbitration Case.

When the Imperial Privy Council's Judicial Committee gave judgment in July, dismissing the G.T.R. shareholders' appeal, against the arbitrators' award, declaring that the company's preferred and common stock had no value, it was stated that the reasons for arriving at that conclusion would be given later. These reasons were set out in a judgment delivered Nov. 10 by Lord Birkenhead, who presided at the hearing. He stated that the court had no right to enquire into the merits of the arbitrators' award but only to determine whether they had so erred in law that their finding should be set aside. There were two main objections raised against the arbitrators' action. In regard to the first point that the arbitrators were wrong in excluding evidence of the physical assets value, the court pointed out that the system was to be taken over as a going concern and at the value to the holders of the stock in a going concern. The success of a railway depended on its position, traffic management and organization, and the court thought it futile to attempt to draw conclusions from the value of physical assets. The conjecture that the Board of Railway Commissioners would, in fixing rates for the future, have regard to replacement cost, was not supported by any evidence. The committee came to the conclusion that any attempt to estimate future profits by reference to selling value was doomed to failure, and accordingly found that the arbitrators were justified in refusing to embark upon an enquiry which would have occupied many months, and which would

have had no legitimate bearing on the question they had to determine. The second point was that the chairman of the arbitration board relied on evidence given by the President of the G.T.R. before a Royal commission on railways and not repeated at the arbitration proceedings. The committee held that all the material facts were really in the correspondence and other documents filed and made evidence in the arbitration proceedings, and that they, therefore, could not advise the setting aside of the award on the ground of the chairman's action. The appeal was therefore dismissed.

A London, Eng., cable of Nov. 22, stated that the committee of G.T.Ry.Co's shareholders which has been considering the position since the Privy Council's judgment had come to the conclusion that no further legal action could be taken to obtain compensation from the Dominion Government.

Edmonton, Dunvegan and British Columbia Railway's Finances.

Attention was directed to the financing of the Edmonton, Dunvegan & British Columbia Ry. and its affiliated line, the Central Canada Ry., by the recent filing of a caveat in the Land Registration office at Edmonton, Alta., by the Union Bank, which advanced considerable sums to the J. D. McArthur Co., during the construction of the lines. When the Alberta Government took over the properties, and turned them over to the C.P.R. Co. for operation, the bank accepted second mortgage bonds as a guarantee of its claims. It was also arranged that the bank was to be consulted in the event of any new expenditures or extensions which would have the effect of increasing the amount of first mortgage bonds, and consequently affecting the bank's second mortgage securities. The Government arranged to finance the construction of an extension of 12 miles, from near Peace River to the Waterhole District, and an extension of 15 miles westward from Grand Prairie. So far the bank has not approved of these extensions, nor has it objected to them, but it desires to have some better security or guarantee for its claim. The bank's General Counsel is reported to have stated that the proceedings have been taken as a precautionary measure, to protect the bank's interests in connection with money advanced for the operation of the line by the McArthur interests. The bank's security consists, among other things, of a specific mortgage, taken in 1919, covering the company's terminals and lands. There is said to be no intention of attempting to realize on the security, and possibly nothing will be done until the expiration of the five-year operating agreement with the C.P.R.

The C.P.R. has, we are officially advised, opened new offices in Philadelphia, Pa., at Locust and 15th Streets, a ground floor corner site, more conveniently located in the heart of the business district than the former one. The offices are fitted up in the most modern style. The lines and services represented are:—C.P.R., railway and steamship lines; Minneapolis, St. Paul and Sault Ste. Marie Ry., Duluth, South Shore and Atlantic Ry. F. T. Goodman, District Freight Agent, has jurisdiction over freight matters, and R. C. Clayton, City Passenger Agent, is in charge of passenger matters.

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George Stephen's Return to the C.P.R.

In referring to George Stephen's resignation from the Canadian National Rys. Freight Traffic Department, to enter that of the C.P.R., the Toronto Globe's Ottawa staff correspondent said recently:—"Within the last few days a man of great value and service to the Canadian National Rys. has been taken over by the C.P.R. with the aid of a generous increase in salary. What makes it a matter for grave concern on the part of those directly and indirectly interested in the success of the people's project is that his responsibility for a large measure of the remarkable gains in business made by the Canadian National Rys. in Western Canada is considered the chief reason for the assiduity with which the C.P.R. went out after this official. So far, it is known, the Canadian National System has played fair with the C.P.R., and has been well satisfied to meet it on open and even terms. The Government took E. W. Beatty, K.C., at his word when he declared not so many months ago at Thorold, that he welcomed national competition, that fair rivalry would prove of benefit to the country as a whole and to the users of the railways in particular. Now it is believed that this new policy of undermining the personnel of the Canadian National System will cause more losses to the public enterprise. The position of those entrusted with making the National road a profitable undertaking, rather than a drain on the public purse, to use Sir Henry Thornton's words, is understood to be that they are quite prepared to play in the open and on equal terms with the C.P.R., but if the latter adopts other tactics the new Canadian National board may be compelled to take a new course which could not help but be entirely effective. It is pointed out here that every recognition will be given those in the Canadian National System who show merit, that politics will never show its hand in the conduct of its business, and that the only men it is letting out, or will let out, are those of advanced years who are entitled to superannuation."

Whether the matter quoted above was simply a correspondent's effort to fill space, or whether it was inspired from an official source, we do not know, but, whatever its origin, it was excessively silly. To speak of the C.P.R. securing Mr. Stephen, as part of a policy of undermining the Canadian National System, is, in our opinion, absolutely without foundation. In view of certain changes the C.P.R. management wanted to make in its Traffic Department, it required an additional official of high capacity, and what more natural than that it should offer the position to Mr. Stephen, who had been in its service before, who has proved himself one of the ablest freight traffic men in the country, and is simply, as he expressed it, returning to his first love.

Suppose that the Dominion Government, instead of first trying to get a President for the Canadian National from the United States, and then going to England for one, had decided to offer the position to Grant Hall, or some other high C.P.R. official, would anyone doubt for a moment that it would have gone after the man it might have picked on, and would doubtless have resented, and very properly so, a charge that it was endeavoring to undermine the C.P.R. The

Government did not hesitate to offer the position to several United States railway presidents and other high officials, nor did it hesitate to approach Sir Henry Thornton. It is not in the interest of railway officials that they should be tied to any one road, or that other roads should be debarred from offering them positions, and they should be at full liberty to take advancement whenever offered them by any road, if they think it is to their interest to do so.

A considerable portion of the Canadian Northern Ry. official staff, which was passed on to the Canadian National Rys., was taken from the C.P.R., and we have no recollection of hearing that the C.P.R. charged its young rival with attempting to undermine it. Of the Canadian National Rys. three Vice Presidents who had previous railway service, S. J. Hungerford, Vice President and General Manager, was Superintendent of C.P.R. shops in Winnipeg when the Canadian Northern secured him in 1910; M. H. MacLeod, Vice President of Construction, was Chief Engineer and Superintendent of the C.P.R. Crowsnest Pass Branch, when he entered the Canadian Northern service; and R. C. Vaughan, Vice President of Purchases and Stores, started his railway work with the C.P.R., then going to the G.T.R., and from the latter to the Canadian Northern. A. E. Warren, General Manager, Western Lines, also started with the C.P.R. and the Canadian National Traffic Department has a number of officials from the C.P.R., notably R. Creelman, Assistant Passenger Traffic Manager at Winnipeg and W. G. Manders, Assistant Freight Traffic Manager at Winnipeg. An examination of other Canadian National departments would doubtless furnish numerous other similar examples of transfers from the C.P.R. to the Canadian Northern.

We do not believe that there is the slightest cause for endeavoring to create the impression that the C.P.R. has departed from the policy of fair rivalry which President Beatty spoke of, nor any occasion for the dire threat that the Canadian National board may be compelled to take a new course which could not help being entirely effective. Sir Henry Thornton, of course, was not a party to such a threat, which was published in his absence, and we do not believe that he would endorse it.

Index to Canadian Railway and Marine World for 1922.

For a number of years, Canadian Railway and Marine World has published, early in each year, a very complete index to the contents of the previous year's issues, which we know has been very much appreciated by the large number of subscribers who bind the paper for reference. Owing to what we consider an arbitrary ruling of the Post Office Department, we have not been allowed to simply enclose the index as a supplement with the regular issue of the paper got out at the same time, but have had to bind it in as part of the issue, making it somewhat difficult to detach for binding with the previous year's volume.

We have therefore decided that the index for 1922, which will be published early in 1923, will not be bound in as heretofore, but will be issued and mailed separately, and will only be sent to those who apply for it. Subscribers who wish to receive copies are therefore requested to advise us as early as possible, so that we may know the number that it will be necessary to print.

"An Eastern Official on an Inspection Trip."

The Toronto Globe, during the Canadian National Rys. directors' recent trip from Montreal to Lucerne, B.C., and back to Quebec, published, under the heading quoted above, the following from its Ottawa staff correspondent:—"Much significance is attached here to the fact that L. S. Brown, Assistant Manager of the Eastern Lines of the Canadian National System, with headquarters at Moncton, is accompanying the new Canadian National board on its trip of inspection over the entire system, which began in Montreal. * * * Before Hon. W. C. Kennedy, Minister of Railways and Canals, contracted his present illness, a deputation from the east waited upon him and urged that Mr. Brown be given control of Eastern Lines, and be promoted to the position of Manager, he having come up from the bottom on the Intercolonial, and having proved his high ability as a railway executive. It is understood that Mr. Kennedy expressed himself as sympathetically inclined to granting the demand, and Mr. Brown's presence on the present inspection trip is believed to signify pending promotion."

The foregoing is a sample of the twaddle which daily newspapers frequently palm off on their readers as "news." As a matter of fact, Mr. Brown is not Assistant Manager at Moncton, but Assistant General Manager at Montreal. From the heading it would be inferred that he made a special inspection himself, and, from the body of the dispatch, that he was the principal, or only, official who accompanied the directors, and that he went over the whole system with them. His presence on the trip was owing to instructions from the Vice President and General Manager, in Toronto, that the General Manager of the Eastern Lines, and the General Manager of the Western Lines, should accompany the party over their respective territories, and that they should take with them in each case their Assistant General Manager, Chief Engineer, General Superintendent of Rolling Stock, and General Master Mechanic. Mr. Brown, therefore went, with General Manager Kingsland, from Montreal to Port Arthur, and H. H. Brewer, Assistant General Manager, Western Lines, went west from Port Arthur with General Manager Warren. The names of the various officials accompanying the party were given in Canadian Railway and Marine World for November. If the fact of their having been on the trip was an indication of approaching promotions, it would be pleasant news for all of them, and cause rejoicings all along the line. In the reorganization of the Canadian National staff, which will no doubt take place in the near future, when the G.T.R. is co-ordinated, Mr. Brown, as well as other officials, may receive promotion, but it was not because of any then impending promotion that he was one of the many officials who went on the directors' trip.

Canadian Railway and Marine World has never suggested railway officials for promotion, or given currency to rumors regarding them. It has known of many cases where persons slated for certain positions have not been given them, on account of premature publicity, and it would strongly advise the press and the politicians, not only in the Maritime Provinces, but elsewhere, to allow Sir Henry Thornton to make his appointments without their suggestions.

If the Minister of Railways did receive a deputation from the east, and express himself as sympathetically inclined to granting their "demand"—mark the word "demand"—the oft repeated statement that there is no political interference with the management is clearly disproved. The receiving of deputations by the Minister, or other members of the Government, in regard to Canadian National Rys. matters, should cease, and the deputations should be referred to the President or some other general officer. We hope that Sir Henry Thornton will insist on this.

A Serious Charge Against a Canadian National Railways Director.

The Renfrew, Ont. Mercury, a Liberal newspaper, said in a recent issue:—"At the Lanark County Conservative convention held at Carleton Place, recently, Sir Henry Drayton, a responsible parliamentarian and public man, who was formerly Finance Minister of Canada, had some criticism to make of the personnel of the new National Railways' Board. One can afford to pass by his slighting remarks about Mr. Sinclair as just so much cheap campaign stuff. We were not aware that advanced years was any bar to public service. Sir Henry's own successor, Mr. Fielding, is 76, but we know of no one in Canada who can fill the position as Finance Minister any more capably, nor do we know of anyone who retains to a greater degree the confidence of the business men of the Dominion."

"The charge which Sir Henry Drayton gave publicity to in regard to Frederick Dawson, of Prince Rupert, is far more serious and one which the Government cannot afford to ignore. He intimates that Mr. Dawson is a bootlegger on a large scale and is referred to by members of his own party as the 'King of the Bootleggers.' The King Government cannot afford to ignore the published statement of Sir Henry Drayton. If Mr. Dawson is now a bootlegger, he should receive no office at the hands of the people of Canada, and his resignation should be asked for at once. If he is not a bootlegger, Sir Henry Drayton should be asked to apologize. Let there be no quibbling. We never heard of Mr. Dawson before. We don't know yet whether he is a Liberal, a Conservative or a Progressive, nor do we care, but if he is bootlegging, or in other words, enriching himself by defying the laws of the land, he should only be left on the National Railways Board long enough for Premier King to get a telegram to him asking for his resignation, and if it is not forthcoming he should be summarily dismissed."

The article quoted above is specially significant owing to the fact that the Renfrew Mercury's proprietor and editor, W. Rupert Davies, besides being one of the leading men in the Canadian Weekly Newspaper Association, is on very intimate terms with Hon. T. A. Low, M.P. for South Renfrew, Ont., and a member of the Dominion Government. Canadian Railway and Marine World unhesitatingly endorses the Renfrew Mercury's stand on this matter. The correctness, or incorrectness, of Sir Henry Drayton's charge should be clearly established. If Mr. Dawson is not what Sir Henry charges him as being the latter should withdraw his statements and apologize. If the charge is true and Mr. Dawson does not have the wisdom to resign he should be dismissed, as if he is what Sir Henry

Drayton describes him to be it would be an insult to Sir Henry Thornton and the other directors to have him forced on them as a colleague.

Has the Lesson Been Learned?

According to a special report issued by the U. S. Interstate Commerce Commission, the twelve class 1 railways in the U.S., with operating revenues above \$25,000,000 annually, which in the first seven months of 1922 have shown the lowest operating ratios—the lowest proportion of operating expenses to revenues—are as follows: Elgin, Joliet & Eastern, 59.7; Missouri, Kansas & Texas, 64.4; Norfolk & Western, 66.9; New York, Chicago & St. Louis, 70.4; Union Pacific, 70.6; Atlantic Coast Line, 71.3; Michigan Central, 71.9; Cleveland, Cincinnati, Chicago & St. Louis, 72.2; Southern Pacific, 72.5; St. Louis & San Francisco, 73.4; Long Island, 74.2; Denver & Rio Grande, 74.3.

The monthly summaries of U.S. railway operating results appearing in Canadian Railway and Marine World have shown that there has been, in 1922, as compared with 1921, large improvement in the railway situation in that country, and it may be taken for granted that these more favorable results, coupled with just as favorable prospects for the future, have had a lot to do in influencing U. S. railway managements to place the large equipment orders which have been given recently in that country. The manner in which the U.S. public demanded and the various regulating commissions limited the profits made by the railways over a period of years, is well known, and it is now pretty generally admitted by students of the situation that this short-sighted policy had a most adverse effect on the country's welfare, through the cessation of railway development, and through the railways' inability to properly serve industry in times of good business. The favorable operating ratios above noted would lead one to believe that the regulating authorities in the U.S., and the U.S. Government itself, have come to a realization of the fact that unduly severe and restrictive regulation of railways is false economy, and ultimately a very expensive procedure. It would seem that the costly lesson of Federal control, and the great car shortage in the last period of good business, have taught the U.S. people the lesson that public utilities cannot operate without adequate revenues and that transportation cannot be obtained over a period of time for less than its economic value, without that transportation deteriorating in quality and becoming more costly than ever.

Another article in this issue reviews Canadian railway operating results for August. Canadian railways as a whole in that month had an operating ratio of 88.57. The Canadian National operating ratio was 108.67, the Canadian Pacific, 81.96, and the Grand Trunk, 85.07. Are those in authority in Canada going to maintain railway regulation so restrictive that we will ultimately have the same expensive experiences that the U.S. had, or will they, possibly, realize that if railway development is slowed up by inadequate revenues, the ultimate result will be higher costs to the public for transportation than there would be if the railways are given an opportunity to derive earnings which will provide for development of, and additions to, their facilities, in such a way that the greatest efficiency and economy in operation may be secured.

The Necessity of Correct Valve Setting. Last Minute Items, Too Late for Classification.

Canadian Railway and Marine World's attention has been called to tests made with Pacific type locomotives, which demonstrate the necessity for correct valve setting, and for thorough maintenance of the valves and their actuating mechanism. It is stated that, prior to the tests, an examination of the valve gear showed a number of minor defects; the lead in forward motion was about $\frac{1}{4}$ in. on both sides, but in back motion was only $\frac{1}{32}$ in., while the lap on one side was $\frac{1}{32}$ in. greater than the design called for, and $\frac{1}{16}$ in. too great on the other side. There were also errors in the length of radius rods and eccentric rods, and in the throw of the eccentric crank. The net result of all these errors was that the proper sequence of valve events was not obtained, and indicator cards taken showed that at certain speeds the horse-power at one end of the cylinder was a third greater than at the other end, the cards being very unsymmetrical and badly distorted. After the tests with the valve gear in this condition, the required alterations were made, with the result that the locomotives steamed much more freely, less coal was burned, and the indicator cards were as they should have been.

It is well known that incorrect valve setting is the cause of enormous fuel wastes, and it is probable that the uneven applications of power have a very injurious effect on locomotives, necessitating more frequent shoppings and making higher maintenance costs. A "lame" locomotive cannot go over a division without proclaiming to everybody within hearing that it is wasting money for the company, but in addition, it may be imagined, in the sound of its exhaust is contained a message to the mechanical men concerned, to the effect that if its valves were squared and trued, the loss from this source would be stopped, and the proclamation contained in the exhaust blasts of varying intensity would disappear automatically.

The Ideal Railway Organization.

Guy Morris Walker, in his recently issued book, "The things that are Caesar's," says: "Some men have imagination, vision, initiative, daring, executive ability, call it what you will, but it is that which leads them to dare and to do, while the great mass of men refuse to do anything unless somebody else takes the responsibility for it. The greatest and oldest game in the world is 'passing the buck'."

A railway organization should be such that, among other things, authority should be so clearly defined and responsibility so definitely placed that "passing the buck" would become an impossible thing, while at the same time opportunity for the display of individual initiative should not be limited. To conform to this requirement, railway organization must necessarily receive all the best thought that can be expended upon it, but if it does so conform, it may be accepted as axiomatic that the result will be not only to the benefit of the railway and the public it serves, but also to the benefit of the railway employees, for the simple reason that not being able to "pass the buck" they have to "hit the ball."

Trent Canal.—F. R. Wilford, Lindsay, Ont., has been given a contract by the Railways and Canals Department to rebuild the dam at Young's Point.

The Norwegian Steamship Nordfjeld, bound from Sunderland for Gaspe, is reported, in a St. John's, Nfld., press dispatch, to have gone ashore on Flower Cove ledge, Newfoundland, on the north side of Belle Isle Strait, on Nov. 23, the crew being saved, but the ship being regarded as probably a total loss. Flower Cove is $\frac{3}{4}$ of a mile from Flower Island lighthouse, where there is also a fog explosive. The cove extends northeastward nearly a mile, with a width of $\frac{1}{4}$ mile at the entrance, narrowing to the head. A rocky islet lies in the middle of the entrance, and there is shoal water between it and the northern shore. The Newfoundland & Labrador Pilot's last edition says that it is reported that Flower Cove has shoaled and that there are $2\frac{1}{4}$ ft. less water than charted.

German Street Railways.—A Berlin press dispatch says that street railway companies are going out of business all over Germany. Already traffic has been stopped completely in 55 towns, because of the enormous increase in running expenses and the decreased revenue. The Berlin street railway companies have been forced to cut traffic in half and all the cars now running are without the usual trailers as the people cannot afford to pay the fare, 30 marks or $\frac{1}{2}$ cent. The deficit in the companies' finances is still increasing and the directors have decided to dismiss 3,500 employees at the end of December.

Suspension of Coasting Laws.—Acting Minister of Trade and Commerce Stewart, in the statement quoted on page 633 of this issue, said that the Government had come to this conclusion, that the grain congestion could be materially assisted by allowing other than Canadian ships to load and store grain cargoes and to discharge the same at Georgian Bay ports during the winter or early spring. But the Customs Department has gone much further, as it has officially advised us that Customs' collectors at Canadian ports on the upper lakes and the St. Lawrence, between Fort William, Port Colborne, Georgian Bay ports and Kingston east to Montreal, have been instructed that U.S. ships may be permitted to load grain for winter storage at their ports, or to carry such grain on the last trip of the ship to an eastern Canada port on condition that the grain shall be unloaded at such Canadian port after the close of navigation. This condition is to be noted on the ship's clearance, and copy of the clearance is to be mailed to the collector of Customs at the eastern Canadian port. The Government's action is a most flagrant violation of the Customs Act, as it allows something which is absolutely prohibited by statute, and practically instructs its officials to wink at such violations.

H. S. Carmichael.—The Holland-America Line has announced that it has formed a company named Holland-American (London), Ltd., to represent it as General Passenger Agent in Great Britain and Ireland, and has appointed Hugh Strain Carmichael, formerly Passenger and Freight Manager, Canadian Pacific Ocean Services Ltd., as Passenger Manager,

with office at 18 Pall Mall, London, S.W. I. Mr. Carmichael was born at Glasgow, Scotland, Mar. 7, 1874, and entered transportation service in Mar., 1889, since when he has been, to Apr. 7, 1891, in Passenger Department, State Line, Glasgow; Apr. 7, 1891, to Dec. 12, 1895, in Passenger Department, Allan Line, Glasgow; Dec. 13, 1895, to May 18, 1903, in Freight and Passenger Department, C.P.R., Glasgow; May 19, 1903, to June 30, 1905, in Passenger Department, C.P.R., Liverpool; July 1, 1905, to Apr. 14, 1907, Passenger Agent, C.P.R., Liverpool; Apr. 14, 1907, to Dec. 31, 1915, General Passenger Agent for Great Britain and Europe, C.P.R., London, Eng.; Dec. 31, 1915, to June, 1919, Passenger and Freight Manager, Canadian Pacific Ocean Services, Ltd., London, England.

A Canadian Contractor's Peruvian Railway Concession.

The Peruvian Legislature was, a press report states informed recently by the President of the Republic, of the details of the agreement entered into between the Government and R. W. Dunsmuir, of Victoria, B.C., and his associates for the construction of a considerable railway mileage in Peru. The contract, which the Legislature is being asked to ratify, provides for the construction of about 2,400 miles of railway at an estimated cost of \$120,000,000.

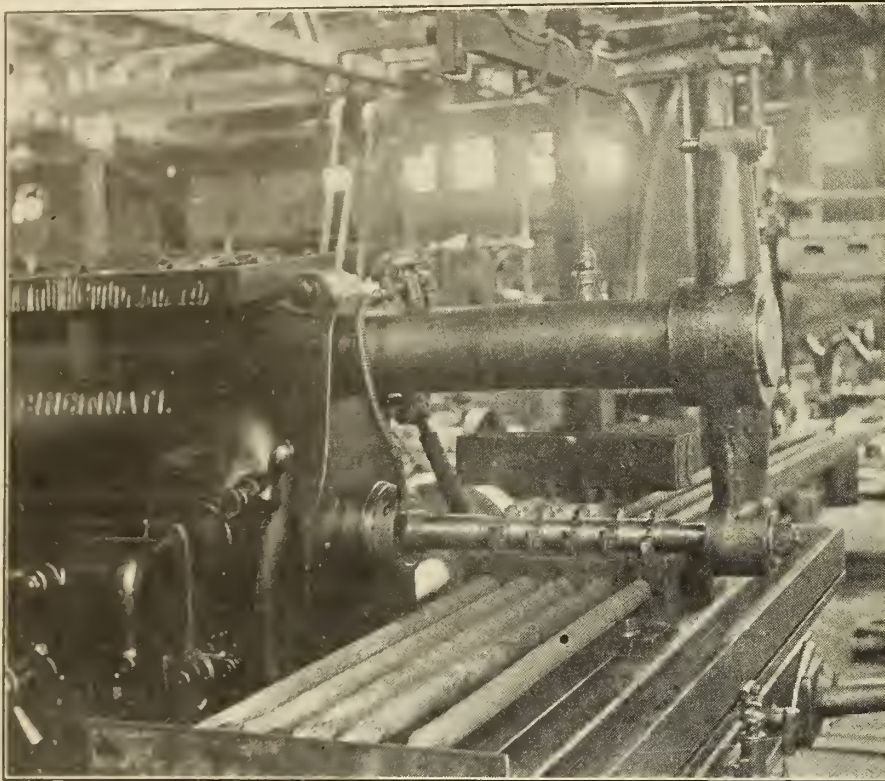
The existing railways, in Peru, with the exception of half a dozen short independent and mining railways, are owned by the Peruvian Corporation, but are operated by independent companies. They consist of eight separate railway lines, one of which terminates on Lake Titicaca, which is partly in Peru and partly in Bolivia, and on which the Peruvian Corporation carries on a steamship service from Puno to Guaqui, from which point it also operates a railway to La Paz, the Bolivian capital. With the exception of the Southern Ry. of Peru from Mollendo to Juliaca, thence northerly to Cuzco, and southerly to La Paz, 465 miles; and the Central Ry. of Peru, from Luna to Huancayo with three branches, 382 miles; the other lines are short varying from 20 to 100 miles in length and do not penetrate the Andes range. These lines run inland from the Pacific Ocean, the republic coast line, having an approximate length of 2,000 miles. The railways proposed to be built will connect up practically the whole of the lines owned by the Peruvian Corporation. They are stated to be as follows:—from Huacho to Lambayeque; from Lima to Pisco; from Huancayo to Ayacucho; from Ayacucho to Cuzco; from Pisco to Huancavelica; from Chuquicara to Jaen; passing through Cajabamba and Cajamarea; from Chimote or nearby port to Tambo del Sol in the neighborhood of Cerro de Pasco; from Tambo del Sol via Pachitea to Pulcapa on the Ucayali. Of these railways there is reported to be at present about 168 miles already built or under construction, and the contract calls for the completion of not less than 93 miles of line a year. The surface rights of 50,000,000 acres of land are granted in perpetuity, and the oil and mineral rights thereunder are granted for 33 years, the Government also surrenders the tobacco monopoly on the payment of about \$5,000,000. The income of the tobacco monopoly is calculated to yield about \$3,375,000 a year, and is to be used to aid in financing the undertaking.

Railway Mechanical Methods and Devices.

Slotting Keyways in Brake Masts.

The accompanying illustration shows the method in use at the C.P.R. Angus shops, Montreal, for slotting the keyways for the ratchet wheels in freight

as could be secured from any journal lathe. The air motor is a variable speed machine, and in finishing of journals advantage is taken of this feature. The use of this device, in the effort to keep the wheel work up to date, during the



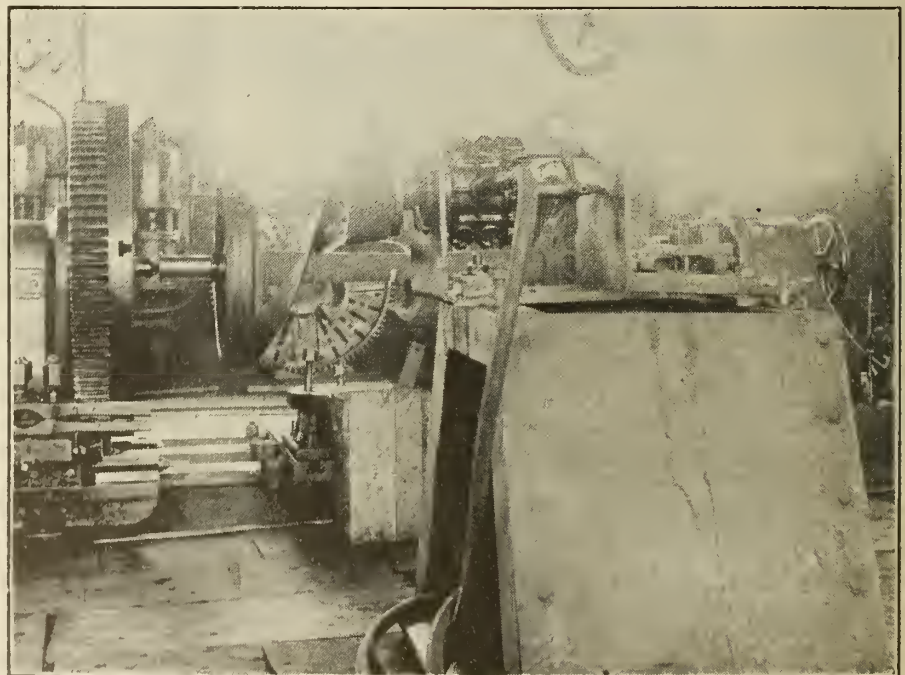
Slotting keyways in five brake masts in one operation.

car brake masts. The work is done in a milling machine, five brake masts being slotted at a time. The five masts are placed through the holes in the holder bolted to the bed of the machine, and vertical set screws hold them in position. The keyways, about $\frac{3}{16}$ in. deep and 5 in. long, are milled out while the masts pass under the milling cutters once only. The proper length of keyway is secured by the necessary adjustment for the travel of the bed of the machine.

A Substitute for a Journal Lathe.

The accompanying illustration shows a unique method, adopted on account of the regular journal lathe being temporarily out of commission, of turning up journals of wheels in the G.T.R. Toronto shops. As will be seen, the face plate has been removed from the right of the wheel lathe, and the two dead centers of the lathe are utilized to support the pair of wheels, and act as centers for the journal centers. Instead of power being transmitted to the lathe to operate it, power is transmitted to one wheel, to revolve the pair of wheels, a little giant motor, mounted as shown, and supplied with air through hose from the shop line in the usual manner, being used. The belt connection from the motor pulley to one of the wheels is as shown. The tool holder is shown at the right. The feed is by hand.

The results secured in journal work in this way have been uniformly satisfactory, the finish on every journal turned out with the device being fully as good

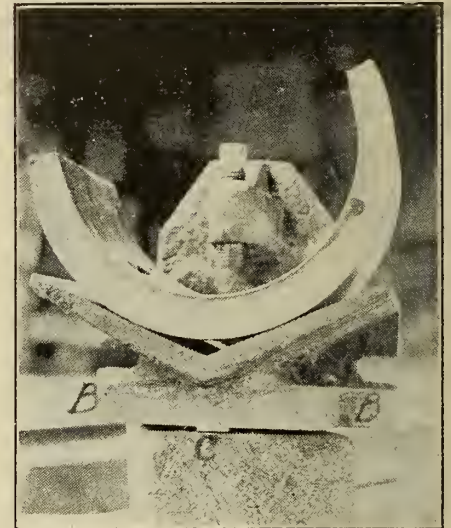


Arrangement for turning journals.

time repairs were being effected on the journal lathe was in the highest degree successful. For information concerning it we are indebted to J. Smith, General Foreman, G.T.R. Toronto shops.

Driving Brass Chuck.

The accompanying illustration shows a chuck devised in the Quebec Central Ry. locomotive shops at Sherbrooke, Que., for use in connection with driving brass work. The way in which the brass is held is shown in the illustration. The chuck is made of cast steel, and is used in planing and facing off the brasses. The set screw, passing through the cen-



Driving brass chuck.

tral lug in the upper part, bears down against the brass, to hold it in place. In this position the chuck is bolted on to the bed of the shaper by the lugs, two on each side, as at B B. The longitudinal lug C keeps the chuck lined up. In the lathe the brass is set centrally in the

chuck, for turning up the ends, and once it is set, as many as desired may be machined without changing position. We are indebted to E. M. Green, Locomotive Foreman, Q.C.R., for the information.

Steam Railway Operating Revenues, Expenses and Other Statistics for August.

The following comparative table for August, 1922 and 1921, has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics, Transportation Branch. The figures in the column headed "All railways" include all steam railways with an annual operating revenue of \$500,000 and over. There is a slight increase in the number of roads included under this heading, so that the data for 1922 and 1921 is not directly comparable with previous reports.

As the Canadian Government, Canadian Northern and Grand Trunk Pacific Railways are under one management, and operated as one system, the monthly operating reports for 1922 contain a consolidated report for these railways, under the heading "Canadian National Rys.," which includes the old Canadian Government Rys., viz., Intercolonial, Prince Edward Island, National Trans-

continental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.; the lines operated as the Canadian Northern Ry. System, prior to its acquisition by the Dominion Government; and the Grand Trunk Pacific Ry.

The column headed "Canadian Pacific" includes also the Montreal and Atlantic and Esquimaux and Nanaimo Rys.

The column headed "Grand Trunk" includes all the G.T.R. Co. of Canada lines, including 36.16 miles in the U.S.A., viz.: Champlain & St. Lawrence Ry., 1.21 miles; United States & Canada Ry., 22.18 miles; Vermont & Provincial Line Ry., 9.77 miles, and Black Rock terminal. It does not include other lines in New England, or lines west of the Detroit and St. Clair rivers.

Items 1 to 6 in the table include rail

lines revenues only. Previous to this year they included water lines. Operating income items have been added. Freight and passenger train miles contain a proportion of mixed train miles, divided on the basis of freight and passenger car miles in mixed train service. In former years the total of mixed train miles was added to both freight and passenger train miles when computing averages. Total train miles include freight; passenger, with their proportions of mixed train miles; special train and non revenue train miles. The average freight revenue per freight train mile includes only rail line revenue. Average passenger train revenue per passenger train mile includes revenue from passenger, mail, express, excess baggage, parlor cars, etc., whereas previous reports gave an average per train mile of passenger receipts only. The number of employees is also a new feature of this year's reports.

	All railways.		Canadian National		Canadian Pacific		Grand Trunk	
	1922	1921	1922	1921	1922	1921	1922	1921
Operating Revenues								
Freight	\$23,947,412	\$25,377,888	\$6,256,668	\$6,987,982	\$9,552,614	\$10,102,763	\$5,094,233	\$5,031,510
Passenger	9,102,902	9,785,596	2,082,195	2,164,449	4,147,575	4,704,915	1,712,707	1,734,796
Mail	605,757	635,129	176,777	181,179	292,806	314,931	90,000	95,076
Express	1,327,284	1,605,805	326,253	395,269	622,887	789,154	261,400	333,591
Other freight train.....	1,973	948	1,761	.....	268	631	.....	.....
Other passenger train.....	799,656	777,637	244,370	239,954	493,042	459,117	40,000	41,269
Water line	362,773	412,358	.....	.....	299,498	346,060	.....	.....
All other	1,518,274	1,577,878	481,752	406,314	691,446	713,717	185,000	260,073
Total railway operating revenues.....	37,666,035	40,173,293	9,569,779	10,375,150	16,100,139	17,431,292	7,383,340	7,496,318
Operating expenses								
Maintenance of way and structures.....	\$8,647,341	\$9,107,995	\$3,015,207	\$3,101,058	\$3,118,903	\$3,511,418	\$1,624,453	\$1,532,452
Maintenance of equipment.....	7,284,799	7,977,356	2,334,140	2,047,177	2,855,886	3,473,712	1,300,901	1,287,827
Traffic	1,047,675	918,417	290,363	204,892	608,252	548,607	154,993	96,106
Transportation	14,877,216	15,813,128	4,362,710	4,944,850	6,061,929	6,218,892	2,796,186	2,981,356
Miscellaneous operations	610,641	617,650	230,083	216,494	265,271	281,070	61,599	48,548
General	957,035	855,004	306,865	190,839	286,273	316,986	195,686	185,822
Transportation for investment.....	Cr. 74,229	Cr. 310,833	69,745	313,058	.....	.....	Cr. 2,979	2,280
Total railway operating expenses.....	33,350,479	34,978,718	10,399,626	10,392,255	13,196,516	14,350,688	6,130,840	6,134,394
Operating income								
Net operating revenue.....	\$4,315,555	\$5,194,574	Dr. \$829,847	\$17,105	\$2,903,622	\$3,080,604	\$1,252,499	\$1,361,924
Railway tax accruals.....	553,285	942,016	107,436	132,005	268,507	637,553	110,850	106,669
Uncollectible revenues	1,248	699	.....	1	.....	.....	907	669
Hire of equipment.....	Cr. 322,698	Cr. 43,588	Cr. 51,613	Cr. 68,832	Cr. 260,560	Cr. 181,573	Cr. 258,444	Cr. 127,911
Joint facilities rents.....	Dr. 87,303	Dr. 158,876	Dr. 38,676	28,073	Cr. 38,798	Cr. 54,556	Cr. 41,518	Cr. 44,905
Operating income	3,996,417	4,136,569	Dr. 924,347	Dr. 108,352	2,934,473	2,629,181	1,440,704	1,427,402
Operating statistics								
Average miles of road operated.....	38,803	38,585	17,212.00	17,111.07	13,877.2	13,785.8	3,612	3,612
Tons carried (revenue freight).....	7,872	7,811	1,568	1,510	2,349	2,230	2,126	1,962
Tons carried one mile (revenue freight).....	1,902,073	1,900,867	548,797	562,431	763,001	745,644	380,356	367,271
Tons carried (all freight).....	9,265	9,539	1,981	2,124	2,931	2,909	2,467	2,889
Tons carried one mile (all freight).....	2,182,602	2,246,455	664,145	705,868	892,283	908,061	409,701	399,591
Revenue passengers carried.....	4,576	4,724	1,197	1,181	1,609	1,646	1,137	1,158
Revenue passengers carried one mile.....	379,930	353,693	98,837	81,660	186,816	180,757	58,294	55,608
*Freight train miles.....	4,448	4,569	1,436	1,646	1,686	1,596	853	880
*Passenger train miles.....	4,295	4,244	1,225	1,162	1,957	1,932	683	721
Total train miles (revenue and non-revenue).....	9,314	9,230	3,052	3,088	3,791	3,620	1,544	1,603
Freight car miles—loaded.....	99,376	90,613	28,863	28,178	39,795	34,252	18,567	16,775
Freight car miles—empty.....	38,234	52,348	12,143	17,904	14,292	19,797	7,507	9,124
Passenger train car miles.....	33,219	32,156	9,883	8,891	15,721	15,479	4,428	4,514
Total amount of pay roll.....	\$20,451,935	\$20,356,655	\$7,207,218	\$7,275,417	\$7,810,797	\$7,581,419	\$3,843,991	\$3,757,542
Number of employees.....	169,218	164,688	63,068	61,368	63,462	60,174	30,724	30,426
Averages per mile of road operated								
Operating revenue	\$970.70	\$1,041.16	\$555.99	\$606.34	\$1,160.18	\$1,264.44	\$2,044.11	\$2,075.39
Operating expenses	\$859.48	\$906.54	\$604.21	\$607.34	\$950.95	\$1,040.98	\$1,697.35	\$1,698.34
Tons moved one mile (revenue freight).....	49,019	49,264	31,885	32,869	549.8	540.9	105,303	101,681
Tons moved one mile (all freight).....	56,248	58,221	38,586	41,252	643.0	658.7	113,428	110,629
*Averages per freight train mile								
Freight revenue	\$5.38	\$5.55	\$4.36	\$4.24	\$5.66	\$6.33	\$5.97	\$5.72
Tons of freight (revenue freight).....	427.5	416.0	382.1	341.5	452.3	467.2	445.4	417.3
Tons of freight (all freight).....	490.6	491.6	462.4	428.7	528.9	568.9	479.8	454.0
Loaded freight cars.....	22.3	19.8	20.1	17.1	23.6	21.5	21.7	19.1
Empty freight cars.....	8.6	11.5	8.5	10.9	8.5	12.4	8.8	10.4
*Averages per passenger train mile								
Passenger train revenue.....	\$2.76	\$3.02	\$2.31	\$2.56	\$2.84	\$3.24	\$3.05	\$3.06
Passengers carried	88.4	83.3	80.7	70.3	95.5	93.5	84.6	77.1
Passenger cars	7.7	7.6	8.1	7.6	8.0	8.0	6.4	6.3
Average operating expenses per train mile.....	\$3.58	\$3.79	\$3.41	\$3.36	\$3.48	\$3.96	\$3.97	\$3.82
Average length of haul (revenue freight) miles.....	241.6	243.4	349.8	372.3	324.7	334.3	178.9	187.1
Average passenger journey miles.....	83.0	74.9	82.5	69.1	116.1	109.8	51.2	47.9
Average tons per loaded freight car.....	22.0	24.8	23.0	25.1	22.4	26.5	22.1	23.8
Average freight receipt per revenue ton mile.....	1.259c	1.335c	1.140c	1.242c	1.252c	1.354c	1.339c	1.369c
Average passenger receipt per passenger per mile	2.396c	2.767c	2.107c	2.651c	2.220c	2.603c	2.938c	3.119c
Ratio of pay roll to operating revenues.....	54.3%	50.7%	75.3%	70.1%	48.5%	43.5%	52.1%	50.1%
Ratio of pay roll to operating expenses.....	61.3%	69.3%	70.0%	70.0%	59.2%	52.8%	67.7%	61.3%
Ratio of operating expenses to revenues.....	88.54%	87.07%	108.67%	100.16%	81.96%	82.33%	83.04%	81.83%

*Contains a proportion of mixed train miles.

The Railways' Operating Results for August.

Canadian railway operating results for August show conclusively that net railway operating revenue was seriously restricted by the rate reductions which applied during the month, and by the delay in placing compensating wage reductions into complete application. Despite an increase in freight traffic of 1,205,955 ton miles, freight traffic revenue decreased \$1,430,475, and with an increase in passenger traffic of 7.4%, passenger traffic revenue fell off by \$682,694 or 7%. While there was no general decrease in passenger rates to bring about this change, as between Aug. 1921 and Aug. 1922, the fact that a largely increased number of harvesters were carried to western Canada at low rates may have had a lot to do with the decreases in gross passenger traffic revenue. While the decreased passenger earnings cannot be clearly explained, the smaller gross return on the larger freight traffic handled may be readily accounted for. In addition to the freight rate reduction effective Dec. 1, 1921, rates on grain and grain products west of Fort William were reduced by between 20 and 25%, while effective Aug. 1, rates on basic commodities were reduced by about 6%, and the increases in rates on coal, as granted effective Sept. 13, 1921, were removed. The net effect of these freight rate reductions was that the average receipt per revenue ton mile was but 1.259c in Aug. 1922, compared with 1.335c in Aug. 1921. The average rate per revenue passenger mile was 2.396c in Aug. 1922, compared with 2.767c in Aug. 1921. These rate decreases, despite the increased traffic, brought about a 6.2% decrease in gross revenues for the month.

An examination into operating expenses for the railways as a whole indicates that maintenance of way and structures, and maintenance of equipment, were carried on during the month to the same high standards as in the past. Although the actual amounts expended on both accounts were somewhat smaller than in August 1921, it must be taken into consideration that the maintenance employees were receiving the recently reduced wages throughout August this year, while many railway shopmen were being paid at the reduced rates during a part of the month. As the 1921 wage reduction took place July 16, the general wage level in both maintenance departments was lower in Aug. 1922 than in Aug. 1921, so it is reasonable to believe that, despite the smaller total amounts spent, as much actual maintenance work was done.

The reduction in transportation expense for Aug. 1922, however, was not so great as in previous months of 1922, compared with corresponding months of 1921. This is due to the fact that train service employees' wages were cut July 16, 1921, but were not cut this year. The reduction in transportation expense which was accomplished, was gratifying, however, in view of the increased traffic handled, and speaks well for the efficiency of railway operation.

Examination into the factors indicating operating efficiency shows that the decrease in the average car loading, amounting to 2.8 tons, was more than made up by the increased number of loaded cars per train, so that better train loading of revenue freight was secured. The decrease in the average number of

empty cars per train was also a favorable factor. With train loading figures showing 22.3 loads and 8.6 empties, in Aug. 1922, compared with but 19.8 loads and 11.5 empties in Aug. 1921, it is evident that a much more favorable condition existed in August of this year. The increased number of passengers carried per passenger train mile was an additional favorable factor in the month's operations.

Canadian National Rys. had an increase of 21% in passenger miles for the month, although passengers carried increased but 1.4%, and passenger revenues decreased 3.8%. The harvester traffic previously referred to seems the only cause for these strange results. This road's freight revenue ton mileage decreased 2.4%, but train loading increased by 33.7 net tons and freight train mileage decreased 12.8%. Transportation expenses were reduced 11.8%. Total revenues decreased by 7.8%, and operating expenses were practically the same as in Aug. 1921, resulting in an operating deficit of \$812,742. The pay roll decreased \$68,199, although this year's figures included \$54,255 back pay, which means a reduction of \$122,454 in the monthly pay roll with an increase of 1,700 employees.

Canadian Pacific Ry. freight traffic increased 2.3% and passenger traffic increased 3.4%. Operating revenues, however, showed an appreciable reduction due to the lower rates. Expenses were reduced 8%, maintenance of way expenses being reduced 11.2%, maintenance of equipment expenses 17.8% and transportation expenses 2.5%. Average train loading and average car loading decreased 40 and 4.1 tons respectively. The pay roll increased \$229,378 or 3%, with an increase of 5.5% in the number of employees.

Grand Trunk Ry. freight traffic increased 3.6% and passenger traffic increased 4.8%, but, due to lower rates, freight revenue increased only 1.2% while passenger revenue decreased 1.3%, total revenue decreasing 1.5%. Despite the heavier traffic, freight and passenger train mileage were reduced 3% and 3.5% respectively, and transportation expenses were reduced 6.2%. Average car loading decreased 1.7 tons, but average train loading increased 25.8 tons.

Preliminary returns for September and October indicate that the railways during these months, on account of an extraordinarily large freight traffic, derived gross earnings in excess of those for Sept. and Oct. 1921. The net results secured in August, however, as expressed by an operating ratio less favorable than that secured in Aug. 1921, indicate that the railways need all the traffic they can get, if the results for the complete year 1922 are to be as good as for 1921. There is no doubt that the rate reductions, when considered in relation to the wage reductions, which, while not appearing moderate to the employees experiencing them, are nevertheless moderate when their results to the railways are taken in relation to the results of the rate reductions, are acting to cut into railway operating revenue to a large extent. As further wage reductions in the near future seem altogether unlikely, and as material prices show no signs of further decline, but, on the contrary, are exhibiting some tendency to increase, it would seem that reductions in railway operating expenses are not to be obtained by cheaper labor

and materials. And as, so far as revenues are concerned, it seems unlikely that rate increases are to be introduced in the near future, it appears that the Canadian railway industry's only salvation in the near future lies in increased traffic. It is not likely that any traffic increase which may be experienced in the next two or three years will restore the railway operating ratio to what it was in 1916 and 1917, other conditions remaining as they are, but the fact remains that every additional passenger mile and ton mile of traffic which the Canadian people, encouraged by the comparatively low rates which the railways are now affording, can offer, will have the effect of improving the railways' operating position and furnishing just that much more justification for the low transportation charges.

Heavy Freight Loadings in the United States.

The American Railway Association reports that in the week ended Sept. 30, there were loaded with merchandise and miscellaneous freight 589,098 cars. This is the greatest number in the history of the roads. It was 36,735 in excess of the same week last year, and 39,061 cars more than the corresponding week in 1920, in which year the volume of all traffic handled by the railways was the heaviest in their history.

The number of cars loaded with coal in the week ended Sept. 30, was 189,349, an increase of 1,453 over the week before or only about 10% less than in the corresponding week of 1920, in which year coal loadings were the heaviest on record, and in which there were no coal miner's or shopmen's strikes, immediately preceding the heavy autumn traffic. The coal loadings for the week exceeded those of the corresponding week of 1921 by about 9,000 cars.

The loading of all commodities, except coal, for the week ended Sept. 30, was 809,032 cars, which was the heaviest loading, excluding coal of any week in the history of the railways.

The total loading of all commodities in the week ended Sept. 30 was 15,090 cars in excess of the preceding week. The total for the week exceeded the same week last year by 83,550 cars, and was only 3,902 cars short of equalling the corresponding week in 1920, in which year the railways hauled the heaviest traffic on record.

G.T.R. Freight Claim Prevention.—The G.T.R. management states that its freight claim prevention campaign has met with great success, figures for a recent 30 day period showing that, while freight revenue was approximately \$5,000,000, less than \$25,000 was paid in freight claims, or only half of 1%. It also states that freight claims on the G.T.R. are, in proportion to earnings, the lowest of any railway on the North American continent, that employees are doing their utmost in the careful handling of shipments and cars, and in other ways to prevent loss and damage; that the campaign has been most enthusiastically supported; that employees from various sections of the railway are meeting together each month to discuss new ways of claim prevention, and that specially trained inspectors are working on each division, to instruct and supervise men engaged in handling freight.

Railway Wages and Working Conditions in Canada and the United States.

Canadian National Rys. Clerical Employees' Wages.—The conciliation board appointed to enquire into the dispute between the C.N.R. and the clerical employees presented a majority report, signed by F. T. Costello, chairman, and H. S. Ross, K.C., Montreal, the employees' representative, as summarized in Canadian Railway and Marine World for Nov., pg. 563. The minority report, which found in favor of the proposed reductions, was submitted Nov. 10, by G. D. Kelley, the railway's representative on the board. Mr. Kelley contended that the other members of the board were mistaken in considering the clerical employees the lowest paid class, and said: "Comparing the actual, but not theoretical, earnings of the general body of locomotive engineers, fireman, conductors and brakemen, with the actual earnings of the employees now before us, and appreciating the difference between the qualifications required in each case, one is forced to the decision that the class of employees with which we are now dealing is not one that is properly described as being paid less in proportion than other C.N.R. employees." While a further conference between these employees, the majority of whom are members of the Canadian Brotherhood of Railway Employees, and the C.N.R. management, is in prospect, it is the management's intention to place the reduced wages into effect as from Nov. 16.

Canadian Pacific Ry. Clerical Employees.—The conciliation board appointed to enquire into the dispute between the C.P.R. and its clerical employees, of which D. Urquhart, Toronto, was chairman, and on which the railway was represented by J. T. Arundel, formerly General Superintendent, Ontario District, C.P.R., and the employees by J. G. O'Donoghue, Toronto, presented a report signed by Messrs. Urquhart and O'Donoghue, advising against the proposed wage reduction. Mr. Arundel, shortly after, presented a report recommending the proposed reduction, and stating that if the employees accepted the reductions they would be advancing their own interests in the long run. The C.P.R. management then wrote the Labor Department, pointing out that industrial conditions inevitably require the reduction of labor costs on the railways, for which reason the C.P.R. intended to place the proposed wage reductions in effect. The letter expressed a willingness on the railway's part to confer with the employees affected, with a view to adjusting inequalities of various kinds which had been brought up at the hearings before the board. The wage reductions have been placed in effect.

Grand Trunk Ry. Clerical Employees.—The conciliation board appointed to enquire into the dispute between the G.T.R. and its clerical employees, of which E. McG. Quirk, Montreal, is chairman, and on which the railway is represented by U. E. Gillen, General Manager, Toronto Terminal Ry. Co., and the employees by H. S. Ross, K.C., Montreal, has not presented a report at the time of writing, Nov. 20. We are advised that the proposed wage reductions will be placed in effect as from Nov. 1, although further negotiations between the railway and employees is in prospect.

Canadian Railway Shopmen.—The progress of the dispute between the various Canadian railways and their shopmen, members of American Federation of

Labor, Railway Department, Division 4, was reviewed in preceding issues of Canadian Railway and Marine World to the point where, as stated in our November number, pg. 563, the shopmen's officers had sent out ballots to determine whether the men wanted to strike or to have their committee resume negotiations with the railways, to see if more favorable wages than those approved by the conciliation board could be secured. It was announced by R. J. Tallon, President of Division 4, that the results of the voting would not be made public. A London, Ont., press report of Nov. 14, stated that practically all the railway shopmen there had voted to have their officers resume negotiations with the railways, so it is evident that if the vote in London can be taken as any indication of the feeling among shopmen at other points, a strike seems very remote. The result of the shopmen's strike in the U.S. has been such as to indicate that the wage reductions placed in effect by the Canadian railways, similar to those placed in effect by the U.S. railways on the Labor Board's orders, will be accepted by Canadian shopmen.

Canadian Maintenance of Way Employees.—It will be remembered that the maintenance of way employees on Canadian railways accepted the tentative wage reductions proposed by the Railway Association. As stated in Canadian Railway and Marine World for November, pg. 564, U.S. maintenance of way employees were given a 2c an hour increase by a Labor Board order. Consequent on this, Canadian employees asked the Canadian railways for a like increase, and on Nov. 21, the men's representatives met railway representatives in Montreal to reach a final agreement on wages. The railways were represented by Geo. Hodge, Assistant General Manager, Eastern Lines, C.P.R.; M. S. Blaiklock, Engineer Maintenance of Way, G.T.R.; A. E. Crilly, Assistant to General Manager, Eastern Lines, Canadian National Rys., and C. P. Riddell, General Secretary, Railway Association of Canada. The men were represented by A. McAndrew, of the United Brotherhood of Maintenance of Way Employees and Railway Shop Laborers; W. Aspinall, Secretary; W. Dorey, General Chairman for the brotherhood on C.P.R. lines; P. Woods, General Chairman for Canadian National Rys. lines; B. Johnston, representing Canadian National Rys., Eastern Lines employees, and G. Gerald, representing G.T.R. employees. At the close of the meeting on Nov. 21, arrangements were made to continue the discussion later.

General.—The proposed merger between the Canadian Brotherhood of Railway Employees and the International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees, was discussed at a meeting in Montreal, some weeks ago, by many officers of both organizations. A further conference was held at Ottawa early in November, when the possible amalgamation was further discussed. The Canadian brotherhood has a membership of some 27,000, and the international organization's membership is several hundred thousand.

The United States Situation.—The shopmen's strike in the U.S. is now practically a thing of the past. According to statements given out by the Railroad Labor Board, several large roads have entered into independent agreements

with shopmen's system unions, these agreements being along the same lines as those for the Union Pacific, and Chicago, Burlington & Quincy Rds., as outlined in Canadian Railway and Marine World for November, pg. 563. Among these roads are the Southern Pacific, Missouri, Kansas & Texas; Lehigh Valley, Great Northern, Illinois Central, Central of Georgia, and New York, New Haven and Hartford. On other roads, as stated in our November number, the Willard-Jewell plan of strike settlement was placed in effect, and on still other roads shop operations are being carried on with employees who remained loyal, and the new employees hired. Relations have been re-established between the American Federation of Labor's Railway Employees' Department, representing the shop employees on the roads where the original union is recognized, and the Labor Board, the first move being made by B. M. Jewell, President of the Department, when he approached Chairman Hooper, of the Labor Board, in connection with a dispute between the New York Central and its shopmen, involving piece work.

A publication issued by the Association of Railway Executives quotes the Labor Board as having said "The shopmen's strike was an egregious blunder. It has burdened the railways with an unjust expense, has inflicted great losses upon the public, especially the food producers, and has resulted in approximately \$177,535,524 loss to the strikers. For all this, the men on strike have won nothing". The same publication points out that the maintenance of way men, who withheld their strike and appealed to the Board, received \$147,000,000 in wages while the shopmen's strike was on, and in addition received an increase in wages of about \$20,000,000 annually.

Living Wage Theory Rejected.—In reviewing the various wage adjustment cases before the Labor Board, Canadian Railway and Marine World has called attention to arguments advanced by labor organization economists in support of the so-called living wage method of fixing wages. It was contended by these representatives that a certain wage should be set as a minimum for a specified average family, with higher wages graduated according to various factors. In reply to these arguments, it was pointed out by railway representatives that if such a method of setting wages were employed, national production would be unable to provide for their payment. In supporting opinion attached to the Labor Board's decision on the maintenance of way employees' application for higher wages, concurred in by all railway and public members, it was stated "The fundamental difference between this decision and the dissenting opinion" (that of A. O. Wharton, labor member) "is that the former is based upon the Transportation Act, and the latter upon a fantastic theory, the very essence of which its own proponents expressly characterized, in the hearing before the Board, as a guess and a makeshift. The theory of the dissenting opinion, if carried to its legitimate conclusion, would wreck every railroad in the United States, and, if extended into other industries, would carry them into communistic ruin." It was also said:—"This" (the living wage theory) "constitutes a bit of mellifluous phraseology, well calculated to deceive

the unthinking. It has frequently been demonstrated that a melodious slogan contains more possibilities of danger and destruction than a dynamite bomb."

Possible Additional Railway Labor Legislation.—Since the shopmen's strike began on the U.S. roads, there has been much discussion in U.S. railway circles as to the possibility of additional railway labor legislation, chiefly in connection with the proposal to put teeth in the Transportation Act, as it relates to labor matters. It is stated that the Secretary of Labor desires to see the Railroad Labor Board abolished. While President Harding has indicated his desire to have some form of anti-strike legislation passed, no definite indication has been given of what will be done in this direction at the next session of Congress.

M. of W. Brotherhood Funds Ordered Returned.—The suit brought by the maintenance of way employees' organization against A. E. Barker, a former President, to compel him to return funds alleged to have been wrongfully appropriated, was noted in Canadian Railway and Marine World for November, pg. 564. On Nov. 10 a judgment was given ordering Barker to return \$177,000 to the organization, and to account for \$40,000 additional which he was shown to have expended in excess of that accounted for by the organization expenses. Barker was not present during the trial, and the organization has not decided what steps to take in an effort to secure return of the funds.

U.S. Labor Board has no authority on U.S. roads in Canada.—By a Labor Board decision, in a case in which it was called upon to decide a dispute arising between the Great Northern Ry. and some maintenance employees engaged in track work in Canada, the Board held that it had no authority over the rates of pay and working conditions for railway employees engaged exclusively in work outside the U.S. boundaries, and consequently was unable to provide a settlement for the dispute.

Canadian Railway Board of Adjustment No. 1 Decisions.—As showing the types of disputes Canadian Railway Board of Adjustment no. 1 is called upon to decide, the following cases decided recently, are of interest:—

Case no. 127 was in connection with claims advanced by Canadian National Rys. conductors and trainmen that all time occupied between Port Arthur terminal limits, as defined in schedule, should be paid for as terminal detention for all trains. The railway contended that the schedule rule providing for terminal detention applies to freight trains only, and has no reference to mixed or passenger trains, including passenger extras. The Board's decision upheld the employees' contention only in so far as trains on which freight rates are paid are concerned.

Case 128 involved a Canadian National Rys. conductor's claim for terminal detention when his train, bound from Edson to Edmonton north yard, was held at the E.D.&B.C. hock to meet a west-bound train coming out of the yard. As the point at which the train was held is within the Edmonton north yard limits, the Board allowed the conductor the terminal detention claimed.

Case 129 had to do with a claim by a Canadian National Rys. train crew which had been called to clean Atikokan yard of snow, on Feb. 22 last. The crew claimed yardmen's rates for the work, as per rule 14 in the trainmen's schedule, which states "Trainmen required to perform yardmen's work in any one yard in

excess of 5 hours in any one day will be paid yardmen's rates per hour for the actual time occupied". The railway claimed that the work performed was purely work train work, and that no regular switching crew was assigned to Atikokan at that time. The Board denied the employees' claim.

Case 130 had to do with a Canadian National Rys. conductor's dismissal for refusing to go out when he was called. Investigation disclosed that his reason for refusing to go out was that he considered the railway officers to be in error in sending out his car. Agreement was reached between the railway and the Brotherhood of Railroad Trainmen, representing the conductor, and the case was withdrawn.

Case 131 concerned the alleged theft of blankets from the Canadian National Rys. by a switch foreman. After dismissal from the service he was tried before a jury and found innocent, upon which the Brotherhood of Railroad Trainmen claimed that he should be restored to service and paid for time lost. Upon further evidence being presented to the Board, reinstatement was refused.

Case 132 concerned the dismissal of J. W. Dickinson, Canadian National Rys. yardman at Saskatoon, for refusing to take charge, as foreman, of an extra crew being set up by the night yardmaster at Saskatoon. It was contended by the railway that the night yardmaster had a perfect right to order Dickinson to take charge of the crew, and that in refusing to do so, he was guilty of insubordination. It was contended by the Brotherhood of Railroad Trainmen, representing Dickinson, that article 8, clause B of the yardmen's schedule, gave Dickinson his preference to work. The Board held that while the rule may technically have supported the yardman's action, there was no definite information to show that there was a junior qualified man available for the foremanship, and while Dickinson's reinstatement was authorized, he was not allowed pay for time lost.

Case 133 concerned the dismissal of G.T.P.R. brakeman J. H. Manley, for refusing to act as baggageman when called for that duty, and for refusing to attend an investigation into the matter when ordered to do so. Upon being held out of service, he telegraphed the General Manager, asking him to investigate his case. The Board upheld the railway in dismissing him.

Case 134 dealt with a claim by Canadian National Rys. and Grand Trunk Pacific Ry. conductors and brakemen, that switching rates should be paid for all switching performed at Lucerne by G.T.P. crews and at Jasper, B.C. by C.N. crews. It was contended by the C.N.R. management that, so far as the G.T.P. crews were concerned, Lucerne is simply a way station, while Jasper is but a way station for the C.N. crews, thus bringing payment for switching at these points under the ordinary rules. The Board upheld the conductors' claims, and the trainmen's claims for points covered by their schedule.

Case 135 dealt with a G.T.P. conductor's claim for terminal detention in addition to road mileage. The time claimed was spent in picking up a train in Fort Rouge yards, and the railway claimed all he was entitled to was the straight 12½ miles an hour for the time on duty between terminals. The conductor's contention was upheld, on the ground that Fort Rouge is a bona fide terminal under the schedule, any crew passing through

being entitled to time for switching and detention, as per article 5 of rule 9 of the schedule.

Case 136 dealt with the dismissal by the G.T.P.Ry. of brakeman W. B. Donahue, for insubordination. The Board ordered the brakeman's reinstatement without pay for time lost.

Case 137 was concerned with two Canadian National Rys. switchmen's claims for time lost between Dec. 7, 1921 and March 10, 1922, when they were held out of service for alleged theft of tobacco from cars. A trial by jury found them not guilty, and they were reinstated by the railway. The Board ordered that their claim for time lost be paid.

All of the above decisions were issued over the signature of Geo. Hodge, Chairman, and Ash Kennedy, Vice Chairman of the Board.

Grand Trunk Railway Construction, Betterments, Etc.

Brantford Station Buildings.—We are officially advised that it was arranged recently to dispose of the old station building on Colborne St., Brantford, Ont., and to replace it with a shelter for use as a flag station. This structure, which was expected to be completed by the end of October, consists of a one-room shelter and platform with canopy over the platform.

Ford Subway.—Ford, Ont. Town Council is reported to have under consideration plans for the construction of a subway under the G.T.R. tracks there, which would link up Ottawa St. and Edna St.

Harvey Freight House.—A press report states that tenders have been received for the erection of a 2-story brick freight house, 20 x 32 ft. at Harvey, Ill. (Aug. pg. 425.)

Kitchener Yards.—In connection with the proposed construction of a subway under the G.T.R. tracks at King St., Kitchener, Ont., it was reported to the city council, recently, that the company was asking the Dominion Government for an appropriation of \$94,000 for laying out a new shunting yard north-east of Lancaster St., and west of the main line and that if this appropriation should be given and the yard laid out at least 50% of the shunting over the King St. crossing would be eliminated, and the necessity of doing away with the level crossing would be largely removed. The company laid before the council a plan for the elimination of all crossings in the city from Strang St. to Lancaster St. which would involve the raising of the track by 6 ft., and the building of subways at Strang, Tuerk, King, Edward, Aherns, St. Leger, and Lancaster Streets, estimated to cost \$1,000,000 exclusive of property damages. The council decided to postpone the further consideration of the matter to wait the outcome of the proposal to provide a new shunting yard.

London Level Crossings.—A press report stated recently that the gates at the level crossings in London, Ont., which are operated by compressed air, are to be replaced by gates operated by electricity, an electric installation at the crossing of Waterloo St., during the summer having proved satisfactory. We are officially advised that neither the operating or engineering departments know of any such intention.

The level crossings in the London yards are being improved by the substitution of drives of crushed stone mixed with tar preparation, in place of the old timber drives.

Canadian Pacific and Canadian National Railways September Earnings and Expenses.

C.P.R. gross earnings for September were \$18,149,528, compared with \$19,494,761 in Sept., 1921; operating expenses were \$13,563,595, compared with \$15,174,712 in Sept., 1921; and net earnings were \$4,585,933, compared with \$4,320,000 in Sept., 1921. While gross revenues decreased \$1,345,233, operating expenses decreased \$1,611,116, resulting in an increase in net earnings of \$265,883. For the 9 months period ended Sept. 30, C.P.R. gross earnings were \$124,826,771, a decrease of \$11,560,627 from the first 9 months of 1921, and operating expenses, \$105,518,422, were \$8,968,534 smaller than those in the first 9 months of 1921. This resulted in the earnings of \$19,308,349 for the first nine months of 1922, being \$2,592,322 smaller than in the corresponding period of 1921.

September is the second consecutive month this year in which the C.P.R. has been able to show an increase in net earnings over those for the same month of 1921. The increase in August was \$369,297. The encouraging showing in September was the result of the comparatively large gross earnings resulting from the heavy traffic handled, in combination with the success in restricting operating expenses, the gross earnings being over \$2,000,000 greater than in any previous month in 1922, and the operating expenses being over \$1,500,000 less than in Sept., 1921.

There has been, since the September earnings statement became available, considerable speculation in railway and financial circles as to whether the C.P.R. will be able to equal, in 1922, the net earnings obtained in 1921. On the one hand, as stated above, net earnings at the end of September were \$2,592,322 less than at Sept. 30, 1921, but, on the other hand, business conditions generally are much better than at this time last year. The company was engaged throughout October and November, and is still engaged, in handling one of the largest crops the country has experienced, and in addition the gratifying decreases in operating expenses in August and September give rise to the hope that this relative decrease in expenses may continue. To equal the 1921 record in 1922, it is evident that the company will have to increase net earnings for each of the remaining three months by an average of over \$800,000 over those of the corresponding three months of 1921. While the results secured in the last three months of 1921, particularly October, when net earnings were \$6,711,486, set a high mark for the company to aim at this year. Preliminary statements for October show that the gross earnings for that month were some \$959,000 greater than in Oct., 1921, and a preliminary statement for the first week in November shows that gross earnings were \$503,000 greater than in the first week of Nov., 1921. If traffic conditions remain as favorable during the remainder of the year as during October and the first week of November, the company would seem to stand a good chance of equalling its 1921 net earnings.

The Canadian National Rys., including the Canadian Northern, Canadian Government, and Grand Trunk Pacific Rys., steam lines only, had gross earnings of \$11,726,459 in September, an increase of \$3,565,510 over Sept., 1921. Operating expenses were \$11,123,750, an

increase of \$221,486 over Sept., 1921. Net earnings for the month were \$602,709, an increase of \$135,024 over Sept., 1921. In view of the relatively unsatisfactory financial results attending Canadian National Rys. operation in August, when gross earnings decreased and operating expenses increased, as compared with Aug., 1921, resulting in increasing the operating loss by \$812,732 over Aug., 1921, the September results must be regarded as particularly gratifying. The fact of the National lines being able to secure net operating revenue in excess of \$600,000 on a single month's operation, when favored with heavy traffic, demonstrates that the system's one and only need is increased traffic, to enable it to earn net operating revenues consistently. Like the C.P.R., the Canadian National Rys. experienced larger gross earnings in October of this year, and in the first week of November, than in corresponding periods in 1921. According to preliminary statements available, the increase in gross in October was \$1,712,246, and in the first week in November, \$105,581.

It does not require very searching analysis to discover that the remarkable increase in freight traffic density has been the salvation of both the C.P.R. and the Canadian National Rys. during recent months, for it would be idle to attempt to deny the obvious fact that if traffic had not shown the large increases it has exhibited, the railways, laboring under the handicap of rate reductions, greatly overbalancing the earnings effected through wage reductions, superimposed upon the primary handicap of being unable to proportionately reduce operating expenses to accord with reduced gross earnings, because of low traffic density, would have been in an unenviable financial position. As in the past, so in the future, if traffic is maintained at a good level, we may expect that the railways will continue to enjoy net earnings which may be described as reasonable; if traffic falls off to any great extent, when the bulk of the crop is moved, we may expect to see C.P.R. net earnings slump and Canadian National results again characterized by operating deficits. The present relationship between railway rates and railway operating expense is such that a very heavy traffic is required for the railways to obtain favorable results, and in view of the probability that this relationship will obtain for some time, it is evident that continued favorable railway financial results will be dependent on continued high traffic density.

Freight Car Thief Punished.—A. E. Shand, a former C.P.R. employe has been sentenced to 7 years in Kingston, Ont., penitentiary for stealing from freight cars, and 7 years for receiving goods stolen from freight cars, the sentences to run concurrently. He pleaded guilty to receiving. The property stolen consisted of tobacco and cigarettes, and it was shown that Shand received \$900 as his share of the money obtained for the stolen goods.

Armistice Day and the Railways.—The Canadian National, Canadian Pacific and Grand Trunk Rys. stopped trains on their lines throughout Canada, and ceased work in all departments for two minutes, from 11 a.m., on Armistice Day, Nov. 11.

The Bad Order Car Situation.

The Railway Association of Canada reports the total number of freight cars on Canadian lines for the period ended Nov. 1, as 199,875. The allowance for bad order cars on the A.R.A. basis, which assumes a total of 7% of the cars in bad order, was 13,991, and the actual number in bad order was 12,227, which is 1,764 less cars in bad order than the American Railway Association standard would require. The figure 12,227 represents a percentage of 6.1 of bad order cars. The car shortage is given as 7,967 cars, compared with 7,667 at Oct. 1.

The American Railway Association's Car Service Division reports that the total number of freight cars on line in the U.S. class 1 railways on Oct. 1 was 2,276,046. Of these, 291,654, or 12.8%, were in bad order, compared with 13.4% on Sept. 15. Out of 1,047,037 box cars, 131,963, or 12.6%, were in bad order; out of 55,014 refrigerator cars, 6,999, or 12.7%; out of 955,193 gondolas, 127,408, or 13.3%; out of 83,126 stock cars, 9,978, or 12%; and out of 93,881 flat cars, 12,042, or 12.8%, were in bad order. A statement received by Canadian Railway and Marine World from the Car Service Division on Nov. 10, stated that on Oct. 21, the number of bad order cars had been reduced to approximately 11% of the total, and that the U.S. class 1 railways reported shortages of 81,734 box cars, 46,575 coal cars, and 166,349 freight cars of all kinds, for the week ended Oct. 23.

Analysis of the figures above given, covering the Canadian situation, shows that Canadian railways have succeeded in bringing the percentage of bad order cars to a very low figure. In view of the fact that the American Railway Association has decided that it is a difficult matter for a railway to have more than 93% of its freight equipment in good condition at any time, the Canadian railways' performance in the matter of equipment condition is very creditable. It is evident that any car shortage which is being experienced throughout the country cannot be caused by delay in repairing bad order freight cars. The figures given above covering the U.S. situation show that on U.S. roads also the condition of equipment is improving, although there is room for a lot of improvement yet before the Canadian record is equalled. U.S. roads were left a large percentage of bad order equipment on the termination of Federal control; inadequate earnings throughout 1921 served to continue this condition, and when earnings did begin to pick up in 1922, so that deferred maintenance of equipment could be gone ahead with, the shopmen's strike served to delay matters further. The reduction of the bad order car percentage from around 15 to 11 is a move in the right direction, however, and it is to be hoped that further progress will be made by the U.S. roads in this connection, so that the car shortage in the U.S. will be relieved, which would automatically tend to relieve the shortage in Canada.

B.C. Minister of Railways.—Hon. J. D. McLean, Minister of Education and Provincial Secretary for British Columbia, has also been appointed Minister of Railways. Premier Oliver, in relinquishing the Railways Department, stated that the new minister would, within the lines of policy decided upon by the Legislature, have a free hand in administering the department.

Orders by the Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

32,768. Aug. 21.—Authorizing C.P.R. to build spur from Port Arthur Shipbuilding Co's spur to mile 126.4, Fort William Terminal Subdivision, thence northeasterly and easterly to connection with Provincial Paper Mills' tracks, Port Arthur, Ont.

32,769 to 32,771. Aug. 21.—Authorizing Canadian National Rys. to use bridges at mile 94.25 and 106.84, Grenville Subdivision; and at mile 40.2, Montfort Subdivision, Quebec District.

32,772. Aug. 22.—Ordering Grand River Ry. to place additional arm supported by bracket on home semaphore, at right angles to track, both arms to operate alike, where the G.R.R. occupies G.T.R. right of way north of Dundas St., Galt, Ont.

32,773 to 32,775. Aug. 21.—Authorizing Canadian National Rys. to use bridges, at mile 86.51, 53.5, and 45.30, Grenville Subdivision, Quebec District.

32,776. Aug. 21.—Extending time to Sept. 30, within which G.T.R. may complete work required under order 32,499, June 13, on the De l'Île ditch.

32,777, 32,778. Aug. 21.—Authorizing Canadian National Rys. to use bridges at mile 54.40 and 78.26, Grenville Subdivision, Quebec District.

32,779. Aug. 8.—Approving revised location of portion of C.P.R., Swift Current Northwestern Branch (Empress Subdivision), from Sec. 11 to Sec. 16, Tp. 19, Range 18, West 3rd Meridian, mile 31.07 to 34.02.

32,780. Aug. 8.—Authorizing C.P.R. to make new road diversion in Sec. 16, Tp. 19, Range 18, West 3rd Meridian, at mile 32.78, Swift Current Northwestern Branch, and to close within its right of way limits, former road diversion at mile 32.84, approved by order 30,151, Sept. 27, 1920.

32,781. Aug. 22.—Approving location of Canadian National Rys. station and freight shed at Lunenburg, N.S., and authorizing it to divert track of Lunenburg Subdivision from station 347 +16.2, to 367 south of Midway St., and to cross Dufferin, Falkland and Midway Sts.

32,782. Aug. 22.—Authorizing G.T.R. to operate over siding to be built by Toronto Harbor Commissioners for Harbor Brick Co., Toronto.

32,783. Aug. 22.—Extending to Oct. 29, time within which the C.P.R. may complete spur for Rugeles Motor Truck Co., London, Ont.

32,784. Aug. 23.—Approving standard freight mileage tariff C.R.C. 221, cancelling C.R.C. 191, in so far as it has application to Vancouver & Lulu Island and Vancouver, Fraser Valley & Southern Rys.

32,785. Aug. 23.—Approving Supplement B to Express Classification for Canada 5.

32,786, 2,787. Aug. 22, 23.—Approving Bell Telephone Co's agreements with Caledon Municipal Telephone System, Peel County, and Huron and Kinloss Municipal Telephone System, Bruce and Huron Counties, Ont.

32,788. Aug. 23.—Approving Interprovincial & James Bay Ry. revised location from Lot 37, Range 1, Laverlochere Tp., to Lot 51, Range 5, Baby Tp., mile 52.12 to 67.78, in Timiskaming County, Ont.

32,789, 32,790. Aug. 23.—Approving Bell Telephone Co's agreements with Rural Telephone Co. of Kitley, Leeds County; and Maple Grove Telephone Co., Dufferin County, Ont.

32,791. Aug. 24.—Relieving G.T.R. from maintaining watchman at crossing of Main St., Princeton, Ont.

32,792. Aug. 24.—Approving agreement between Bell Telephone Co. and Maniwaki Electric Co., Ottawa County, Que.

32,793. Aug. 24.—Authorizing British Columbia Public Works Department to build highway crossing over Canadian National Rys., at mile 1, south of Sidney.

32,794. Aug. 23.—Authorizing Canadian National Rys. until further order, to remove station agent at Ridpath, Sask.

32,795, 32,796. Aug. 25.—Approving Bell Telephone Co's agreements with Bracebridge & Northwood Telephone Co.; and Nipissing Municipal Telephone System.

32,797. Aug. 25.—Declaring that for the present, C.P.R. crossing at Raglan Road, mile 61, Peterborough Subdivision, Ont., is protected to Board's satisfaction.

32,798. Aug. 25.—Declaring that for the present the Michigan Central Rd. crossing, one mile east of Stevensville, Ont., is protected to the Board's satisfaction.

32,799. Aug. 29.—Declaring that for the present the Canadian Pacific Ry. crossing, being public crossing north of Little St. Martin, Que., mile 12, Lachute Subdivision, is protected to the Board's satisfaction.

32,800. Aug. 29.—Authorizing Canadian National Rys. to operate over crossing at Allenby Jct., mile 5.6, St. Lawrence Subdivision, Que.

32,801. Aug. 29.—Relieving C.P.R. from maintaining speed limitation of 10 miles per hour from mile 42.82, Adirondack Subdivision, LaSalle, Que.

32,802. Aug. 28.—Authorizing Canadian Northern Quebec Ry. to operate cut-off between its Lachetrotiere station and St. Marc station, on

National Transcontinental Ry., mile 47.9 to 50.1, from Quebec.

32,803. Aug. 29.—Authorizing C.P.R. to build spur for Watson Lytton Co., Kingston, Ont.

32,804. Aug. 23.—Ordering Brantford & Hamilton Electric Ry. to remove trees and other obstructions to the view at its crossing on Lot 44, Ancaster Tp., Ont.

32,805. Aug. 26.—Extending time within which C.P.R. may build spur in Bedford Tp., Ont., as required by order 32,352, May 3.

32,806. Aug. 28.—Authorizing Alberta Public Works Department to build crossing in n.e. ¼ Sec. 24, Tp. 62, Range 24, West 4th Meridian, over Canadian National Rys.

32,807. Aug. 28.—Authorizing use of bridge at mile 140.3, crossing Blackstone Road, over Canadian National Rys., Falding, Ont.

32,808. Aug. 26.—Authorizing clearances at proposed wheel pit and housing at C.P.R. passenger car yards, Winnipeg, so long as company undertakes to keep its men off sides of cars.

32,809. Aug. 29.—Approving location of Canadian National Rys. 3rd class station building at Whitecourt, Alta.

32,810. Aug. 30.—Authorizing City of Regina, Sask., to build highway crossing over C.P.R. at Victoria Ave.

32,811. Aug. 29.—Declaring that crossing of highway by Canadian National Rys. near Oban, Sask., is protected to Board's satisfaction.

32,812. Aug. 30.—Directing Canadian National Rys. to appoint caretaker to look after station at Silver Plains, Man., not later than Oct. 1, 1922.

32,813. Sept. 2.—Dismissing complaints of Zwicker & Co., Lunenburg, N.S.; Town of Bridgewater, N.S.; Bridgewater Board of Trade, and Acadia Gas Engines, against rate charged by Canadian National Rys. on cordwood and lumber for export.

32,815. Sept. 2.—Approving location of Canadian National Rys. 3rd class station building at Winter, Sask.

32,816. Sept. 2.—Relieving C.P.R. and G.T.R. from maintaining signalman on Sundays from 12.01 a.m. to 12 midnight to operate crossing near Utopia, Ont.

32,817. Sept. 1.—Declaring that for the present G.T.R. crossing at Garrison Road, near Amigari, Ont., is protected to Board's satisfaction.

32,818. Sept. 1.—Approving of Canadian National Rys. proposed standard 3rd class station building at Vilna, Alta.

32,819. Sept. 1.—Authorizing C.P.R. to build spur for A. B. Gordon, at mile 14.5 Cartier Subdivision, Beauceage Tp., Ont.

32,820. Sept. 1.—Authorizing Quebec, Montreal & Southern Ry. to operate passenger car propelled by gasoline.

32,821. Sept. 6.—Rescinding order 27570, Aug. 21, 1918, authorizing G.T.R. to build spur for Motor Trucks, Ltd., Brantford, Ont.

32,822. Sept. 6.—Authorizing G.T.R. to operate over Sherbrooke Ry. & Power Co's tracks at King St., Sherbrooke, Que., without first stopping.

32,823. Sept. 6.—Relieving Toronto Suburban Ry. from maintaining fences, gates and cattle guards along certain portions of its right of way.

32,824. Sept. 6.—Relieving Michigan Central Rd. from providing further protection at second public crossing east of Bridgen, Ont.

32,825. Sept. 6.—Relieving G.T.R. and C.P.R. from maintaining signalman on Sundays between 12.01 a.m. and midnight at crossing at North Essa, Ont.

32,826. Sept. 6.—Authorizing C.P.R. to build spur for A. J. Waskett, Revelstoke, B.C.

32,827. Sept. 6.—Declaring that for the present, G.T.R. crossing 1¼ miles south of Cheltenham, Ont., is protected to Board's satisfaction.

32,828. Sept. 7.—Authorizing Canadian National Rys. to use bridge over West River, Lachute, Que.

32,829, 32,830. Sept. 7.—Approving C.P.R. Tariffs C.R.C. 89 and 123, between stations on New Brunswick Coal and Ry. Co's and Fredericton & Grand Lake Coal and Ry. Co's lines respectively.

32,831. Sept. 2.—Relieving C.P.R. and G.T.R. from maintaining signalman on Sundays between 12.01 a.m. and 12 midnight at crossing near Alliston, Ont.

32,832. Sept. 7.—Authorizing Canadian National Rys. to use bridge over North River at mile 53.19 from Joliette, Que.

32,833. Sept. 7.—Authorizing Canadian National Rys. to build spur for Provincial Paper Mills, in Lot 4, McGregor Tp., Current River, Ont.

32,834. Sept. 7.—Extending to Oct. 15, time within which the C.P.R. may complete interchange track at Simcoe, Ont.

32,835. Sept. 7.—Suspending, until Sept. 20 provisions of general order 362 (clause 8) re use of lignite coal, in so far as they apply to portions of Canadian National Rys. western lines operating through non-forested territory.

32,836. Sept. 8.—Approving location of Canadian National Rys. proposed freight and passenger shelter at mile 85.7, Copper, Sask.

32,837. Sept. 9.—Authorizing Mohawk Bituminous Mines, Ltd., to mine coal under C.P.R. right of way across the n.w. ¼ Sec. 16, Tp. 7, Range 3, West 5th Meridian, Alta.

32,838. Sept. 9.—Approving location of Canadian National Rys. 3rd class station at Ridgedale, Sask.

32,839. Sept. 9.—Authorizing Oshawa Ry. to build passing track, switch, or turnout on Simcoe St., Oshawa, Ont.

32,840. Sept. 9.—Authorizing C.P.R. to build spur for Harrison Bay Co., Harrison Mills, B.C.

32,841. Sept. 9.—Approving location of Lake Erie & Northern Ry. proposed station at Galt, Ont.

32,842. Sept. 9.—Authorizing Canadian National Rys. to operate Ledoux, Jennings gas car, propelled by gasoline.

32,843. Sept. 8.—Authorizing C.P.R. to build spur for Canada Creosoting Co., North Transcona, Man.

32,844. Sept. 11.—Approving location of Canadian National Rys. 4th class station building at Tilney, Sask.

32,845. Sept. 11.—Authorizing G.T.R. to build spur for Imperial Oil, Ltd., Niagara Falls, Ont.

32,846. Sept. 11.—Authorizing G.T.R. to use overhead bridges at mileposts 92.42 and 92.62, Wilmet and Oxford Sts., Drumbo, Ont.

32,847. Sept. 11.—Rescinding order 10,432, May 2, 1910, authorizing C.P.R. to build spur for I. Desormeau, St. Vincent de Paul Parish, Que.

32,848. Sept. 11.—Authorizing G.T.R. to use overhead bridge at milepost 92.54, Mechanic St., Drumbo, Ont.

32,849. Sept. 12.—Extending to Nov. 15, the time within which Grand Trunk Pacific Ry. may divert east and west road allowance to north and south road allowance, about one mile north of Bircham, Alta., as directed by order 32,674, July 26.

32,850. Sept. 12.—Authorizing Town of Drummondville, Que., to build highway across C.P.R. at Cockburn St.

32,851. Sept. 12.—Authorizing Essex Terminal Ry. to build spur across Langlois Ave., Windsor, Ont., for P. L. Reaume & Son.

32,852. Sept. 12.—Authorizing Canadian Northern Ontario Ry. to revise location of tracks on lands of Durant Motors of Canada, Ltd., and to build spurs, at Leaside, Ont.

32,853. Sept. 12.—Declaring that for the present the crossing of Cainsville public road, in Brant County, Ont., by G.T.R., is protected to Board's satisfaction.

32,854. Sept. 12.—Ordering Canadian National Rys. to appoint station agent at Kuroki, Sask., by Oct. 15.

32,855. Sept. 15.—Approving Medora and Wood Tps., Ont., plan showing location of proposed road across Canadian National Rys. on Lot 24, Con. 7, Wood Tp.

32,856. Sept. 14.—Approving building of two drawbridges over G.T.R. sidings, serving Pilkington Bros., Thorold, Ont.

32,857. Sept. 14.—Amending order 32,670, authorizing Toronto, Hamilton & Buffalo Ry. to build spur for Ritchie Cut Stone Co., Hamilton, Ont., by providing that railway only use such cars as will allow clear headroom of 7 ft. below crane runway.

32,858. Sept. 14.—Relieving G.T.R. from maintaining signalman on Sundays and between midnight and 7.30 a.m., weekdays, to operate crossing of main line, between Hamilton and Sarnia, Ont., by its Port Dover-Stratford line.

32,859. Sept. 15.—Authorizing C.P.R. to build spur for Satin Finish Hardwood Flooring Co., Weston, Ont.

32,860. Sept. 14.—Approving agreement between Bell Telephone Co. and W. W. Redden (Tamworth Telephone System), Lennox and Addington County, Ont.

32,861. Sept. 14.—Extending to Nov. 1, time within which G.T.R. train 53, westbound, will stop on flag at Moose Creek, Ont.

32,862. Sept. 19.—Rescinding order 28,835, Sept. 17, 1919, authorizing G.T.R. to connect, temporarily, with, and to operate over, the siding to be built by Toronto Harbor Commissioners, at Swansea, Ont.

32,863. Sept. 19.—Authorizing C.P.R. to build spur for Dryden Paper Co., in Lot 4, Con. 5, Van Horne Tp., Kenora District, Ont.

32,864. Sept. 19.—Authorizing Michigan Central Rd. to build spur for Dominion Insulator & Manufacturing Co., Stamford Tp., Ont.

32,865. Sept. 14.—Authorizing Kettle Valley Ry. to build spur for Summerland Lumber Co., West Summerland, B.C.

32,866. Sept. 19.—Approving location of Canadian Northern Ry. 3rd class station building at Deondale, Man.

32,867. Sept. 19.—Approving agreement between Bell Telephone Co. and Watt Tp., Muskoka District, Ont.

32,868. Sept. 20.—Extending to Nov. 1, the time within which Canadian National Rys. may enlarge passenger station at Wayne, Alta., as required by order 32,648, July 24.

32,869. Sept. 20.—Authorizing Lake Erie & Northern Ry. to operate without first stopping at crossing of Brantford St. Ry. on Morrell St., Brantford, Ont.; also authorizing Brantford St. Ry. to operate over that crossing at not exceeding 15 miles an hour, whenever signalman is operating interlocking plant, otherwise cars must first stop.

32,870. Sept. 19.—Approving agreement between Bell Telephone Co. and Lower Bonaventure Telephone Co., Renfrew County, Ont.

- 32,871. Sept. 20.—Authorizing Esquimalt & Nanaimo Ry. to build spur for Union Oil Co., of Canada, Nanaimo, B.C.
- 32,872. Sept. 21.—Authorizing C.P.R. to build bridge 44.1 over Yonge Creek, on Interprovincial & James Bay Ry., in Quebec Province.
- 32,873. Sept. 20.—Authorizing Canadian National Ry. to build bridge over Assiniboine River, near Leon, Sask.
- 32,874. Sept. 20.—Ordering Canadian National Ry. to build roadway to station and loading track at Sprague, Man.
- 32,875. Sept. 20.—Ordering Canadian National Ry. to clean out ditches on south side of track between miles 195.5 and 197, Hebertville Parish, Que., and provide on north side ditches to drain borrow ditches; also renew culverts under farm crossings to drain borrow ditches; work to be completed within 30 days.
- 32,876. Sept. 21.—Authorizing G.T.R. and Kit chener & Waterloo St. Ry. to operate over crossing at King St., Waterloo, Ont., at not exceeding 10 miles an hour.
- 32,877. Sept. 21.—Approving location of C.P.R. standard A-3 station building at Superb, Sask.
- 32,878. Sept. 21.—Approving location of Canadian National Ry. freight and passenger shelter at Whitmore, Sask.
- 32,879. Sept. 21.—Authorizing C.P.R. to build spur for Melchers Gin & Spirits Distillery Co. at mile 1.79, Berthier Subdivision, Que.
- 32,880. Sept. 20.—Ordering Canadian National Ry. to have a number of crossings on its Glenavon Subdivision, in St. Francis rural municipality, Sask., brought up to 5% grade on approaches and made 20 ft. wide.
- 32,881. Sept. 21.—Declaring that for the present C.P.R. crossing near Pont Rouge station, Que., is protected to Board's satisfaction.
- 32,882. Sept. 23.—Amending order 11,323, July 28, 1910, authorizing Town of Taber, Alta., to build De Veher Ave. across C.P.R., by providing that cost of maintaining crossing be paid by the town.
- 32,883. Sept. 22.—Amending order 32,823, Sept. 6, relieving Toronto Suburban Ry. from fencing along its right of way between West Toronto and Guelph, Ont.
- 32,884. Sept. 23.—Approving location and details of Pere Marquette Ry. station building at Sarnia, Ont.
- 32,885, 32,886. Sept. 25.—Authorizing British Columbia Public Works Department to build highway crossings over Canadian National Ry. at mile 24.25 and at mile 24.6, west of Victoria, B.C.
- 32,887. Sept. 25.—Authorizing G.T.R. to build spur across road allowance for A. W. Robertson, Ltd., Huntingdon Tp., Que.
- 32,888. Sept. 26.—Approving location of Canadian Northern Ry. 4th class station building at St. Boswells, Sask.
- 32,889. Sept. 26.—Authorizing C.P.R. to take certain lands of E. Fontaine, Rock Forest, Que.
- 32,890. Sept. 25.—Ordering C.P.R. forthwith to erect protection fences on approaches to farm crossing on west half of Lot 4, Con. 4, Oxford Tp., Ont.
- 32,891. Sept. 26.—Ordering Canadian National Ry. to appoint station agent at Waskataneau station, Alta., by Oct. 15.
- 32,892. Sept. 27.—Extending to Nov. 15, time within which Canadian National Ry. may erect 4th class station building at Tilney, Sask.
- 32,893. Sept. 27.—Authorizing C.P.R. to build spur for Roche Perce Collieries, Roche Perce, Sask.
- 32,894. Sept. 26.—Approving agreement between Bell Telephone Co. and Blind Line Telephone Co., Grey County, Ont.
- 32,895. Sept. 27.—Authorizing C.P.R. to rebuild bridge 118.97, Estevan Subdivision, Manitoba District.
- 32,896. Sept. 28.—Suspending until Nov. 1, the provisions of general order 362, in so far as they apply to portions of Canadian National Ry. Western Lines operating through non-forested territory burning sub-bituminous coal.
- 32,897. Sept. 28.—Authorizing British Columbia Public Works Department to build highway crossing over Great Northern Ry. at mile 182.91, Nelson-Fort Sheppard-Spokane Branch, B.C.
- 32,898. Sept. 28.—Approving location of Canadian Northern Ry. freight and passenger shelter at Nut Mountain, Sask.
- 32,899. Sept. 28.—Authorizing British Columbia Public Works Department to build highway crossing over Great Northern Ry. at mile 175.56, Nelson-Fort Sheppard-Spokane Branch, B.C.
- 32,900. Sept. 29.—Declaring that for the present, C.P.R. crossing of Lakeport Road, Cramahe Tp., Ont., is protected to Board's satisfaction.
- 32,901, 32,902. Sept. 29.—Amending orders 32,830, Sept. 7, approving standard tariff of maximum mileage freight rates, C.R.C. 123, of Fredericton & Grand Lake Coal & Ry., and 32,829, approving standard tariff of maximum mileage freight rates, C.P.C. 89, of New Brunswick Coal & Ry., by striking out words, "of the C.P.R. Co. as lessee exercising the franchises of," in the recital of the orders.
- 32,903. Sept. 29.—Authorizing British Columbia Public Works Department to build highway crossing over Great Northern Railway at mile 173.04, Nelson-Fort Sheppard-Spokane Branch.
- 32,904. Sept. 28.—Extending to Oct. 25, time within which C.P.R. may build a standard A3 station building at Chatham, Alta.
- 32,905. Sept. 30.—Rescinding order 32,697, Aug. 3, requiring restoration of G.T.R. train, known as Scott, between Richmond and Coaticook, Que.
- 32,906. Sept. 29.—Approving agreement between Bell Telephone Co. and Lansdowne Rural Telephone Co., Leeds County, Ont.
- 32,907. Sept. 30.—Rescinding order 32,685, July 31, reducing G.T.R. train service between Doucet's Landing and Victoriaville, Que., owing to urgency of coal situation.
- 32,908. Sept. 30.—Declaring that for the present the first public highway crossing over Michigan Central Rd., west of Yarmouth Towers, Ont., is protected to Board's satisfaction.
- 32,909. Sept. 27.—Authorizing Quebec Central Ry. to operate passenger car propelled by gasoline on its Scotts-Levis, Chaudiere Valley Branches, and on main line between Scotts Junction and Valley Junction, Que.
- 32,910. Sept. 29.—Extending to Nov. 1, time within which C.P.R. may build spurs for British Columbia Spruce Mills Co., Wattsburg, B.C.
- 32,911. Oct. 2.—Approving G.T.R. plan showing superstructure of Toronto Belt Line Ry. bridge across Yonge St., near Merton St., Toronto.
- 32,912. Oct. 2.—Authorizing Belgian Industrial Co. to build its Bostonnais-Metabetchouan Ry. across Canadian Northern Quebec Ry., at Lake Kiskissing, Canton Rhodes, and to connect with C.N.Q.R. near Van Bruyssel, Que.
- 32,913. Sept. 29.—Approving plan showing bell installed at C.P.R. crossing of Milford St., Fairville, N.B.
- 32,914. Oct. 3.—Approving plan and specifications of work to be done on Southwold station drain under Michigan Central Rd. in Delaware Tp., Ont.
- 32,915. Oct. 3.—Amending order 14,154, June 29, 1911, ordering the Columbia & Western Ry. to provide crossing at Lot 265, Group 1, Similkameen Division, Yale District, B.C., by providing that the crossing be maintained by British Columbia Public Works Department.
- 32,916. Sept. 29.—Approving C.P.R. plan showing bell installed at crossing of Mechanic St., Bath, N.B.
- 32,917. Oct. 3.—Authorizing Canadian Northern Ry. to open for traffic, portion of its line from Amaranth to Alonsa, Man.
- 32,918. Oct. 2.—Relieving Grand Trunk Pacific Branch Lines Co. and C.P.R. from maintaining signalman on Sundays, and between 3.20 p.m. and 7.20 a.m. week days, at crossing at Alix, Alta.
- 32,919, 32,920. Oct. 4.—Authorizing Pere Marquette Ry. and Michigan Central Rd. to use on its locomotives double crimped wire-netting, mesh not to be larger than 3/16 in. wide and 3/4 in. long, made of no. 10 B.W.G. or 0.135 in. diameter when new, in lieu of Board's requirements set out in general order 362.
- 32,921. Oct. 4.—Relieving C.P.R. from publishing notice of application for sanction of its lease of Interprovincial & James Bay Ry.
- 32,922. Oct. 4.—Declaring that for the present, G.T.R. crossing at Queen St., Mount Forest, Que., is protected to Board's satisfaction.
- 32,923. Oct. 5.—Declaring that for the present, C.P.R. crossing of King St., Holland Center, Ont., is protected to Board's satisfaction.
- 32,924. Oct. 4.—Approving Canadian National Ry. plan showing layout of interlocking plant to be installed at crossing by G.T.R. at Edmonton East, Alta.
- 32,925. Oct. 5.—Declaring that for the present, Great Northern Ry. crossing at Boundary Road, Vancouver, B.C., is protected to Board's satisfaction.
- 32,926. Oct. 6.—Authorizing Saskatchewan Highways Department to build crossing over Canadian National Ry. in n. 1/2 Sec. 28 and s. 1/2 Sec. 33, Tp. 49, Range 26, West 2nd Meridian.
- 32,927. Oct. 5.—Approving clearance at G.T.R. unloading conveyor for use in building Gerrard St. bridge, Toronto.
- 32,928. Oct. 3.—Approving G.T.R. plan, showing retaining wall and steps for north approach of bridge at St. Paul St., St. Catharines, Ont., and extending time for rebuilding bridge to Oct. 19.
- 32,929. Oct. 7.—Ordering C.P.R. to build forthwith protection fences for preventing snow being blown off approaches to farm crossing on west half of Lot 4, Con. 4, Oxford Tp., Ont.
- 32,930. Oct. 6.—Approving location of Canadian Northern Saskatchewan Ry. standard 4th class station building at Brooksby, Sask.
- 32,931. Oct. 6.—Relieving the Grand Trunk Pacific Ry. and C.P.R. from maintaining signalman between 6 p.m. and 10 a.m. at crossing at Camrose, Alta.
- 32,932, 32,933. Oct. 6.—Approving location of Canadian National Ry. standard passenger and freight shelter at Harscus, Man., and standard 4th class station at Alonsa, Man.
- 32,934. Oct. 6.—Authorizing C.P.R. to build spurs for F. T. Cross, in Lot 18, Range 7, Wright Tp., Que.
- 32,935. Oct. 7.—Declaring that for the present, C.P.R. crossing just at east end of Pandanac station, N.B., is protected to Board's satisfaction.
- 32,936. Oct. 6.—Authorizing G.T.R. to build spur for McCraney Lumber Co., McCraney Tp., Nipissing District, Ont.
- 32,937. Sept. 26.—Ordering C.P.R. to keep steel work on viaduct on Wellington St., Ottawa, Ont., properly painted and treated, renew flooring with 4-in. B.C. fir cross-sawn plank, and maintain the structure from abutment to abutment, inclusive, cost to be divided between the C.P.R. and G.T.R., the City of Ottawa to place 1-in. sand cushion and 4-in. blocks for running surface, and maintain approaches.
- 32,938. Oct. 7.—Declaring that for the present, C.P.R. crossing about a mile south of Cataract station, Ont., is protected to Board's satisfaction.
- 32,939. Oct. 7.—Authorizing Canadian Northern Ry. to connect with Grand Trunk Pacific Ry. at Byee, Alta.
- 32,940. Oct. 9.—Ordering that maintenance of crossing of C.P.R. at Cherry Ave., Red Deer, Alta., be paid by Red Deer Village.
- 32,941. Oct. 7.—Approving location and details of G.T.R. new station at Wanstead, Ont.
- 32,942. Oct. 6.—Dismissing application of Village of Foxwarren, Man., for authority to carry highway over C.P.R. to connect Third St. with First St.
- 32,943. Oct. 6.—Ordering that cost of changes in location and details governing movements on British Columbia Electric Ry., to opposite sides of street at crossing of Powell St., Vancouver, B.C., be apportioned as follows: three-quarters to be paid by the B.C.E.Ry. and one-quarter by the Vancouver, Victoria & Eastern Ry. & Navigation Co. (G.N.R.)
- 32,944. Oct. 6.—Approving Quebec Roads Department's plan showing change in location of highway across G.T.R. in Stanfield Tp., Que.
- 32,945. Oct. 6.—Authorizing City of Edmonton, Alta., to make highway crossing over Canadian National Ry. at Regent Ave. (now 129th Ave.).
- 32,946. Oct. 6.—Relieving C.P.R. from maintaining watchman at crossing at Selkirk Ave., Winnipeg, between 2 and 6 a.m. daily.
- 32,947. Oct. 7.—Amending order 19,491, June 6, 1913, re C.P.R. crossing at 21st St. South, Lethbridge, Alta., by providing that maintenance cost be paid by the city.
- 32,948, 32, 949. Oct. 9.—Approving location of C.P.R. standard A-3 stations at Leroy and Naincaw, Sask.
- 32,950. Oct.—Extending to Nov. 15, time within which Canadian National Ry. may build 3rd class station at Winter, Sask.
- 32,951. Oct. 9.—Ordering that in all movements of trains or locomotives over crossing of Aberdeen St., Bridgewater, N.S., by Halifax & South Western Ry., other than those of regular trains, a trainman be stationed on railway right of way, at the limit, or within the street boundaries, who shall give warning of the approach of such trains or locomotives, whether moving forward or reversely, at any time during the full 24 hours of the day.
- 32,952. Oct. 9.—Declaring that for the present Canadian National Ry. crossing east of Cobourg, Ont., is protected, to Board's satisfaction.
- 32,953. Oct. 9.—Declaring that for the present the C.P.R. crossing at Tracey station, N.B., is protected to Board's satisfaction.
- 32,954. Oct. 10.—Approving location of Canadian National Ry. shelter at Tiny, Sask.
- 32,955. Oct. 10.—Approving location of C.P.R. standard A-3 station at Watson, Sask.
- 32,956. Oct. 10.—Permitting Toronto Transportation Commission temporarily, pending Board's decision upon all matters involved in G.T.R. application that Board review question of allocation of cost of bridge at Main St., Toronto, to cross G.T.R. at Main St.
- 32,957. Oct. 10.—Ordering C.P.R. to build 8-car siding, with 2-car platform, at Zacharie, midway between High Bluff and Poplar Point, Man.
- 32,958. Oct. 3.—Ordering G.T.R. to build spur for Carroll Bros., Buffalo, N.Y., at Sherston, Ont.
- 32,959. Oct. 12.—Approving plan and specifications showing work to be done under G.T.R. in connection with Maitland River improvement at Henfryn Bridge, Elma Tp., Ont.
- 32,960. Oct. 11.—Approving location of Canadian National Ry. standard freight and passenger shelter at Lonira, Alta.
- 32,961. Oct. 11.—Authorizing Val Barrette Village, Que., to build highway across C.P.R. at Lot 14, Range G, Campbell Tp., Que.
- 32,962. Oct. 12.—Authorizing G.T.R. to build highway bridge at Lot 58, C.G.T., Waterloo Tp., Ont.
- 32,963. Oct. 12.—Authorizing Toronto, Hamilton & Buffalo Ry. to build spur for Dominion Sheet Metal Corporation, Hamilton, Ont.
- 32,964. Oct. 12.—Approving G.T.R. proposed combination station and sectionman's dwelling at Kelley, Ont.
- 32,965. Oct. 12.—Authorizing Canadian Northern Ry. to build spur for T. A. Burrows Lumber Co., near Birch River, Man.
- 32,966. Oct. 13.—Authorizing use of bridge carrying G.T.R. belt line railway across Yonge St., near Merton St., Toronto.
- 32,969. Oct. 12.—Authorizing Canadian Northern Ry. to use bridge over River Ouareau, St. Liguori Parish, Que.
- 32,970. Oct. 13.—Approving detail plans of Canadian Northern Quebec Ry. bridge over Rouge River, St. Liguori Parish, Que.
- 32,971. Oct. 13.—Ordering C.P.R. to remove its station at Rockwood, Man., from mile 42.5 Arbrog branch to north side of section 9.
- 32,972. Oct. 12.—Authorizing G.T.R. to build spurs for the Backus Brooks Co., Kenora.
- 32,973. Oct. 13.—Extending to Dec. 31, time within which C.P.R. may build station at Superb, Sask.
- 32,974. Oct. 16.—Declaring that for the present, the C.P.R. crossing 2 miles east of St. Thomas, Ont., is protected to Board's satisfaction.
- 32,975. Oct. 16.—Authorizing G.T.R. to build spur for Kroehler Co., Stratford, Ont.
- 32,976. Oct. 14.—Approving Hydro Electric Power Commission of Ontario's plan of revised layout of trolley wire crossing of Windsor, Essex & Lake Shore Rapid Ry. and Hydro Electric Radial Ry., Essex Division, at Wyandotte St. and Aylmer Ave., Windsor, Ont.

Birthdays of Transportation Men in December.

Many happy returns of the day to:—
A. G. Albertsen, Manager, Royal Mail Steam Packet Co., San Francisco, Cal., born at Copenhagen, Denmark, Dec. 31, 1887.

G. F. Ancrum, Assistant Treasurer, G. T.R., Montreal, born at Bristol, Eng., Dec. 9, 1872.

J. H. Barber, Division Engineer, Toronto Terminals Division, Ontario District, C.P.R., Toronto, born at Cobourg, Ont., Dec. 20, 1856.

W. E. G. Bishop, District Freight and Passenger Agent, Canadian National Rys., Cochrane, Ont., born at Central Clarence, N.S., Dec. 4, 1888.

H. E. Bissell, Right of Way Department, Canadian National Rys., Winnipeg, born near Noyan, Que., Dec. 31, 1867.

N. E. Brooks, ex-Engineer, Maintenance of Way, Western Lines, C.P.R., now at Sherbrooke, Que., born there, Dec. 25, 1866.

W. W. Butler, President, Canadian Car & Foundry Co., Montreal, born at Danville, Ohio, Dec. 9, 1862.

J. M. Cameron, General Superintendent, Alberta District, C.P.R., Calgary, born at Lochaber, N.S., Dec. 18, 1867.

W. E. Campbell, Chief Traffic Officer, Board of Railway Commissioners, Ottawa, Ont., born at Mount Vernon, Ont., Dec. 19, 1882.

W. C. Casey, General Agent, Passenger Department, Ocean Traffic, C.P.R., Winnipeg, born at Moncton, N.B., Dec. 12, 1882.

G. W. Caye, General Purchasing Agent, G.T.R., Montreal, born at Malone, N.Y., Dec. 1, 1865.

R. J. Foreman, Foreign Freight Agent, Canadian National-Grand Trunk Rys., Montreal, born at Toronto, Dec. 31, 1878.

A. H. Foster, Manager, Brantford Municipal Ry., Brantford, Ont., born at Guelph, Ont., Dec. 24, 1888.

W. H. Gardiner, City Freight Agent, C.P.R., and District Freight Agent, Esquimalt & Nanaimo Ry., Victoria, B.C., born there, Dec. 6, 1859.

A. J. Gorrie, ex-Superintendent District 1, Transcontinental Division, Canadian Government Rys., Quebec, now of Toronto, born at Raith, Kirkcaldy, Scotland, Dec. 10, 1868.

F. P. Gutelius, Vice President and General Manager, Delaware & Hudson Rd., Albany, N.Y., formerly General Manager, Canadian Government Rys., born at Mifflinburg, Pa., Dec. 21, 1864.

J. T. Hallisey, Superintendent, Halifax Division, Maritime District, Canadian National Rys., Truro, N.S., born at Beaver Bank, N.S., Dec. 29, 1862.

D. B. Hanna, ex-President, Canadian National Rys., Canadian Government Merchant Marine Ltd., etc., Toronto, born at Thornliebank, Scotland, Dec. 20, 1858.

R. W. D. Harris, ex-Trainmaster, Moose Jaw Division Saskatchewan District, C. P.R., Moose Jaw, now of Tappen, B.C., born at Victoria, B.C., Dec. 12, 1879.

H. E. Heal, Canadian Passenger Agent, Pennsylvania Rd., Toronto, born at Bowmanville, Ont., Dec. 17, 1891.

J. J. Hennigar, District Freight Agent, Great Lakes Transportation Co., Windsor, Ont., born at Topeka, Kan., Dec. 21, 1884.

C. E. Jenney, General Agent, Passenger Department, Canadian National-Grand Trunk Rys., New York, N.Y., born at Fergus, Ont., Dec. 31, 1873.

W. J. Kelly, Superintendent of Telegraphs and Telephones, Timiskaming & Northern Ontario Ry., North Bay, Ont., born at Renfrew, Ont., Dec. 17, 1875.

L. S. Landers, Division Engineer, Canadian National Rys., Edmunston, N.B., born at Farnham, Que., Dec. 15, 1888.

J. G. Legrand, Bridge Engineer, Western Lines, Canadian National Rys., and Grand Trunk Pacific Ry., Winnipeg, born at Sompuis, France, Dec. 24, 1861.

J. M. MacArthur, Superintendent, Medicine Hat Division, Alberta District, C.P.R., Medicine Hat, Alta., born at Toronto, Dec. 8, 1885.

A. McCowan, Master Car Builder, Canadian National Rys. Western Lines and Grand Trunk Pacific Ry., Winnipeg, born at Perth, Scotland, Dec. 5, 1868.

J. T. McGrath, ex-Master Mechanic, G.T.R., Battle Creek, Mich., now of Bloomington, Ill., born at Toronto, Dec. 6, 1869.

A. T. McKean, Division Freight Agent, C.P.R., Calgary, Alta., born at St. John, N.B., Dec. 18, 1886.

Capt. R. McKillop, Superintendent, Bruce Division, Ontario District, C.P.R., Toronto, born at Perth, Scotland, Dec. 26, 1884.

A. D. MacTier, Vice President, Eastern Lines, C.P.R., Montreal, born at Blairgowrie, Scotland, Dec. 27, 1867.

Alfred Price, ex-General Manager, Eastern Lines, C.P.R., Montreal, born at Toronto, Dec. 6, 1861.

W. J. Radford, Assistant Manager, Toronto Suburban Ry., Toronto, born at Boldre, Hants, Eng., Dec. 23, 1870.

G. D. Robinson, ex-European Freight Agent, Canadian Pacific Ocean Services Ltd., Montreal, born at St. John, N.B., Dec. 7, 1877.

H. J. Russell, Superintendent, Eastern Division, and Assistant to General Manager, Reid Newfoundland Co., St. John's, Nfld., born at Musgrave Harbor, Nfld., Dec. 24, 1891.

H. W. Sharpe, Master Mechanic, Quebec District, Canadian National Rys., Quebec, Que., born at Campbellton, N.B., Dec. 6, 1869.

G. E. Smart, Mechanical Assistant (Car Department) to Vice President, Operation and Maintenance, Canadian National Rys., Toronto, born at Edinburgh, Scotland, Dec. 23, 1873.

M. F. Tompkins, General Freight Agent, Eastern Lines, Canadian National Rys., Moncton, N.B., born at Margaree, N.S., Dec. 6, 1878.

H. H. Vaughan, ex-Assistant to Vice President, C.P.R., now consulting engineer, Montreal, born at Forest Hill, Essex, Eng., Dec. 26, 1868.

R. C. Vaughan, Vice President, Purchases, Supplies and Stores, Canadian National Rys., Toronto, born there, Dec. 1, 1883.

A. P. Walker, Assistant District Engineer, Ontario District, C.P.R., Toronto, born at West Hartlepool, Eng., Dec. 9, 1860.

E. B. Walker, Electrical Engineer, Canadian National Rys., Toronto, born there, Dec. 15, 1879.

J. B. Way, Freight and Ticket Agent, C.P.R., Sault Ste. Marie, Ont., born at Port Hope, Ont., Dec. 10, 1865.

Railway Lands Patented.—Letters patent were issued, during October, for Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres
Canadian Pacific Ry.....	0.96
Canadian Northern Western Ry.....	2.69
Kettle Valley Ry.....	249.655
Total.....	253.305

Canadian Railway Operating Results in 1921.

Canadian Railway and Marine World for April, 1921, contained on pg. 181, a table giving operating revenues, expenses and statistics for the calendar year, 1921, for Canadian railways having annual operating revenues of \$500,000 or over, as a whole, and for the Canadian Government, Canadian Northern, Canadian Pacific, Grand Trunk and Grand Trunk Pacific railways individually. The Dominion Bureau of Statistics has now issued a preliminary report of railway statistics for the year 1921 for all Canadian steam railways, irrespective of annual operating revenues. Following are some of its principal features.—

Mileage:—The total number of miles of road operated in 1921 by Canadian steam railways was 39,771, compared with 39,384 in 1920.

Capitalization:—Stock had increased to \$1,372,545,165 at the end of 1921, an increase of \$48,839,203, over that outstanding at the end of 1920. Funded debt, standing at \$792,142,471 at the end of 1921, was \$54,181,695 less than at the end of 1920.

Revenues and Expenses:—Operating revenues for all roads during 1921 were \$458,008,891, compared with \$492,101,104 in 1920. Operating expenses were \$422,581,205 compared with \$478,248,154 in 1920. Net operating revenues were \$35,427,686, compared with \$13,852,950 in 1920. The operating ratio in 1921 was 92.26, compared with 97.17 in 1920.

Traffic:—The railways did not handle nearly as much freight nor as many passengers in 1921 as in 1920. The number of tons of freight carried one mile in 1921 by all railways was 26,621,630,534, compared with 31,894,411,479 in 1920. The number of passengers carried one mile in 1921 was 2,960,853,955, compared with 3,522,494,856 in 1920. As would be expected, in view of the figures for freight and passenger traffic density, train mileage was reduced considerably. Revenue freight train mileage for all railways was 52,454,742 in 1921 compared with 62,195,802 in 1920, and passenger train mileage was 45,015,951 in 1921, compared with 47,383,411 in 1920.

Fuel consumed by locomotives in train and switching service was decreased about in proportion to the decrease in train mileage, being 8,993,514 tons in 1921, compared with 10,742,718 tons in 1920.

Employees:—The number of employees also reflected the decrease in business, there being 167,627 in 1921, compared with 185,177 in 1920. The compensation paid employees reflects not only the decreased number of employees, but also the wage reduction taking effect July 16, 1921, the total compensation being \$247,756,138 in 1921 compared with \$290,510,518 in 1920.

Despite the rate reductions which took place, and which decreased the railways' operating revenues in greater proportion than they would have been decreased by the reduction in traffic alone, the figures given demonstrate that the reductions in operating expenses secured enabled the railways as a whole to secure somewhat better net results than in 1920.

Pacific Great Eastern Ry. Reports.—Premier Oliver of British Columbia states that the cost of the Sullivan, Dennis, Hinton reports on the Pacific Great Eastern Ry., summaries of which were published in Canadian Railway and Marine World for November, cost \$7,939.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Buffalo, Rochester & Pittsburgh Ry.—W. B. MALLON, heretofore rate clerk, Passenger Department, Rochester, N.Y., has been appointed Canadian Traffic Agent, reporting to General Freight Agent, and General Passenger Agent, Rochester, N.Y. Office, 69 Yonge St., Toronto.

Canadian National Rys.—OTTO N. BAIRD, Air Brake Inspector, Island Division, Maritime District, Charlottetown, P.E.I., has been retired on the Provident Fund, and the duties of the position will be attended to by a mechanic, under the supervision of the Division Shop Foreman.

C. H. BRISTOL has been appointed apprentice class instructor, Fort Rouge, Man. This is a new position.

L. DAVIDSON, foundry foreman, Fort Rouge, Man., has been transferred to Transcona, Man.

W. H. FLEMING has been appointed Roadmaster, Edson, Alta., vice A. Anderson, who is not now in the service.

D. H. FORD, heretofore Roadmaster, Hanna, Alta., has been appointed Roadmaster, Drumheller, Alta., vice J. A. M. Brown, whose appointment as Roadmaster, Camrose, Alta., was announced in our last issue.

R. B. GORDON, heretofore acting Terminal Passenger Agent, Winnipeg, has been appointed Travelling Passenger Agent for Manitoba and Ontario west of Port Arthur and Armstrong, vice P. A. Rooney. Office, Winnipeg.

J. W. GRAHAM has been appointed Bridge and Building Master, Prince Albert, Sask.

R. M. HORNE-PAYNE, London, Eng., has resigned his position as Financial Representative, Canadian Northern Ry. Co., after occupying it for 23 years.

J. A. MCGINNIS, heretofore Assistant Roadmaster, Titchfield, Sask., has been appointed Roadmaster between Bengough Jct., and Hodgeville, Sask. Office, Avonlea, Sask.

J. A. MILLER, machinist, has been appointed acting Shop Foreman, Island Division, Maritime District, Charlottetown, P.E.I., A. J. Houle, General Shop Foreman, having been retired on the Provident Fund.

R. NELSON, heretofore dispatcher, Edmonton, Alta., has been appointed Chief Dispatcher, Prince Albert, Sask.

T. E. NELSON has been appointed Assistant Foreman, Car Shop, Fort Rouge, Man., vice E. S. Reeves, appointed Passenger Car Foreman, Paddington, Man.

F. L. NORMAN heretofore Commercial Agent, Canadian National-Grand Trunk Pacific Rys., Seattle, Wash., has been appointed General Agent, Freight Department, Canadian National-Grand Trunk Pacific Rys., and Grand Trunk Pacific Coast Steamship Co. there. Office, 902 Second Ave.

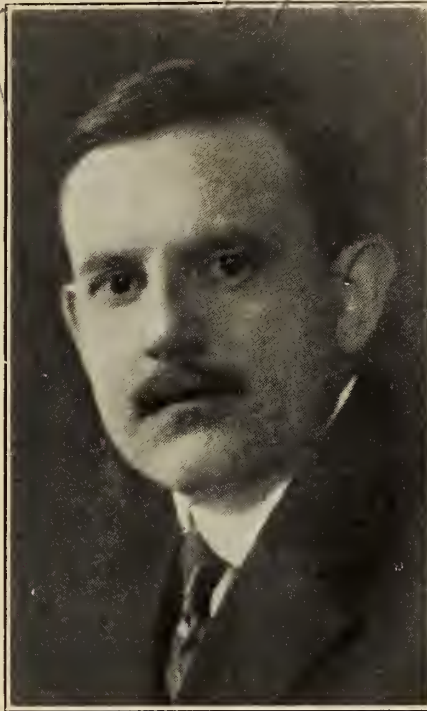
J. D. OUELLET, heretofore leading hand machinist, has been appointed Assistant Foreman, St. Malo, Que.

E. S. REEVES, heretofore Assistant Foreman, car shop, Fort Rouge, Man., has been appointed Passenger Car Yard Foreman, Paddington, Man., vice G. S. Clark, resigned.

F. SCOTT, heretofore Assistant Roadmaster, Fort Rouge, Man., has been as-

signed to other duties, and his position has been abolished.

H. H. SPARLING, heretofore dispatcher, has been appointed Night Chief



George Stephen,
Assistant Freight Traffic Manager, Western Lines,
Canadian Pacific Railway.



R. H. Fish,
General Superintendent, Ontario Lines, Grand
Trunk Railway.

Dispatcher, Sioux Lookout, Ont., temporarily during the heavy grain shipping season.

GEO. STEPHEN, Freight Traffic Manager, having resigned to accept service with the C.P.R., communications here-

tofore addressed to him are to be addressed to C. A. Hayes, Vice President, Traffic Department, Toronto.

C. S. WAINWRIGHT, General Agent, Freight Department, G.T.R., Los Angeles, Cal., has been appointed to act in the same capacity also for Canadian National Rys., Grand Trunk Pacific Ry., and Grand Pacific Coast Steamship Co. there. Office, 325 Van Nuys Building.

JAMES WAUGH, heretofore Commercial Agent, Grand Trunk Ry., Canadian National Rys., Grand Trunk Pacific Ry., and Grand Trunk Pacific Coast Steamship Co., San Francisco, Cal., has been appointed General Agent, Freight Department, Canadian National-Grand Trunk Pacific Rys., and Grand Trunk Pacific Coast Steamship Co. there. Office, 689 Market St.

Canadian Pacific Ry.—J. A. BRASS, heretofore chief clerk, General Superintendent's office, Saskatchewan District, Moose Jaw, has been appointed chief clerk of Vice President's and of the General Manager's offices, Western Lines, Winnipeg, vice C. R. Claydon, deceased.

F. DAVEY, heretofore Car Foreman, Hochelaga, Que., has been appointed Car Foreman, Glen Yard, Montreal, vice R. Weldon appointed Car Foreman, Hochelaga, Que.

A. J. FLEMING, heretofore chief clerk, Import Freight Department, Montreal, has been appointed Assistant Foreign Freight Agent, Montreal, vice A. W. Snell, resigned to enter Furness, Withy and Co's service.

D. L. JONES, heretofore Locomotive Foreman, London, Ont., has been appointed Locomotive Foreman, Windsor, Ont., vice A. A. Sheppard, appointed Locomotive Foreman, London, Ont.

Major W. M. KIRKPATRICK, M.C., heretofore Assistant Freight Traffic Manager, Western Lines, Winnipeg, has been appointed General Foreign Freight Agent, Atlantic and Pacific Ocean lines, vice E. N. Todd, appointed Freight Traffic Manager, Rail Lines. Office, Montreal.

W. B. LANIGAN, heretofore Freight Traffic Manager, Rail Lines, has been appointed General Freight Traffic Manager, all lines. Office, Montreal.

C. W. NELSON, chief clerk, Division Freight Agent's office, Calgary, Alta., is reported to have been appointed Assistant Freight Agent, San Francisco, Cal.

THOS. C. ROBINSON, heretofore chief clerk to Division Freight Agent, Manitoba District, has been appointed Travelling Freight Agent, Manitoba District, vice W. A. Lowe, appointed District Freight Agent at Fort William, Ont. Office, Winnipeg. This appointment was incompletely stated in Canadian Railway and Marine World for November.

A. A. SHEPPARD, heretofore Locomotive Foreman, Windsor, Ont., has been appointed Locomotive Foreman, London, Ont., vice D. L. Jones, appointed Locomotive Foreman, Windsor, Ont.

GEORGE STEPHEN, heretofore Freight Traffic Manager, Canadian National Rys., Toronto, has been appointed Assistant Freight Traffic Manager, Western Lines, C.P.R., vice Major W. M. Kirkpatrick, appointed General Foreign Freight Agent, Atlantic and Pacific Ocean Lines, Montreal. Office, Winnipeg.

E. N. TODD, heretofore General Foreign Freight Agent, Montreal, has been appointed Freight Traffic Manager, Rail Lines, vice W. B. Lanigan, appointed

General Freight Traffic Manager, all lines. Office, Montreal.

L. O. TREMBLAY, heretofore Traveling Passenger Agent, North Bay, Ont., has been appointed District Passenger Agent, Rail and Steamship Lines, Algoma District. Office, North Bay, Ont.

R. WELDON, heretofore Car Foreman, Glen Yard, Montreal, has been appointed Car Foreman, Hochelaga, Que., vice

F. Davey, appointed Car Foreman, Glen Yard, Montreal.

Grand Trunk Ry.—Miss MILDRED LOW has been appointed Literary Editor, General Advertising Department, Montreal.

Guelph Junction Ry.—Alderman HARRY MAHONEY is reported to have been appointed Business Agent at Guelph, Ont., to succeed T. F. Savage.

Michigan Central Rd.—E. W. BRUNCK, heretofore one of the three Assistant General Freight Agents at Detroit, Mich., has been appointed Assistant General Freight Agent, vice F. R. Newman, resigned to take service with another company. Office, Detroit, Mich.

S. W. CARDER has been appointed Assistant General Freight Agent, vice W. D. McVey, promoted. Office, Buffalo, N.Y.

The International Freight Car Situation.

Some publicity has been given during the past month to the fact that there are more Canadian cars on U.S. lines than there are U.S. cars on Canadian lines. This is due entirely to natural and traffic conditions. Traffic southbound out of Canada consigned to U.S. destinations for domestic consumption or export is generally of a bulky nature, and many cars are required to handle it, while traffic northbound from U.S. points to Canadian destinations is of such a nature and volume that fewer cars are required for it. The result of this is that when Canadian railways supply Canadian shippers with cars for freight consigned to the U.S., the cars get down there, and are stranded there without return loads. A natural tendency toward delay in getting the cars started back home is established. The Canadian railways find themselves in the position that the more cars they furnish Eastern Canadian shippers, the more they lose temporarily to the U.S.

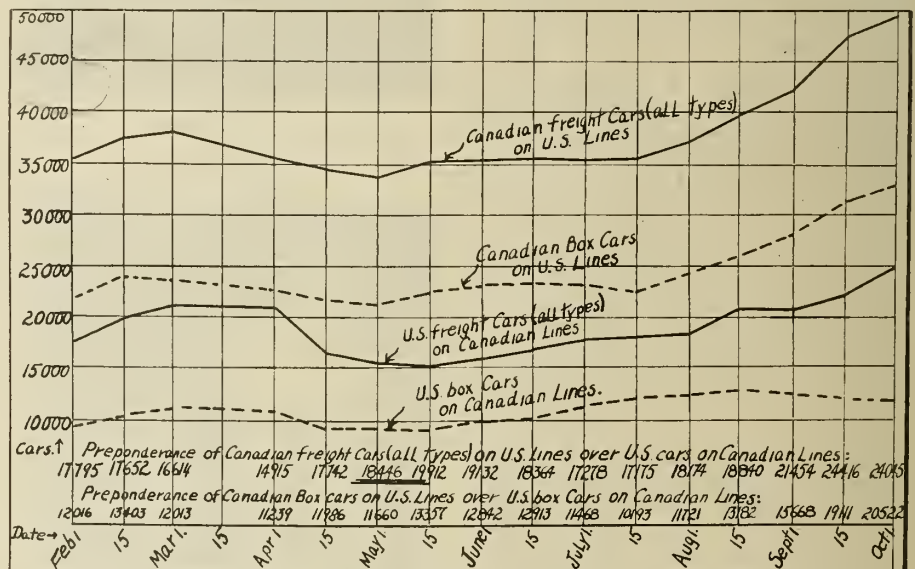
The seasonal increase in traffic which develops every autumn tends to intensify this condition. This year, the improvement in business and economic conditions which has taken place, combined with the effect of the coal miners' and shopmen's strikes in the U.S., has produced a genuine car shortage, and the margin of Canadian cars on U.S. lines over the U.S. cars on Canadian lines has increased considerably. The accompanying charts trace the situation from the first part of the year up to the beginning of October. Fig. 1, for all freight cars, shows that, beginning with the usual seasonal revival in traffic, the margin has been rapidly increasing. On Oct. 1 there were 24,045 more Canadian cars on U.S. lines than U.S. cars on Canadian lines, compared with 18,174 on Aug. 1. The increase in the number of U.S. cars on Canadian lines is due chiefly to the revival in the coal movement, but the unfortunate part of this increase in all classes of U.S. cars on Canadian lines is that the gondolas and hopper bottom coal cars which make up the greater part of the increase are unsuitable for Canadian traffic. The diagram covering the box-car situation shows that the number of Canadian box cars on U.S. lines is much greater than the number of U.S. box cars on Canadian lines, and in the fact that the great demand in Canada at present is for box cars, is to be found the worst feature of the existing situation.

The code of car service rules, effective March 1, 1920, as amended July 1, 1921, and now in force, provides for the interchange of freight cars among railways as follows: "1. Home cars shall not be used for the movement of traffic beyond the limits of the home road, where the use of other suitable cars under these rules is practicable. 2. Foreign cars at home, on a direct connection, must be forwarded to the home road, loaded or empty, except as provided in paragraphs e and f. If empty at junction with the home road, and loading at that point via the home road is not available, they

must, subject to rule 5, be delivered to it at that junction, unless an exception to the requirement be agreed to by roads involved. Otherwise, cars under this rule may be (a) loaded via any route so that the home road will participate in the freight rate, or (b) moved locally in the direction of the home road, or (c) moved locally in an opposite direction from the home road, or delivered to a short line or a switching road, if to be loaded for delivery on, or movement via, the home road, or (d) delivered empty to home road at any junction point, subject to rule 5, or (e) delivered empty to road from which originally received under load at the junction where received, if such road is also a direct connection of the home road, or (f) returned empty to the delivering road when handled in switching service and owner is not a direct connection in that switching terri-

quires return of empty cars to home road, via the junction at which cars were delivered in interchange under load, the home road may demand return of empty cars at such junction, except that cars offered a home road for repairs, in accordance with Division 5-Mechanical (M. C.B.) rules, must be accepted by owners at any junction point."

A deputation, consisting of C. P. Rid- del, General Secretary, Railway Association of Canada; G. P. Clark, acting Superintendent of Car Service, Canadian Rys., Toronto; C. R. Moore, General Superintendent of Car Service, G.T.R., Montreal, and A. Hatton, General Superintendent of Transportation, C.P.R., Montreal, visited Washington recently, and conferred with the American Railway Association's Car Service Division officials, on the car situation, as between Canadian and U.S. lines. It was shown



tory. 3. Foreign cars at home on other than direct connections must be forwarded to the home road, loaded or empty. Under this rule cars may be: (a) Loaded via any route so that the home road will participate in the freight rate, or (b) loaded in the direction of the home road, or (c) moved locally in an opposite direction from the home road, or delivered to a short line or a switching road if to be loaded for delivery on, or movement via, the home road, or to a point in the direction of the home road beyond the road on which the cars are located, or (d) delivered empty to road from which originally received, at the junction where received, if impracticable to dispose of them under paragraph (a), (b) or (c) of this rule. 4. Empty cars may be short routed at a reciprocal rate of 5c a mile, plus bridge and terminal arbitraries, with a minimum of 100 miles for each road handling the car, the road requesting the services to pay the charges. 5. If a movement of traffic re-

how the existing situation is adversely affecting the Canadian railway industry, but on the other hand the difficulties besetting U.S. railways in the way of equipment shortages, and the nature obstacles to getting the Canadian cars started back to their home roads, were made evident. The conference was very satisfactory, and both parties obtained a thorough understanding of each others' difficulties, the U.S. officials undertaking to do all possible in the way of returning Canadian equipment promptly.

Canadian shippers, who are confronted with delayed delivery of freight equipment for loading should bear in mind that the railways which are serving them are facing traffic and other conditions which make prompt supply of cars at this season of the year extremely difficult, altogether apart from the demands made on their equipment reserves by the western crop movement, and they should realize that the railways are doing all in their power to supply cars to meet the demand.

Mainly About Railway People Throughout Canada.

Miss Grace Bell, sister of G. T. Bell, Passenger Traffic Manager, G.T.R., Montreal, died at London, Ont., recently.

Harry Walter Brodie, whose appointment as Assistant Passenger Traffic Manager, C.P.R., Montreal, was announced in our last issue, and whose portrait appeared in that issue, was born at Fredericton, N.B., June 8, 1874, and entered C.P.R. service Jan. 1, 1895, since when he has been, to July, 1895, stenographer, Passenger Department, St. John, N.B.; July to Aug. 1895, stenographer, Passenger Department, Boston, Mass.; Aug. 1895, to Feb. 1898, stenographer, Passenger Department, Toronto; Feb. 1898, to Oct. 1899, chief clerk, Passenger Department, Toronto; Oct. 1899, to Feb. 1903, chief clerk, Passenger Department, Winnipeg; Feb. 1, 1903, to Nov. 1, 1910, Assistant General Passenger Agent, Western Lines, Winnipeg; Nov. 1, 1910, to Sept. 12, 1922, General Passenger Agent, lines west of Revelstoke, B.C., Vancouver, B.C. These biographical particulars appeared partly in our last issue, but a few lines were omitted and the matter is therefore given here complete.

Sir George McLaren Brown, K.B.E., European General Manager, C.P.R., London, Eng., and Lady Brown, were guests at Government House, Quebec, Que., for a few days early in November, and Sir George sailed for England on the s.s. Montcalm, Nov. 17, after having visited his father, Adam Brown, at Hamilton, Ont.

William B. Bulling, formerly Assistant Freight Traffic Manager, Eastern Lines, C.P.R., Montreal, died at the Homewood Sanitarium, Guelph, Ont., Oct. 31, after a long illness. He was born at Montreal, Sept. 16, 1858, entered G.T.R. service in 1872, and resigned in 1880 to enter Chicago and Northwestern Ry. service in Chicago, Ill., where he only remained a short time, returning to the G.T.R., and remaining with that company until 1883. He was from 1883 to 1889, chief clerk, General Freight Department, C.P.R., Montreal, 1889 to 1892, District Freight Agent, C.P.R., Montreal; 1892 to July, 1902, General Freight Agent, Eastern Division, C.P.R., Montreal; July 1902 to Aug. 1911, Assistant Freight Traffic Manager, Eastern Lines, C.P.R., Montreal. He was compelled to retire from active service in Aug. 1911 on account of ill health, after which he lived at Knowlton, Que. for several years.

Pierce Butler, of St. Paul, Minn., who has been nominated by President Harding as Associate Justice of the U.S. Supreme Court, acted as counsel for the Canadian Northern Ry. Co., in the arbitration to decide the amount to be paid by the Dominion Government for the common stock; also for the Dominion Government in the arbitration as to the value of Grand Trunk Ry. stocks; and has been for some time engaged as one of the counsel for the Toronto Ry. Co., in the arbitration to decide the amount to be paid for its property by the City of Toronto.

A. E. H. Chesley, General Accountant, Dominion Atlantic Ry., Kentville, N.S., represents the transportation interests on the Nova Scotia Accident Prevention Association's general executive committee.

George Cowie, station agent, G.T.R., Allandale, Ont., for the past 35 years, retired from active service at the end of October, after 50 years with the com-

pany. He was presented with two chairs and a smoking coat by the local staff.

D. Crombie, Transportation Assistant to Vice President, Operation & Maintenance Departments, Canadian National



W. B. Lanigan,
General Freight Traffic Manager, Canadian Pacific
Railway.



E. N. Todd,
Freight Traffic Manager, Canadian Pacific Railway.

Rys., Toronto, addressed the Toronto Electric Club at its luncheon, on Nov. 22, on the Canadian National Ry. System.

Robert H. Fish, whose appointment as General Superintendent, Ontario Lines, G.T.R., Toronto, was announced in our

last issue, was born at Oakville, Ont., June 12, 1873, and entered G.T.R. service, March 28, 1891, since when he has been, to Dec. 9, 1891, on construction work, Toronto; Dec. 9, 1891, to Dec. 1, 1893, in motive power shops, Toronto; Dec. 1, 1893, to Jan. 29, 1900, locomotive fireman, Toronto; Jan. 29, 1900, to Oct. 1, 1908, locomotive man, Toronto; Oct. 1, 1908, to Jan. 22, 1913, Road Foreman, Locomotives, London, Ont.; Jan. 22, 1913, to Nov. 1, 1916, Trainmaster, Brantford, Ont.; Nov. 1, 1916, to March 1, 1920, Superintendent, Stratford, Ont.; March 1, 1920, to Oct. 10, 1922, General Superintendent, Eastern Lines, Montreal.

R. H. Fish, appointed recently as General Superintendent, Ontario Lines, G.T.R., Toronto, was entertained at dinner by a number of the officials of the Eastern Lines, at Montreal, Nov. 16, on his removal to Toronto, after being General Superintendent, Eastern Lines for several years.

F. H. Fljoldal, who was elected Grand President of the United Brotherhood of Maintenance of Way Employees and Railway Shop Laborers, at Detroit, Mich., recently, as stated in Canadian Railway and Marine World for November, has been Roadmaster of Margo and Togo Subdivisions, Dauphin Division, Saskatchewan District, Canadian National Rys., since Feb., 1920.

E. Fitzgerald, C.M.G., formerly Assistant General Purchasing Agent, C.P.R., and now Deputy Chairman, Canadian Advisory Committee, Hudson's Bay Co., returned to Canada, Nov. 4, on the C.P.R. s.s. Melita, and proceeded to Winnipeg.

D. H. Gemmell, of Smiths Falls, Ont., a C.P.R. conductor, and Vice President of the Brotherhood of Railway Trainmen, was unanimously chosen Progressive candidate for the Dominion Parliament in the Lanark, Ont., by-election, the vacancy being caused by the death of Hon. J. A. Stewart, Minister of Railways and Canals, in the last government. Announcement was made later that he had withdrawn from the contest.

G. E. Graham, General Manager, Dominion Atlantic Ry., was entertained at dinner at the company's Cornwallis Inn, Kentville, N.S., on Nov. 1, by the company's other officials, on the seventh anniversary of his appointment, and was presented with a gold watch, on their behalf, by F. G. J. Comeau, General Freight and Passenger Agent. A. E. H. Chesley, General Accountant, was toast master.

D. B. Hanna, ex President, Canadian National Rys., left Toronto Nov. 25, via Chicago, Ill., St. Paul, Minn., and Seattle, Wash., for the Pacific Coast, intending to return via Victoria and Vancouver, B.C., and Winnipeg, and expecting to be back about the middle of December.

W. B. Heath, foreman, erecting shop, G.T.R., Ottawa, Ont., died there suddenly, of apoplexy, Nov. 5, aged 56.

H. Irwin, Consulting Right of Way Agent, C.P.R., Montreal, celebrated his 75th birthday, recently, by walking 17 miles along the shore of Lake St. Louis. He still goes out surveying in the Province of Quebec.

Hon. W. C. Kennedy, M.P., Minister of Railways and Canals, who underwent two operations for gall stones in the Royal Victoria Hospital, Montreal on Aug. 26 and Sept. 20, left there Nov. 22 for his home at Windsor, Ont. He will

probably take a trip south before returning to his office.

Major William Macpherson Kirkpatrick, M.C., who has been appointed General Foreign Freight Agent, Atlantic and Pacific Ocean Lines, C.P.R., Montreal, was born at Kingston, Ont., Oct. 8, 1874. He is a son of the late Sir George Kirkpatrick, at one time a director of the C.P.R. He entered C.P.R. service March 7, 1892, in the Vice President's office, and up to July 1899, filled various positions in the Chief Engineer's office, and Foreign Freight Department, Montreal, and General Freight Agent's office, Toronto; July 1899 to Dec. 1902, clerk, Fourth Vice President's office, Montreal; Dec. 1902 to April 1905, Assistant General Freight Agent, Pacific Division, Vancouver, B.C.; April 1905 to Feb. 1907, Export Freight Agent, Montreal; Feb. to Dec. 1907, General Freight Agent, Atlantic Division, St. John, N.B.; Dec. 1907 to April 1911, General Freight Agent, Through Traffic, Ontario Division, Toronto; April to Aug. 21, 1911, General Freight Agent, Eastern Lines, Montreal; Aug. 21, 1911 to 1915, Assistant Freight Traffic Manager, Eastern Lines, Montreal. In 1915 he received a commission in the 87th Battalion (Grenadier Guards) and went overseas with the 3rd contingent. During his war service he rose to the rank of Major and was awarded the Military Cross for conspicuous gallantry in action, and was mentioned in dispatches as having made two trips to the front line under very heavy shell fire, and obtaining most valuable information. He returned to Canada at the close of the war, and was appointed Assistant Freight Traffic Manager, Western Lines, C.P.R., Winnipeg, which position he held to Nov. 15, 1922, the date of his present appointment.

William Blackstock Lanigan, who has been appointed General Freight Traffic Manager, C.P.R., Montreal, was born at Three Rivers, Que., Oct. 12, 1861, and educated at the Protestant Academy, and St. Joseph College, Three Rivers, and Stanstead College, Quebec. He entered railway service in 1879, and has been, to 1880, telegraph operator, Quebec, Montreal, Ottawa & Occidental Ry., Three Rivers, Que.; 1880, telegraph operator, Montreal Telegraph Co. Montreal; 1880 to 1881, telegraph operator, Hamilton Power Co., Beloeil, Que.; 1881 to 1884, telegraph operator, G.T.R., Montreal; 1884 to 1885, night operator, C.P.R., Sharbot Lake, Ont.; April 1885 to Sept., 1885, day operator, C.P.R., Tweed, Ont.; Sept. 1885 to Oct. 1886, relieving agent, C.P.R., Toronto; Oct. to Nov. 1886, agent, C.P.R., Claremont, Ont.; Nov. 1886 to June 1887, agent, C.P.R., Myrtle, Ont.; June, 1887, to July, 1888, agent, C.P.R., Dundalk, Ont.; July 1888 to Aug. 1891, agent, C.P.R., Galt, Ont.; Aug. 1891 to May 1900, Travelling Freight Agent, C.P.R., Toronto; May 1900 to July 1901, Assistant General Freight Agent, C.P.R., Toronto; July 1901 to March 1908, General Freight Agent, Western Lines, Winnipeg; March 1908 to Sept. 1918, Assistant Freight Traffic Manager, Western Lines, C.P.R., Winnipeg; Sept. 2, 1918, to Nov. 15, 1922, Freight Traffic Manager, C.P.R., Montreal.

Miss Mildred Low, who has been appointed Literary Editor, General Advertising Department, G.T.R., Montreal, of which H. R. Charlton is chief, is a daughter of the late Canon George J. Low, D.D., of Ottawa. For some years, as "Marise" she edited the Ottawa Free Press' women's page and wrote special

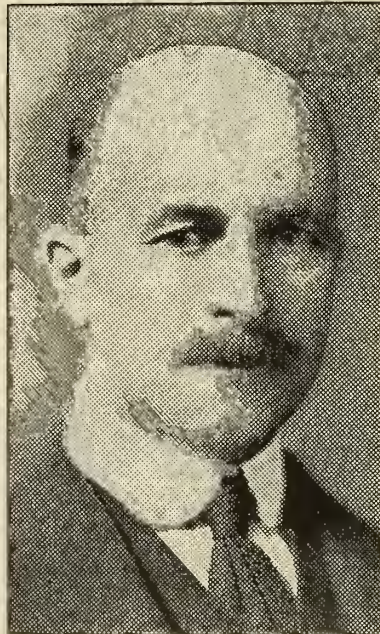
articles, and she was on the Montreal Star's editorial staff for some time. In 1913, she went to Edmonton, Alta., to attend the Canadian Women's Press Club's triennial convention, and remained in the west to edit the Vancouver Daily Sun's Sunshine Society Department.

Miss Emma MacInnes, daughter of W. R. MacInnes, Vice President, Traffic Department, C.P.R., Montreal, is one of the season's debutantes there.

Sir William Mackenzie, ex President, Canadian Northern Ry., returned to Canada, Oct. 9, after a trip to England.

Sir Donald Mann, ex Vice President, Canadian Northern Ry., returned to Canada, Oct. 29, after a trip to England.

Charles Manning, whose appointment as Assistant Operating Manager, lines east of Detroit and St. Clair Rivers, G. T.R., Montreal, was announced in our last issue, was born at New Swindon, Eng., Nov. 8, 1862, and entered railway service June 1, 1878, since when he has been, to Oct. 1, 1883, in various offices, Mechanical Department, Great Western Ry., Swindon, Eng.; Nov. 1, 1883 to July 1, 1898, clerk, Mechanical Superinten-



Major W. M. Kirkpatrick, M.C.,
General Foreign Freight Agent, Canadian Pacific
Railway.

dent's office, G.T.R., Toronto; July 1, 1898 to July 1, 1917, chief clerk, General Superintendent of Motive Power, G.T.R., Montreal; July 1, 1917 to July 1, 1919, Assistant to Vice President, Mechanical Department, G.T.R., Montreal; July 1, 1919 to Oct. 10, 1922, Assistant to Vice President, Transportation, Construction and Maintenance, G.T.R., Montreal.

Mrs. E. M. R. Maynes, wife of A. Maynes, Division Master Mechanic, C.P.R., Toronto, died there suddenly, of acute heart disease, Nov. 1.

F. L. Norman, who has been appointed General Agent, Freight Department, Canadian National-Grand Trunk Pacific Rys., and Grand Trunk Pacific Coast Steamship Co., Seattle, Wash., was born at Kansas City, Mo., Jan. 30, 1879, and entered railway service Feb. 1, 1906, since when he has been, to Feb. 1, 1907, Soliciting Freight Agent, Rutland Rd., Michigan Central Rd., and Ontario Central Despatch Lines, Kansas City, Mo.; Mar. 1, 1907 to June 1, 1910, Soliciting Freight

Agent, G.T.R., Kansas City, Mo.; June 1, 1910 to June 30, 1918, Commercial Agent, G.T.R., Seattle, Wash.; July 1, 1918 to Sept. 8, 1920, Commercial Agent, Grand Trunk Pacific Ry. and Grand Trunk Pacific Coast Steamship Co., Seattle, Wash.; Sept. 8, 1920 to Nov. 15, 1922, Commercial Agent, Canadian National-Grand Trunk Pacific Rys., Seattle, Wash.

H. Campbell Oswald, Assistant Secretary, C.P.R., visited the Pacific coast recently.

S. A. Parnwell, Assistant General Manager and Land Agent, Great Eastern Ry. of England, is reported to have been appointed General Manager, vice Sir Henry W. Thornton, K.B.E., appointed President, Canadian National Rys.

H. D. Reid, President, Reid Newfoundland Co., arrived in Canada, from Great Britain, Nov. 9, by the C.P.R. s.s. Empress of France.

J. W. Reid, Inspector of Railway Safety Appliances, Board of Railway Commissioners, Calgary, Alta., was born at Harvey, N.B., Nov. 15, 1892, not Nov. 12, 1872, as stated in Canadian Railway and Marine World for November under "Birthdays of Transportation Men in November", the error having been caused by somewhat illegible figures supplied us.

J. W. Rusk.—Canadian Railway and Marine World, in quoting in its November issue an item from the Railway Gazette of London, Eng., stating that Jno. Wm. Rush, late Managing Director of the Intercolonial Ry. of Canada, had died at Coleraine, Ireland, after an operation, said that it had no record of Mr. Rush having occupied the position mentioned and that there must be some mistake, as the title Managing Director is, as a rule, only used in reference to privately owned companies. Enquiry at Moncton has elicited the information that Mr. Rusk, who was born in Aug. 1852, held the following positions on the Intercolonial:—July 1872 to Jan. 1873, porter and baggage man, Moncton, N.B., Jan. 1873-1876 freight checker, St. John, N.B., July 1876 to July 1882, clerk, St. John; July 1882 to Aug. 1922, foreman of freight shed, St. John. He died Aug. 27.

Frank Scott, whose retirement as Vice President and Treasurer, G.T.R., was announced in a recent issue, was presented with a pair of silver carafes and an illuminated address by the staffs of the financial and treasury departments at Montreal, Nov. 9, the presentation being made by J. A. Yates, now Treasurer, G.T.R.

J. G. Scott, ex-General Manager, Great Northern Ry. of Canada, and Quebec and Lake St. John Ry., has resigned the Quebec Board of Trade transportation committee chairmanship.

Lord Shaughnessy, Chairman, C.P.R. Co., addressed the Montreal Kiwanis Club, Nov. 16, on selected and directed immigration.

A. B. Smith, Passenger Traffic Manager, Northern Pacific Ry., St. Paul, Minn., has been elected President, American Association of Passenger Traffic Officers.

Arthur W. Snell, heretofore Assistant Foreign Freight Agent, C.P.R., Montreal, has been appointed Assistant Manager, Furness, Withy & Co., Montreal, vice J. W. Nicoll, appointed Manager.

W. H. Snell, who was appointed General Passenger Agent, lines west of Field and Kootenay Landing, C.P.R., Vancouver, B.C., recently, was entertained at dinner, and presented with a travelling case and umbrella, by a number of his

associates, at Montreal at the end of October, on leaving there, where he had been General Passenger Agent, Eastern Lines, C.P.R., for a number of years.

George Stephen, who has been appointed Assistant Freight Traffic Manager, Western Lines, Canadian Pacific Ry., at Winnipeg, was born at Montreal, July 5, 1876, and entered railway service in 1889, since when he has been, to 1899, clerk, C.P.R., 1899 to 1900, chief clerk to Assistant General Freight Agent, C.P.R., Winnipeg; 1900 to 1901, Travelling Freight Agent, Manitoba Lines, C.P.R.; 1901 to 1903, Contracting Freight Agent, C.P.R., Nelson, B.C.; 1903 to Jan. 1907, chief clerk to General Traffic Manager, Canadian Northern Ry., Winnipeg; Jan. 1907 to May 1909, Assistant General Freight Agent, C.N.R., Winnipeg; May 1909 to Dec. 31, 1915, General Freight Agent, C.N.R., Winnipeg; Jan. 1 to Nov. 6, 1916, Assistant Freight Traffic Manager, Western Lines, C.N.R., Winnipeg; Nov. 1916 to Dec. 1918, Freight Traffic Manager, Western Lines, Canadian Northern Ry., Winnipeg; Dec. 1918 to Aug. 24, 1920, Freight Traffic Manager, Canadian National Ry., Toronto; Aug. 24, 1920 to Nov. 15, 1922, Freight Traffic Manager, Canadian National-Grand Trunk Pacific Ry., and Grand Trunk Pacific Coast Steamship Co., Toronto.

Sir Campbell Stuart, who has been confirmed in his position as Managing Director of the London Times by the new owners, is a grandson of the late C. J. Brydges, who was appointed Managing Director, Great Western Ry. of Canada, in 1853; General Manager, Grand Trunk Ry., in 1864; one of the commission for building the Intercolonial Ry., in 1868, and subsequently General Superintendent of the Intercolonial and Prince Edward Island Ry.

Major Lewis Thomas, O.B.E., Director, Jamaica Government Ry., visited his brother in Montreal recently.

Edwin Newman Todd, who has been appointed Freight Traffic Manager, Rail Lines, C.P.R., Montreal, was born at Huntingdon, Que., Oct. 17, 1879, and entered C.P.R. service May 7, 1896, since when he has been, to May 1, 1898, clerk and stenographer, Foreign Freight Department, Montreal; May 1, 1898 to June 1, 1903, import clerk, same department, Montreal, and West St. John, N.B.; June 1, 1903 to May 1, 1904, contracting clerk, Assistant Freight Traffic Manager's office, Toronto; May 1, 1904 to May 1, 1905, Contracting Freight Agent, Foreign Freight Department, Toronto; May 1, 1905 to Jan. 1, 1909, Assistant Export and Import Freight Agent, Toronto; Jan. 1, 1909 to Sept. 1, 1911, Export Freight Agent, Montreal; Sept. 1, 1911 to Sept. 20, 1915, Division Freight Agent, Montreal; Sept. 20, 1915 to Mar. 15, 1919, General Freight Agent, Montreal; March 15, 1919 to Nov. 15, 1922, General Foreign Freight Agent, Montreal.

Leonard O. Tremblay who has been appointed District Passenger Agent, Rail and Steamship Lines, C.P.R., North Bay, Ont., was born at Calumet Island, Que., June 19, 1885, and entered railway service Feb. 5, 1903, since when he has been, to March 31, 1905, clerk, C.P.R., March 31, 1905 to April 5, 1907, ticket clerk, C.P.R.; April 5, 1907 to July 4, 1912, joint ticket agent, C.P.R., G.T.R., and Timiskaming and Northern Ontario Ry.; July 4, 1912 to Nov. 1, 1922, Travelling Passenger Agent, C.P.R., all at North Bay, Ont.

James Waugh, who has been appointed General Agent, Freight Department, Canadian National-Grand Trunk Pacific

Rys., and Grand Trunk Pacific Coast Steamship Co., San Francisco, Cal., entered G.T.R. service in 1891 as clerk in the Commercial Express Line office at Milwaukee, Wis., since when he has been, from 1894 to 1900, Soliciting Freight Agent, same line, Chicago, Ill.; 1900 to July 1, 1905, Travelling Freight Agent, same line, Detroit, Mich.; July 1, 1905 to July 1908, Michigan State Agent, Reading Despatch Line, Detroit; July 1908 to Oct. 31, 1911, Travelling Freight Agent, G.T.R., Philadelphia, Pa.; Oct. 31, 1920, Commercial Agent, G.T.R. System; 1911 to July 1915, Commercial Agent, G.T.R., Omaha, Neb.; July 1915 to Oct. 25, 1920, San Francisco, Cal.; Oct. 25, 1920 to Nov. 15, 1922, Commercial Agent, Grand Trunk Ry., Canadian National-Grand Trunk Pacific Ry., and Grand Trunk Pacific Coast Steamship Co., San Francisco, Cal.

Longlac-Nakina Cutoff, Canadian National Railways.

The Canadian National Ry. management has invited tenders to be sent in by Dec. 4, for the work of clearing, grading, culverts, timber bridging and substructures for bridges, on the proposed connection between the Canadian Northern Ontario Ry., near Longlac, and the National Transcontinental Ry. near Nakina, Ont., approximately 29½ miles long.

Longlac, from which the cutoff will start, is on the Canadian Northern main line from Montreal to Winnipeg, 480.7 miles northwest of North Bay. Nakina, at which the cutoff which join the National Transcontinental, is 272.25 miles west of Cochrane, and as Cochrane is 252.3 miles from North Bay, by the Timiskaming & Northern Ontario Ry., Nakina is 524.55 miles northwest of North Bay, via Cochrane. The actual length of the cutoff, as surveyed, is 29.4 miles.

The original reconnaissance survey was made in 1917 by H. K. Wicksteed, then Chief Engineer of Surveys, Canadian Northern Ry., and his assistant, H. T. Morrison, and in 1919 Mr. Morrison made trial and location surveys under Mr. Wicksteed's direction. This year, Mr. Morrison, who is now Locating Engineer, Canadian National Ry., made a revised location survey, under the direction of H. T. Hazen, Chief Engineer, Canadian Northern Ry. Lines, East of Port Arthur.

The country to be traversed is generally fairly flat. At the south end there is a considerable quantity of rock, and on the balance of the line there are long stretches of spruce swamp, with clay subsoil. The north middle portion of the line is partly sand and gravel, and at the north end the country is again swampy. The maximum grade in each direction will be 0.4%, compensated for curvature, and the maximum curvature will be 4°.

The principal bridges will be at the crossings of the Kenogamis River at mile 6; the crossing of Devilfish Lake, mile 13.7, and the crossing of McDonald Creek, mile 28.8, at each of which places a plate girder span will be erected on concrete abutments. In addition to this there will be 6 small pile trestles. The line being generally near the height of land, the drainage areas of the greater part of the line are small.

The principal object in building the line is the saving in distance to be effected over all existing routes and doing away with the necessity of dropping down from the height of land to Lake Superior level and then rising again to Winnipeg,

as is now the case on the Canadian Northern route. It will also enable the Canadian National Ry. to discontinue running any trains over the Timiskaming & Northern Ontario Ry., between North Bay and Cochrane.

The lengths of existing routes and as they will be when the cutoff is built, are as follows:—

Canadian National Ry.—Toronto to Winnipeg—	Miles
Via Capreol and Port Arthur.....	1309
Via North Bay and Cochrane.....	1256.6
Via Capreol and Longlac cutoff.....	1207
Canadian Pacific Ry.—Toronto to Winnipeg.....	1232.4
Canadian National Ry.—Montreal to Winnipeg	
Via Capreol and Port Arthur.....	1459.2
Via North Bay and Cochrane.....	1372.2
Via Hervey Jct. and N. T. Ry.....	1387.5
Via Longlac cutoff.....	1357.1
Canadian Pacific Ry.—Montreal to Winnipeg, via M. & O. short line.....	1411.6
Canadian National Ry.—Quebec to Port Arthur	
Via Joliette, Ottawa and Capreol.....	1172
Via N.T.R., Longlac cutoff and C.N.R.....	1073.2
Canadian Pacific Ry.—Quebec to Port Arthur	
Via St. Martin's Junction and Hull.....	1139.4

As far as Canadian Railway and Marine World can ascertain, although tenders have been invited, no decision as to building the cutoff has been arrived at, nor will it be until Sir Henry Thornton has looked into the matter thoroughly.

The Canadian National Ry. present transcontinental service is routed as follows: Train 1, from Montreal to Vancouver, runs via G.T.R., from Montreal to Ottawa; Canadian Northern Ry., Ottawa to North Bay; Timiskaming & Northern Ontario Ry., from North Bay to Cochrane; and National Transcontinental Ry., from Cochrane to Winnipeg. Train 2 runs east over the same line. Train 3, from Toronto to Vancouver, runs over the Canadian Northern, from Toronto, via Capreol and Port Arthur, to Winnipeg, and train 4 runs east over the same lines. A sleeping car is carried on G.T.R. train 47, from Toronto to North Bay, where it is attached to train 1 for further westbound movement. Eastbound, the sleeping car is set off from train 2 at North Bay and moved from there to Toronto on G.T.R. train 46. These cars will continue to be operated between Toronto and Edmonton until March 31, after which they will be operated between Toronto and Winnipeg, and additional cars will operate between Winnipeg and Edmonton.

Custody of Liqueur in Transit.—There was deposited in the customs warehouse at the Canadian National Ry., Fort Frances, Ont., station, towards the end of June, some 76 cases of Scotch whiskies in transit. Someone broke into the warehouse on the night of June 28 and stole the whiskey. On that night a circus train was being dispatched, in addition to the regular train for Duluth, Minn., and one of the company's special service men was on duty at the station, until after the Duluth train was sent out at 2.50 a.m. The warehouse was found, some hours later, to have been broken into. The Canadian National Ry. was held liable for \$3,040, the value of the whiskey, and \$1,460.81 duty thereon, by an Ontario court, and this judgment was upheld in the Ontario Divisional Court at Toronto.

Steel Rail Orders.—Canadian Railway and Marine World for November gave particular of orders for 33,024 tons of steel rails ordered by the G.T.R. for spring delivery. The Canadian National Ry. are expected to be in the market in the near future for considerable tonnage also.

The Newfoundland Railway Situation.

The agreement made early in the year between the Reid Newfoundland Co. and the Newfoundland Government, provided for the operation of the railway and steamship lines, with R. C. Morgan as General Manager, up to Nov. 15, by which date it was expected to have a new agreement completed to provide for their future operation. The Legislature was called to meet on Oct. 30, mainly to consider the proposed new agreement, but on Oct. 23, a proclamation was issued further proroguing the Legislature until Dec. 20.

During the summer the Premier and the Attorney General went to England, where they met the President and several other directors of the Reid Co., and representatives of Sir W. G. Armstrong, Whitworth & Co., to discuss the proposed Humber River development proposals, which are in some respects linked up with the railway matters. Press reports as to the negotiations are somewhat conflicting. One states that an agreement covering both railway and steamship and Humber power development matters has been arrived at, and that the British Trades Facilities Board is guaranteeing \$9,000,000 of the \$18,000,000 required for carrying out the project; and that all differences between the Government and the Reid Co. have been adjusted. Another report states that an agreement, which was signed Nov. 6, provides for an immediate carrying out of the Humber River development plans to the extent of £2,000,000, of which £1,000,000 is guaranteed by the British Trades Facilities Board, and the other £1,000,000 is to be guaranteed by the Newfoundland Government. In connection with this report, it is to be noted that no mention is made of the railway or steamship services.

Canadian Railway and Marine World's private advices from Newfoundland are that the agreement between the Government and the Reid Co., for the operation of the railway and steamships, has been extended for three months from Nov. 15, that R. C. Morgan is continuing as General Manager, in the meantime at least, and that he will probably go home to Winnipeg for Christmas.

Canadian Traffic League's Annual Meeting, Etc.

The Canadian Traffic League, which is composed of over 100 traffic directors, managers, commissioners, and other officials in charge of traffic for industrial and commercial organizations, has for its objects, as stated in its constitution, to promote a better understanding by the public, provincial and Dominion governments, of the needs of the traffic world; to secure modifications of present laws, regulations and rulings where they are harmful to the free interchange of commerce; to advance fair dealing; to promote, conserve and protect commercial and transportation interests; to co-operate with the Board of Railway Commissioners for Canada, other organizations, and the transportation companies, thus bringing about better conditions.

The annual meeting was held in Toronto, Nov. 1, the President, A. H. Thorpe, Traffic Manager, Wm. Davies Co., Toronto, being in the chair. Reports from the various committees and a number of other important matters were dealt with. The following officers, etc., were elected: President, W. H. Dickie, Traffic Depart-

ment, Imperial Oil, Ltd.; Vice President, W. R. Ingram, Traffic Department, Swift Canadian Co.; Secretary-Treasurer, H. W. Blahout, Traffic Manager, Dunlop Tire & Rubber Goods Co.; Executive Council, A. H. Thorpe, Traffic Manager, Wm. Davies Co.; A. W. Bell, Traffic Manager, General Motors, Ltd.; F. W. Dean, Traffic Manager, Steel Co. of Canada; W. S. Campbell, Traffic Manager, Canadian General Electric Co.; S. B. Brown, Assistant Manager, Traffic Department, Canadian Manufacturers' Association; R. J. Fitzgerald, Traffic Manager, F. W. Woolworth Co.

In the evening the League held its annual dinner in the Toronto Board of Trade restaurant. The retiring President, A. H. Thorpe, who occupied the chair, spoke on "The Educated Traffic Men." The other speakers were: Lt. Col. W. G. McKendrick, who gave a very interesting address on Allenby's campaign; A. W. Bell, Traffic Manager, General Motors Ltd.; Jas. Mayor, Sheet Metal Products Co.; C. A. Hayes, Vice President, Traffic, Canadian National Rys.; W. W. Williamson, General Auditor, Canadian National Express Co.; G. C. Martin, General Freight and Passenger Agent, Toronto, Hamilton & Buffalo Ry.; W. H. Burr, Traffic Manager, Dominion Express Co.; and Acton Burrows, Proprietor, Canadian Railway and Marine World.

Railway Finance, Meetings, Etc.

Algoma Central & Hudson Bay Ry.—Earnings for August are reported as \$196,737, against \$223,823 for Aug., 1921.

Boston & Maine Rd.—There was filed with the Secretary of State at Ottawa, Nov. 4, a lease dated Nov. 1, from the First National Bank, Boston, Mass., under the Boston & Maine Rd. trust agreement of Aug. 1, to the Boston & Maine Rd., of 22 switching locomotives and 2 Mallet switching locomotives.

Canadian Northern Ry.—Notice was given Nov. 4 that the Canadian Northern Ry. Co., would, on Dec. 1, redeem all the 5% land mortgage debentures outstanding, and which in the ordinary course would not mature until June 1, 1923. The debentures are payable in London, Eng., and we are advised that their redemption is being arranged for partly because of the present favorable rate of exchange.

Canadian Pacific Ry.—A dividend of 2½% on the common stock, for the quarter ended Sept. 30, and at the rate of 3% a year from special income account, payable on Dec. 30 to shareholders of record Dec. 1, has been declared by the directors.

Grand Trunk Pacific Branch Lines Co.—A London, Eng., cable of Oct. 26 stated that Lloyd's Bank had been advised not to pay the interest due on Nov. 1 on the £738,600 of G.T.P. Branch Lines Co's bonds, but it was subsequently stated that this notification was made because the Dominion Government had decided to pay the interest through the Bank of Montreal, which was done. These bonds are guaranteed by the provinces of Saskatchewan and Alberta, in respect of the lines within those provinces, and the interest, when it was not otherwise provided for has been met by the provinces.

The Timiskaming & Northern Ontario Ry. Commission has, we are officially advised, paid the Ontario Government \$350,000 on account of net earnings of the railway for the year ended Oct. 31.

Pacific Great Eastern Ry.—The accounts for the year ended June 30 sub-

mitted to the British Columbia Legislature, Nov. 9, are stated to show gross earnings of \$384,182.57, and operating expenses of \$871,365.63. The deficit for the year was \$487,183.06.

Railway Earnings.

Canadian National Railways.

Following are total operating revenues, total operating expenses, and net operating revenues or deficits, for the Canadian Northern Ry. System, Grand Trunk Pacific Ry., and Canadian Government Rys., the last including the Intercolonial Ry., Prince Edward Island Ry. and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government:—

	Revenue		Expenses		Net deficits	
	1922	1921	1922	1921	1922	1921
Jan.	\$8,210,401	\$10,433,564	\$2,223,163	\$2,863,058		
Feb.	7,650,743	10,026,572	2,375,829	2,986,998		
March	9,418,100	10,397,547	979,447	2,582,959		
April	7,804,222	9,153,738	1,349,516	2,636,639		
May	9,678,965	9,726,020	47,055	2,554,540		
June	8,235,603	10,199,592	1,963,989	2,595,257		
July	8,877,776	10,510,778	1,633,002	1,334,569		
Aug.	9,569,780	10,399,617	829,837	17,105		
Sept.	11,726,459	11,123,750	*602,709	*467,685		

\$81,172,049	\$91,971,178	\$10,799,129	\$17,053,440
Decr.	\$7,069,260	\$13,323,571	\$6,254,311

*Net revenue.

Approximate gross earnings for October, \$14,637,449, against \$12,925,202 for Oct., 1921.

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1922, compared with those for 1921. The discrepancies between these figures and those issued by the Dominion Bureau of Statistics are owing to the fact that the Bureau is, at its request, furnished with figures by the C.P.R., including the Esquimalt & Nanaimo Ry., and the Montreal & Atlantic Ry. earnings, as well as the C.P.R. ones. The figures supplied the Bureau are exclusive of certain income items which are included in figures supplied Canadian Railway and Marine World:—

	Gross		Expenses		Net		Decreases
	1922	1921	1922	1921	1922	1921	
Jan.	\$11,337,975	\$10,854,498	\$488,477	\$157,948			
Feb.	11,303,693	10,649,205	654,488	158,904			
March	13,847,627	11,427,120	2,420,507	30,402			
April	12,331,371	10,782,598	1,548,773	1,097,359			
May	13,664,246	11,319,732	2,344,514	949,088			
June	13,810,448	11,448,134	2,362,313	742,445			
July	14,463,835	12,501,927	1,961,908	92,408			
Aug.	15,918,050	12,971,613	2,946,437	*370,297			
Sept.	18,149,528	13,563,595	4,585,933	*265,883			

\$124,826,771	\$105,518,422	\$19,308,349	\$2,592,322
Decr.	\$11,560,856	\$8,968,534	\$2,592,322

*Increase.

Approximate gross earnings for October, \$22,852,000, against \$21,885,000 for Oct., 1921.

Grand Trunk Railway.

Following are total operating revenues, total operating expenses and net operating revenues, or deficits for 1922 and 1921:—

	Revenue		Expenses		Net revenue	
	1922	1921	1922	1921	1922	1921
Jan.	\$5,354,317	\$4,984,953	\$369,364	*\$701,166		
Feb.	5,667,487	4,700,985	966,502	31,374		
March	6,118,314	5,153,028	965,286	577,680		
April	4,901,367	4,596,666	304,701	382,272		
May	5,800,329	5,189,756	610,572	324,185		
June	6,503,646	5,519,124	984,523	712,028		
July	7,164,085	5,709,652	1,454,433	916,225		
Aug.	7,383,340	6,130,841	1,252,499	1,361,924		

\$48,892,885	\$41,985,007	\$6,907,880	\$3,604,883
Incr.		\$3,302,997	
Decr.	\$1,537,102	\$4,840,099	

*Deficit.

Approximate gross earnings for September, \$9,384,984, against \$9,951,224 for Sept., 1921; for October, \$10,156,568, against \$9,743,332 for Oct., 1921.

Pere Marquette Ry. in Canada.—A recent St. Thomas, Ont., press dispatch stated that negotiations were in progress between the Pere Marquette Ry. and the Michigan Central Rd. for P.M.R. passenger train operation rights over the east end of the M.C.R. Canadian Division, and that the P.M.R. had in view the construction of a new west end entrance into St. Thomas, if a lease was secured. Canadian Railway and Marine World is officially advised that the report in regard to the P.M.R. wishing to operate passenger trains over the M.C.R., between St. Thomas and the frontier, is unfounded, and that no consideration has been given to such a matter.

Freight Car Location on Canadian Railways.

The Railway Association of Canada has issued a report on the location of freight cars on Nov. 1, based on returns from the following railways: Algoma Central & Hudson Bay; Canadian National, including Grand Trunk Pacific; Canadian Pacific; Central Vermont, in Canada; Dominion Atlantic; Edmonton, Dunvegan & British Columbia; Grand Trunk; Kettle Valley; Michigan Central, in Canada; Napierville Jet.; Pere Marquette, in Canada; Quebec Central; Quebec, Montreal & Southern; Timiskaming & Northern Ontario; Temiscouata; Toronto, Hamilton & Buffalo; Wabash, in Canada, as follows: Cars owned by reporting railways, 221,677; home cars on Canadian foreign lines, 20,601; home cars on U.S. lines, 52,462; home cars on home roads, 148,614; Canadian owned foreign cars on home lines, 19,873; U.S. owned foreign cars on home lines, 31,388; total cars on lines, 199,875; per cent. on lines to total owned, 90.2; deficiency on lines to total owned, 21,802; home cars in bad order, 11,807; foreign cars in bad order, 420; total cars in bad order, 12,227; per cent. in bad order, 6.1; privately owned U.S. cars on lines, 2,523; privately owned Canadian cars on lines, 997.

United States Railways' Financial Results.

As stated in Canadian Railway and Marine World's monthly review of the financial results secured by the U.S. class 1 roads, published in the November number, the August results were very disappointing, as net operating income earned by class 1 railways was only \$52,579,690, or at the rate of but 2.65%, on the Interstate Commerce Commission's valuation of the railway property, this being \$61,698,000 short of the 5% prescribed as a fair return. September results were not a great deal better, as the net operating income, \$58,428,000, represented an annual return of but 2.88% on the tentative valuation. In Sept., 1921, the net operating income was \$87,534,000, representative of an annual return of 4.52%.

Gross operating revenues for class 1 roads in September were \$499,879,000, an increase over Sept., 1921, of 0.4%, while operating expenses, \$408,315,500, were 8.2% greater than in Sept., 1921. Lower rates have had the same effect on U.S. railways as on Canadian lines, as is shown by the fact that despite the negligible increase in gross earnings, the roads carried over 10% more freight in Sept., 1922, than in Sept., 1921.

In September, eastern U.S. railways had a net operating income of \$18,389,000, compared with \$35,163,000 in Sept., 1921; gross operating revenues being but 3.7% more than those of Sept., 1921, while operating expenses were 13.7% greater. The southern railways' net operating income was \$8,303,900, compared with \$7,189,000 in Sept., 1921; gross operating revenues being 3.8% greater than in Sept., 1921, and operating expenses but 0.3% greater. Western railways' net operating income was \$31,735,000, compared with \$45,182,000 in Sept., 1921. Their gross operating revenues were 4.2% smaller than in Sept., 1921, with operating expenses 3.7% greater.

Notwithstanding the unfavorable results in August and September, the good

returns secured in preceding months this year resulted in class 1 railways securing a net operating income of \$529,413,000 for the first 9 months of 1922, compared with \$393,793,000 for the same period in 1921. This represents an annual rate of return, on tentative valuation, of 3.96%, compared with 2.95% in the first 9 months of 1921.

A large part of the operating expenses in September was expended in placing freight cars in condition to operate. During the month, the U.S. class 1 roads spent \$120,000,000 for this purpose, with the results stated in the article dealing with the freight car bad order situation, on another page of this issue. There is no doubt that operating expenses were further increased through the shopmen's strike, but even with these influences taken into consideration, it is evident that U.S. roads, handling the extraordinarily large traffic which they have been handling, should be deriving better net earnings than they had in August and September. In view of the results secured, it would seem that the condition of affairs on U.S. railways is about the same as on the Canadian lines, as the rate reductions ordered have been such as to more than balance reductions in operating expenses secured by the railways.

Food Transportation Specialist Wanted.

The Civil Service Commission has given notice that applications will be received from persons qualified to fill the position of a fruit transportation specialist, Fruit Branch, Agricultural Department, Ottawa, at an initial salary of \$2,520 a year, which will be increased upon recommendation for efficient service at the rate of \$120 a year, until a maximum of \$3,000 has been reached. This salary will be supplemented by whatever bonus may be provided by law. Duties.—To have charge, under the Fruit Commissioner, of all activities of the Fruit Branch, which have to do with the transportation of fruit; to investigate, report upon, and deal with fruit transportation problems; to attend meetings of fruit growers, sittings of the Board of Railway Commissioners, and conferences with traffic representatives; and to do other related work as required. Qualifications.—High school graduation and preferably graduation from a university of recognized standing; at least five years of experience in transportation work; preferably experience in fruit growing or fruit inspection work; good address and ability to speak in public. While a definite age limit has not been stated, age may be a determining factor when making a selection. Examination.—A rating on education and experience will be given from the sworn statements submitted by applicants on their application forms. To those who qualify, an oral examination may be given, if necessary.

Among the Express Companies.

The Canadian National Ex. Co. has closed its office at Ballantrae, Ont.

The Canadian National Ex. Co.'s Winnipeg office has reported the theft of 40 blank money order forms, nos. E96288 to 96319 inclusive, from a business office in the city.

The Canadian National Ex. Co. has opened offices at Coleman, McNeills Mills, Northam and Richmond, P.E.I.; Graham,

Ont.; St. Boswells, Sask.; and Stewart, B.C., and has closed its offices at Beresford, N.B., and Heaslip, Ont.

A number of Dominion Ex. Co.'s officials were entertained at dinner at Hamilton, Ont., recently, by the Brotherhood of Dominion Express Employees local members.

The express companies have filed tariffs covering rates on gold bullion, per \$1,000, from Porcupine and Swastika, Ont., to Ottawa, Ont., New York, N.Y., and Denver, Col. Following are the old and new rates,—

To	Porcupine		Swastika	
	Old	New	Old	New
Ottawa, Ont.	\$2.35	\$2.10	\$2.00	\$1.80
New York, N.Y.	3.35	3.00	3.35	3.00
Denver Col.	6.05	5.45	5.75	5.15

Frederick Stevens who recently completed 40 years of continuous service with the Dominion Ex. Co., was born at Montreal, Sept. 29, 1859, went west in 1882, and has the distinction of having written the first waybill issued in Western Canada by the company. He has held the positions of cashier at Winnipeg, route agent of Western Canada, agent at Vancouver, B.C., and during the last few years has been actively connected with the distribution of financial paper throughout the company's western division. He was entertained at luncheon by a number of the Winnipeg officials and employees, Nov. 1, in the Superintendent's office, when H. N. Simpson, Assistant Superintendent, Western Division, read a letter from W. S. Stout, President, and other senior officials, conveying to Mr. Stevens a very hearty appreciation of his long and faithful services. He was also presented with a purse of money by his fellow employees, and Mrs. Stevens received a bouquet of chrysanthemums.

Telegraph, Telephone and Cable Matters.

Canadian National Telegraphs have opened offices at Agate, Bankfield, Harrieston, Huronian and Pas Lake, Ont., Beechy, Kelvington, Kuroki and St. Boswells, Sask., and Bonar, Lyalta, Red Deer, and Waskatenau, Alta., and have closed offices at Griffin Cove, and Shigawake, Que., Oscar, Ont., Beaconsia, Man. and Port Kells, B.C.

The Canadian Marconi Co. is reported to be considering the erection of what will probably be the largest and most powerful radiotelegraph station in the world, for direct communication with Australia and the east. It is said that the construction, if carried out, will be in co-operation with the parent company in England, and will depend largely on the attitude of the British and Dominion Governments.

Canadian National Telegraphs and C. P.R. Telegraphs resumed the cable letter service to Great Britain and Ireland, Nov. 1, which was discontinued in 1914, on account of the war. Cable letters may now be sent for delivery at destination by noon of the following day, and week end cable letters filed up to midnight Saturday, will be delivered at destination the following Monday morning. An additional charge of 2c a word is made for delivery in Great Britain, outside of London and Liverpool, as British telegraph lines are used. It is stated that the service will probably be extended to other European countries as soon as the necessary consent can be secured from the various governments concerned.

Electric Railway Department

Toronto Transportation Commission's Track Extension on Upper Yonge Street.

The Toronto public was given a demonstration in 1921 of how rapidly and efficiently the rehabilitation of an under-maintained street railway system can

Electric Power Commission of Ontario for operation, and by which it was made possible for the Toronto Transportation Commission to build and operate a double

Yonge St., on which a temporary standard gauge track with passing sidings, was laid, to provide for continued operation by the radial cars in the first stages of construction. This temporary line was cut in to the original radial railway line at different points, the operation of the radial cars being transferred from the original radial line to the new temporary line, in stages, the original radial line being released, so that excavation to provide for the foundation for the new double track line could be undertaken, as follows: Aug. 26, between Merton St. and Eglinton Ave.; Aug. 29, between Lawton Blvd. and a point 300 ft. south of belt line railway crossing; Sept. 2, from a point 300 ft. south of belt line crossing to Merton St.; Sept. 3, from Eglinton Ave. to Glengrove Ave.; Sept. 5, from Heath St. to Lawton Blvd.; Sept. 10, from Lympstone Ave. to Melrose Ave.; Sept. 13, from Glengrove Ave. to Lympstone Ave.; Sept. 15, from Melrose Ave. to Del-oraine Ave. These streets are shown on the accompanying location map, fig. 3. During this period, the radial cars maintained service by using the unreleased portions of their original track and the portions of the temporary track between, connections between original and temporary track being maintained as needed, until the original track was all released and operation entirely transferred to the temporary track by Sept. 15.

The original radial railway track was not released between Lawton Blvd, loop



Fig. 1.—Looking south on Yonge St., near Farnham Ave.

be gone ahead with even under heavy traffic and other adverse conditions, and by last summer the speed with which large intersections were installed and other difficult jobs accomplished no longer aroused unusual interest, as the Toronto Transportation Commission's efficiency in track work had come to be taken for granted. However, the surprising rapidity with which the Commission accomplished its largest individual undertaking, viz., the construction of a double track line containing 37,100 ft. of single track, on upper Yonge St., between the original terminus at Farnham Ave. and the northern city limits, constituted an achievement so outstandingly remarkable that wide-spread favorable comment was a logical result.

The Toronto and York Radial Ry's Metropolitan Division single track line down the west side of Yonge St. from the northern city limits to its terminus near Farnham Ave., had long been inadequate and a source of danger, about which complaints were bitter and numerous, while the condition of the street itself, due to the postponement of repairs until a decision was reached as to trackage for future rail traffic, was extremely bad. For these reasons, the laying of a double track street car line, and the re-surfacing of this portion of the city's main north and south artery, had been eagerly looked forward to by North Toronto citizens. The beginning of the Yonge St. work was contingent upon the consummation of the transaction known as the "clean up deal", under which the Toronto & York Radial Ry's Metropolitan Division north of Toronto city limits is being turned over to the Hydro-

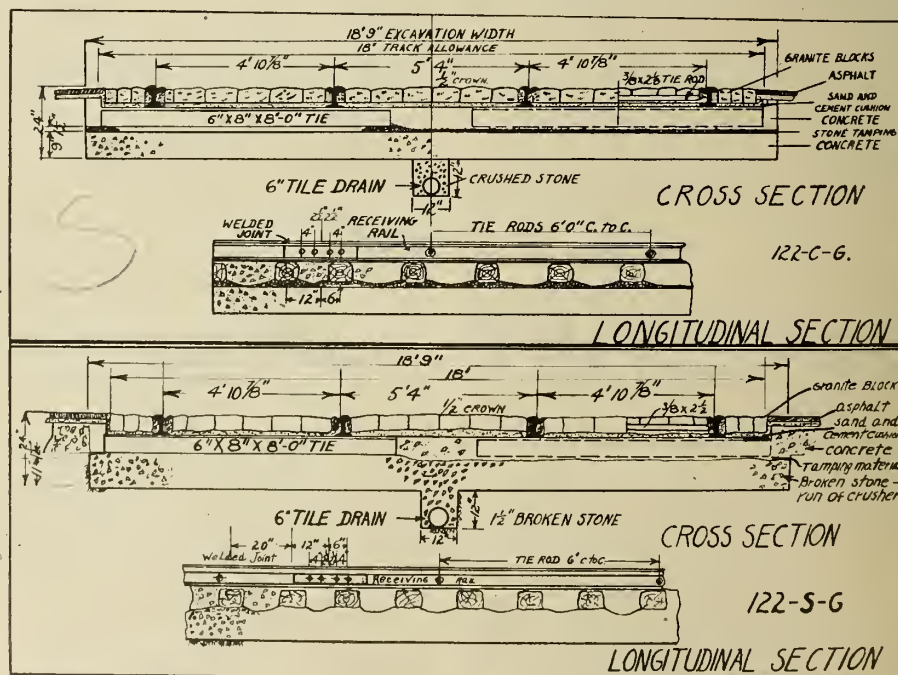


Fig. 2.—Standard types of track construction, Toronto Transportation Commission.

track line from Farnham Ave. to the north city limits, this new line replacing the portion of the T.&Y.R.Ry's Metropolitan Division within the city limits. After many delays, the deal was completed, and on Aug. 26 work on the new line was begun.

Prior to the commencement of actual construction, a temporary grade had been prepared at the extreme west side of

and Heath St. until Sept. 5. South of Heath St. the original radial line remained in service and did not interfere to any great extent with excavation, and when work was begun by the Transportation Commission on Aug. 26, steam shovels were put to work north from Farnham Ave. On the following day excavation was in progress at four different points between Farnham and Eglin-

ton Aves., and by Sept. 5 the excavation between these two avenues had been completed. The total depth of excavation below finished grade of top of rail was 2 ft., and the width 18 1/4 ft., which affords some idea of the material to be removed. In many places the amount was increased as some grade revision was introduced. Pneumatically operated drills were used to break the old road paving at the excavation side limits, while the excavation was done by steam shovel and the removal of the material by motor trucks. After Sept. 5, excavation quickly proceeded northward, and Radial Ry. service was at all times maintained by using the temporary track and unreleased portion of the original radial track till this was all released, when the temporary track was used exclusively, as stated above. Closely following the excavation came the laying of the foundation for the new permanent double track. By Sept. 8 the stone foundation was laid, the ties laid and tamped, and the steel in place, between Farnham Ave. and the Lawton Blvd. loop.

The track between Farnham Ave. and the Lawton loop was built to the Commission's 122-S-G standard, which includes broken stone foundation, 122 lb. steel and granite block surfacing. North of Lawton loop, the Commission's type 122-C-G construction was used, having concrete slab foundation, 122 lb. steel and granite surface. Cross and longitudinal sections of both types are shown in fig. 2, and detailed descriptions of both were given in Canadian Railway and Marine World for Dec. 1921, pg. 656. Between Lawton Blvd. loop and Eglinton Ave., the concrete slab foundation was in place by Sept. 6; by Sept. 9, it was in place between Eglinton Ave. and Glencairn Ave., and by Sept. 25 the foundation was completed over the whole section, from Farnham Ave. to the northern city limits.

During the first part of the work's progress, the radial railway cars were able to use their original barns south of St. Clair Ave. for repairs. By Sept. 7 the 122-S-G double track line had been completed from Farnham Ave. to Lawton Blvd., and on that date the Radial Co. began operation, with some cars furnished by the Toronto Transportation Commission, on the new double track line from Heath St. to Farnham Ave. Removal of the original radial track south of Heath St. was not commenced till Sept. 24.

With a service maintained by the Radial Co.'s own standard gauge cars operating on the temporary track from the north city limits to Heath St., and the 4 ft. 10 7/8 in. gauge cars furnished by the Transportation Commission operating on the new permanent line south from Heath St. (4 ft. 10 7/8 in. being the gauge of all Toronto Transportation Commission lines), completion of the remaining portion of the new double track line was soon accomplished. As stated above, the new track was completed from Farnham Ave. to the Lawton Blvd. loop by Sept. 7. By Sept. 13 it was completed from the Lawton loop to Eglinton Ave.; by Sept. 20 between Eglinton Ave. and Glencairn Ave., and by Sept. 29 the entire section between Farnham Ave. and the turnout to the loop at the north city limits had been completed. On Sept. 24, the Radial Co. began to operate the cars furnished by the Transportation Commission on the new track from Eglinton Ave. to Farnham Ave., allowing the temporary track to be removed between those points, while the temporary track

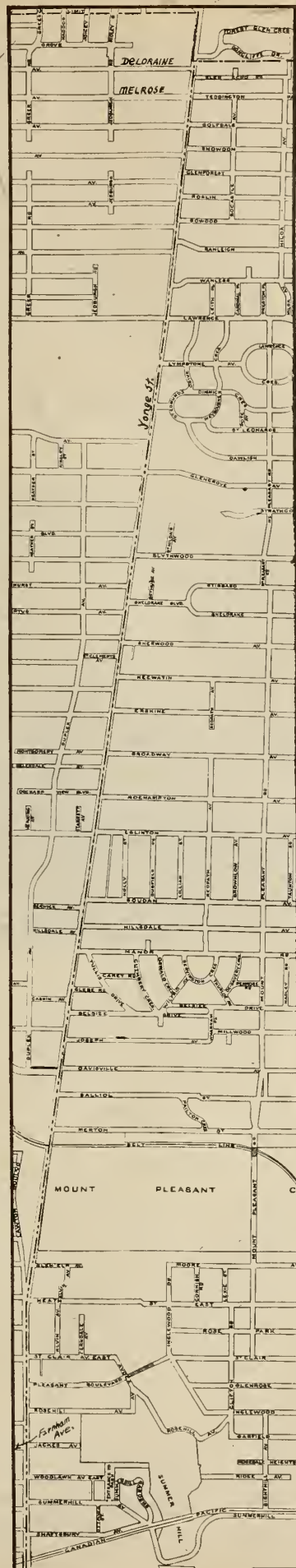


Fig. 3.—Location of track construction on upper Yonge St.

between Eglinton Ave. and the north city limits remained in operation.

Accompanying the laying of the main line track, the installation of required special work proceeded rapidly. A permanent cross-over was installed near Farnham Ave. on Aug. 31. A double track 3-part Y was put in at the intersection of Yonge St. and St. Clair Ave. on Sept. 9. The loop near Lawton Blvd. was completed Aug. 31; to be used for turning cars which, on account of lower traffic density at the northern end of the line, will not proceed to the city limits. At Berwick St. two units of special work for the Eglinton car house entrance were completed on Sept. 26 and 28, the main line portions having been installed some days previously. The special work at Yonge St. and Eglinton Ave. was completed Sept. 21, the main line portions being completed Sept. 15. The Yonge St. portion of a Y at Glencairn Ave., an additional facility for short-routing some cars, was installed Sept. 21, and by the end of September the construction of the loop at the northern city limits was in progress. This loop is being built east of Yonge St., on Glenelch Road and Doncliffe Road. The T.&Y.R.Ry.'s Metropolitan Division will have its southern terminus immediately adjoining this loop.

The Commission introduced a new factor in its electric railway construction in Toronto by laying, as an experiment and with special construction, 0.95 mile of double track with steel ties. Of this distance 0.45 mile was laid with International steel twin ties and the remainder with Carnegie sec. M 24 steel ties.

The following statistical information in connection with the work is of interest; number of steam shovels used, 4; concrete mixers, 4; air compressors, 5; welding machines, 6; motor trucks, 100; number of men, 500 on day and 500 on night shift; steel rails on straight track construction, 122 lb. section, 1,343 tons; special work, 251 tons; number of welded joints, 1200; standard wooden ties, 32 ft. b.m. per tie, 14,325; special ties, 30,500 ft. b.m.; international steel twin ties, 800, or 108,000 lb.; Carnegie steel ties, sec. M 24, 2600 ties or 160,550 lb.; excavation, 30,000 cu. yds.; concrete for track base, 7714 cu. yds.; concrete for paving base, 1386 cu. yds.; granite blocks for wearing surface, 1,097,000.

Fig. 1 gives a good idea of the work's nature, showing the new double track line at the south end of the section, with the ties and rails laid on the stone foundation. An indication of the depth and width of excavation, and the work still necessary to obtain a surface between rails and tracks is also given. The original radial track is at the right.

As stated, the Toronto & York Radial Ry. furnished a service from Sept. 24 on the new double track line between Eglinton Ave. and Farnham Ave. with cars supplied by the Transportation Commission, the service from Eglinton Ave. northward being furnished by radial cars on the temporary track. A week later the radial line extended its service on the new line, with the T.T.C. cars, to as far north as Glencairn Ave., thus releasing the section of temporary track between Eglinton and Glencairn Aves., and on Oct. 15, the loop at the northern city limits being completed, the service on the new track was extended to the northern city limits, releasing the remaining section of the temporary track. During this period the T.&Y.R.Ry. cars were maintained and repaired at temporary sheds at the northern city limits,

while any machine work necessary was done at the old shops at St. Clair Ave. and Yonge St., the work being brought to and from the shops by motor truck. Operation by the T.&Y.R.Ry. with the cars furnished by the Transportation Commission on the new double track line was continued till Nov. 2, when the Transportation Commission took over the new line, and when a celebration to mark the introduction of the city street car system into North Toronto was held. Four motor cars with trailers were run down Yonge St. to Front St., the first train, in charge of J. McCulloch, Traffic Superintendent, Toronto Transportation Commission, carrying a band, and members of the North Toronto Ratepayers' Association, the second train, consisting of an old type motor car and trailer, introduced into the celebration to emphasize the remarkable strides made in equipment construction, carrying Toronto Transportation and City and Provincial Hydro-Electric Power Commission officials, the third carrying other members of the North Toronto Ratepayers' Association, and the fourth carrying members of the North Toronto Business Men's Association. The trains were turned by the Scott St. loop, and then proceeded north on Yonge St., through the new Eglinton car house yard, around the loop at the north city limits, and back to the North Toronto town hall, where speeches were made by numerous civic officials. H. H. Couzens, General Manager, Toronto Transportation Commission, and D. W. Harvey, Assisant Manager, were greeted with enthusiasm, and Mr. Couzens, in a short speech, paid a tribute to the efficiency of the Commission's staff, which had made possible the work's rapid completion. Other participants in the celebration included Sir Adam Beck, Chairman, and F. A. Gaby, Chief Engineer, Hydro-Electric Power Commission of Ontario; P. W. Ellis, Chairman, and Geo. Wright, member, Toronto Transportation Commission; other Transportation Commission officials, and many civic officials and aldermen. In speeches made, the Transportation Commission was highly praised for the efficient work done by the officers and staff in charge of the work, under the direction of A. T. Spencer, Engineer of Way; A. E. Gibson, Construction Engineer; J. Neild, Electrical Engineer; and C. E. Schwenger, Engineer of Distribution. It was made entirely evident that North Toronto citizens thoroughly appreciated the advantages which will accrue to their part of the city through the advent of efficient street railway transportation, providing a non-transfer service between the north and south city limits.

Fort William Municipal Railway Matters.

The report of G. L. Guy, of Winnipeg, who was engaged by the Fort William, Ont., Public Utilities Committee to investigate the operations of the electric railway and other departments having charge of public utilities, has come before the city council. A press report states that it advises that all the public utilities be placed under one management; that the railway staff be reduced in several departments, and that the overhead wire maintenance be transferred to the telephone department; and sundry other changes made. The report adds that the council, acting on this recommendation, has asked A. L. Farquharson, Manager of the railway for his resignation, and has voted him three months' salary.

Cars for Montreal and Southern Counties Railway.

The Montreal & Southern Counties Ry. has had 2 motor cars and 2 trailers built for interurban service, the principal dimensions being as follows:—

Length over corner posts.....	43 ft. 4 in.
Length over vestibule.....	53 ft. 8 in.
Length over all, about.....	56 ft.
Distance between bolsters.....	30 ft. 8 in.
Width over eaves.....	8 ft. 6 in.
Width over side sills.....	8 ft. 1 1/2 in.
Height of top of rail to top of roof.....	12 ft. 8 1/2 in.
Normal seating capacity.....	60

The car sides are straight, and sheeted vertically with poplar sheeting; the roof is of monitor type, with ventilating deck sash, operated by utility ventilator, and glazed with opalescent glass. The side sash are of mahogany, the top sash are stationary, and extend over 2 window

pantasote curtains. There are twelve polished bronze parcel racks, one being placed between each 2 seats.

The car is heated by a hot air heater, located at front end of smoking compartment. There is a toilet lavatory room at front end of main compartment, equipped with standard dry hopper closet, also 5-gall. water cooler, with faucet in an alcove reached from main aisle of car. The headlining is agasote painted green. The seats are cross-over. Each vestibule door is equipped with a steel trapdoor, to cover step opening when the door is closed. These trapdoors are hinged to the bottom of the vestibule door and held up with a spring latch when the door is opened. All vestibule doors are equip-



Interurban Car, Montreal & Southern Counties Railway.

openings, and are glazed with opalescent glass, set in lead cathedral design. All body side windows are equipped with wire screens of no. 12 gauge wire. The cars are built on a special, light weight, all steel underframe, of through platform type. The side sills are of 5 x 3 1/4 in. at 11.6 lb. The center sills are of 10 in. channel at 20 lb., continuous from bumper to bumper; the knees and bumpers are of 6 in. channel, the headstocks are built up of plates and angles, the bolsters are built steel castings; the body is strengthened up of pressed steel sections, plates, and with both top and bottom truss rods, and is also stiffened laterally by diagonal bracing in the underframe. There is also an antechamber spring buffer at each end of car, to take any small collisions. The floors are of Georgia pine, laid double, with heavy felt between. The body side framing is of light and strong construction.

The interior of the car is finished in Mexican mahogany, full finish. All metal trimmings are of the builder's standard reversible type, upholstered and lacquered. The seats are M. & S. C. R. standard reversible type, upholstered in green pegamoid. The side windows are equipped with national single cam sash locks and national compression cam antirattlers; also national spring plug rollers and

ped with the builder's standard hold-backs.

The cars are mounted on trucks with steel wheels, and are equipped with a Westinghouse quadruple 306 CV motor equipment with controls, with train line receptacles at each end for train operator. The cars are equipped with 2 trolleys on Ohio Brass Co. trolley bases, also O.B. trolley retrievers. The air brakes are Westinghouse type A.M.M., with supplementary reservoirs and governor synchronizing system, arranged for trolley circuit. The cars are equipped with Westinghouse electric pneumatic signal system, pneumatic sanders, luminous arc headlights, strong locomotive type pilots, also steel snow scrapers; also Tomlinson automatic car and air couplers. The cars are painted green and lettered in gold.

Owing to the limitation in weight, due to the Victoria Bridge, over which these cars are to operate, they had to be built as light as possible consistent with strength. The weight, completely equipped, is 61,000 lb. They were built by Ottawa Car Manufacturing Co., Ottawa.

The Detroit, Mich. Municipal Street Railway, and its employees, are reported to have agreed to a new wage scale of \$5 for an 8-hour day, and holidays with pay.

Canadian Electric Railway Association's Activities.

The Canadian Electric Railway Association's executive committee met in Chicago, during the American Electric Railway Association's recent annual convention, those present being Major F. D. Burpee, Manager, Ottawa Electric Ry., President; G. Gordon Gale, Vice President and General Manager, Hull Electric Co., immediate Past President; D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co.; A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Ry.; R. M. Reade, Superintendent, City Division, Quebec Railway, Light & Power Co., and the Secretary, D. N. Gill, Comptroller, Ottawa Electric Ry.

A number of accounts were passed for payment, most of which were incurred in connection with the annual meeting in Quebec in June. While that meeting cost considerably more than previous annual meetings, it was felt that it had been a great success and most instructive and useful to those who attended.

The question as to how the Association could be made more valuable to member companies, and how the importance of each company sending one or more representatives to each annual meeting, was very fully discussed, and action will be taken in these directions. Considerable other routine business was transacted.

As, in addition to the members of the executive committee, there were a number of other officials of member companies, and also associate members at Chicago, a general meeting of the Association was then held.

The President referred to the great success of the last annual meeting at Quebec, as far as the papers and discussions following them were concerned, and which had been most instructive, and also the excellent exhibit of railway appliances and supplies, but regretted that more representatives of electric railway companies did not attend. He emphasized the value of the Association to the industry in Canada, and urged upon member companies the importance of sending as many representatives as possible to the annual meeting. He stated that as most of the Canadian companies are also members of the American Electric Railway Association, a duplication of work will be avoided, as Canadian members of the American Association can avail themselves of the large amount of data constantly being collected by that Association, and that the Canadian Association should devote its activities particularly to problems that are peculiarly Canadian.

The President suggested the appointment of standing committees on public relations, on standards, and on safety, and stated that the following had been added to their lists of members as published in Canadian Railway and Marine World for October, pg. 532, viz.: Standards committee, H. T. Gibbs, Canadian Westinghouse Co.; W. G. Gordon, Canadian General Electric Co.; Hugh Millar, Lyman Tube & Supply Co.; Safety committee, Jas. Lightbody, Publicity Agent, British Columbia Electric Ry.

The President suggested the appointment of a special committee, to report on the advisability of recommending to the Dominion Government certain changes that are desirable in the classification of electric railway accounts, and on the proper accounting of maintenance, and depreciation of street railway properties. He pointed out that this sugges-

tion followed the paper by L. A. Herdt, D.Sc., E.E., and G. Burr, read at the Quebec meeting, and it was decided to ask A. E. Weyman, Manager, Levis County Ry., who led the discussion on that paper, to act as chairman of the committee and proceed with its formation.

It was reported that the following had been appointed to watch electric railway interests in regard to legislation, etc., at the Dominion and Provincial capitals, as follows:—Dominion, F. D. Burpee, Ottawa; Nova Scotia, W. L. Weston, Halifax; New Brunswick, J. A. Olive, St. John; Quebec, W. J. Lynch, Quebec; Ontario, C. L. Wilson, Toronto; Manitoba, E. Anderson, K.C., Winnipeg; Saskatchewan, D. W. Houston, Regina; Alberta,

railways in handling the large and small Canadian 5c and 1c coins, and suggested that the Association ask the Finance Minister to recall the small 5c coins and the large 1c coins. G. Gordon Gale, Hull, reported that last year he saw Sir Henry Drayton, then Minister of Finance, and had been informed that it was not the Government's intention to recall the coins referred to. President Burpee reported having had an interview this year with the Deputy Minister of Finance, with the same result. It was decided to write the Finance Department asking that the coins objected to be recalled, and to endeavor to secure the co-operation of the Canadian Bankers Association.

The question of securing a greater attendance at the Association's annual meetings, by having every member company represented, was fully discussed, and the matter will be dealt with at the next executive meeting.

The Toronto Transportation Commission, having invited the Association to hold its next annual meeting in Toronto, it was decided to hold it there next summer. It was also decided that, as many of the C.E.R.A. members attend the A.E.R.A. annual convention in the United States, a general meeting of the Canadian Association be held each year, at the same time and place as the American Association's Convention.

Ottawa Electric Railway Franchise Negotiations.

At a meeting of the Ottawa City Council, Nov. 7, accounts of \$4,038 and \$2,199 from R. M. Feustel, of Fort Wayne, Ind., were submitted for services rendered in connection with the Ottawa Electric Ry. Co's franchise negotiations which a special committee of the council has been conducting since the beginning of the year.

Mayor Plant explained that the city had reached a stage in the negotiations where only Mr. Feustel's approval was needed to the latest proposals. After this was secured the draft of the new agreement would be submitted to council. There would then be a plebiscite taken on the agreement at the next civic elections as the Municipal Act did not permit two votes or plebiscites dealing with similar matters in any one year. At the civic elections last year the people gave a majority for renewal of the franchise. A short time ago it was announced that possibly a vote would be taken on the new franchise in November, but this could not be done legally. The Mayor promised that copies of the proposed agreement would be distributed long enough before the voting to enable it to be thoroughly discussed.

An Ottawa press dispatch of Nov. 17 says that the company has offered to sell the city its entire system, with all property and assets, including water lots, for \$4,500,000 or to accept a price to be fixed by arbitration. The offer is subject to acceptance by Jan. 31. T. Ahearn, President and one of the founders of the company, replying to the committee which has been negotiating with the company in behalf of the city, states that no fixed 5c fare contract, as asked by the city, could be entered into, as it might mean bankruptcy for the company. Ottawa's fare at present is 5c, with reduced fares on Sunday and during limited hours.

Canadian Electric Railway Association.

Honorary President, E. A. Robert, President, Montreal Tramways Co., and Quebec Ry., Light, Heat & Power Co.

Honorary Vice President, Wm. C. Hawkins, Managing Director and Secretary, Dominion Power & Transmission Co.

Honorary Council. Thos. Ahearn, President, Ottawa Electric Ry.; Acton Burrows, Proprietor, Canadian Railway and Marine World; Geo. Kidd, General Manager, British Columbia Electric Ry.; Lt.-Col. J. E. Hutcheson, General Manager, Montreal Tramways Co., and director, Quebec Ry., Light, Heat & Power Co.

President, Major F. D. Burpee, Manager and director, Ottawa Electric Ry.

Vice President, H. H. Couzens, General Manager, Toronto Transportation Commission.

Executive Committee, The President, the Vice President, the immediate past President (G. Gordon Gale, Vice President and General Manager, Hull Electric Co.) and D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co.; E. P. Coleman, General Manager, Dominion Power & Transmission Co.; A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Ry.; D. W. Houston, Superintendent, Regina Municipal Ry.; A. W. McLimont, Vice President and General Manager, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Railway, Light & Power Co.; W. R. Robertson, General Superintendent of Railways, Hydro-Electric Power Commission of Ontario; W. L. Weston, Manager, Nova Scotia Tramways & Power Co.; H. E. Weyman, Manager, Levis County Ry.; C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Treasurer, W. S. Hart, Managing Director, Three Rivers Traction Co.

Auditor, Lt.-Col. G. C. Royce, General Manager, Toronto Suburban Ry.

Secretary, D. N. Gill, Comptroller, Ottawa Electric Ry., Ottawa, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

M. Freeman, Lethbridge; British Columbia, V. Laursen, Vancouver.

The President urged representatives of member companies to use the Association's office freely for obtaining information. The Association has a large amount of valuable data on file, and if information required is not on file, a questionnaire will be issued, and the general practice in the Canadian field ascertained. The American Electric Railway Association has appointed a committee to create and foster co-operation between electric railway associations by the interchange of circulars, data sheets, etc. The Canadian Association has been asked to name a representative on the committee, and he recommended that this be done, and urged as complete co-operation as possible with all other associations dealing with matters of general interest to electric railway officials.

R. M. Reade, Quebec, mentioned the difficulties being encountered by street

The Toronto Transportation Commission's Work.

The Toronto Transportation Commission is now engaged on the last of the large track rehabilitation and extension undertakings on the 1922 programme, viz. the rehabilitation of the track on Bloor St., between Spadina Ave. and Avenue Road, and between Yonge and Church Sts., and the construction of a double track line on Kingston Road from Queen St. to Victoria Park Ave., at the eastern city limits. The work on Bloor St. between Spadina Ave. and Avenue Road involves the rehabilitation of 2594 ft. of double track, type 122-S-G construction being used. Work was commenced Oct. 30. Temporary tracks were laid on each side of the permanent right of way, the street being closed to vehicular traffic, and street cars are using the temporary tracks while the rehabilitation work is progressing. Excavation was done by steam shovel and the stone foundation laid in the usual manner. At the time of writing (Nov. 17) the work is well on the way to completion. On Bloor St., between Yonge and Church Sts., where 1010 ft. of double track is being rehabilitated, the work is being done under traffic, and as a consequence steam shovel excavation was impossible. Type 122-S-G construction is being used here also. Work was commenced Oct. 31, and at the time of writing good progress is being made. A great deal of discussion in civic official circles relative to the proposed widening of a section of Bloor St., one of the city's chief east and west arteries, resulted in a decision to widen the street to 86 ft. within the next 3½ years. The Commission is laying its new tracks in the same place as occupied by the old, however, it not being practicable to lay the tracks to conform to the position they will occupy when the street is widened. The track will be moved over at the city's expense after the street is widened.

On Kingston Road, between Queen St. and Victoria Park Ave., 9,392 ft. of double track are being laid. The Toronto and York Radial Ry's Scarborough Division line, which operates on Kingston Road from Queen St. easterly, is providing service while construction of the new double track line is progressing. As the radial line is located at the north side of the road, while the new double track line is to occupy the center, no shifting of the radial line was required, except at a few points where it had to be moved slightly farther north to allow excavation to proceed. Work on the new line was commenced, Oct. 26, and the excavation done by steam shovel in the usual manner, was completed Nov. 9. At many points extra excavation was undertaken to bring the new rail level down considerably below the existing grade. Type 122-C-G construction is being used. As the laying of the concrete slab foundation has been kept right up to the excavation, it is likely that the expectation of having the work completed early in December will be realized. By arrangement with the City Works Department, the Commission did the excavating necessary to bring the entire street grade down to that of the new rail level. In view of the city postponing roadway paving on Kingston Road until 1923, it is likely that vehicular traffic on Kingston Road will interfere to some extent with street car operation during the winter, and chiefly for that reason the Commission will not inaugurate a through car ser-

vice from the eastern city limits to city's downtown section via Kingston Road, as any delay at the eastern end would disrupt schedules over the whole route. A shuttle service between Queen St. and Victoria Park Ave. will be provided for the time being.

Yonge St. Work. As stated in the article in this issue dealing with the work on upper Yonge St., the track extension has been completed and the Commission's large new double truck cars are furnishing a through service from the northern city limits to the downtown section.

Loop for Kingston Road Line. To provide for turning cars at the eastern city limit terminus of the new Kingston Road line, the Commission proposed the construction of a loop running north on Victoria Park Ave. from Kingston Road, thence west to Bingham Ave., and south on Bingham Ave. to Kingston Road, thus enclosing several houses and stores. Residents of the district objected, and proposed a loop to the south of Kingston Road. A deputation interviewed Chairman Ellis of the Transportation Commission with a view to having the loop's location changed, but the proposed change was not considered advisable. As a result, representations were made to the Ontario Railway and Municipal Board, which issued instructions to the Commission to withhold work on the loop until a hearing, scheduled for the near future, has been held on the matter and a decision rendered by the Board.

Interchange Facilities at North City Limits. The Commission and the Toronto and York Radial Ry., Metropolitan Division management, have undertaken the construction of a covered interchange platform for the convenience of passengers transferring from Commission cars to radial cars, or vice versa, at the north city limits, the cost to be borne jointly. A concrete platform is being provided, with a canopy roof extending about two-thirds its length, and construction is proceeding. The Commission is building the platform with its own forces, while the roof superstructure has been contracted for.

Elimination of Stops on Yonge St. With a view of speeding up the service on Yonge St., on which cars are now running from downtown to the north city limits, the car stop schedule has been radically revised. Originally, on the round trip from Woodlawn Ave. to the union station, 6.34 miles, there were 66 stops, and 4 of these have been eliminated. On the original route from Deloraine Ave. to the union station, part of which was over the southern end of the Toronto and York Radial Ry. Metropolitan Division, there were 114 stops, in the round trip, of which 14 have been eliminated. The round trip distance in this case is 13.68 miles. All posts for the new stops have been arranged, the change being effective Nov. 2. While the change has resulted in slightly increased walks for some patrons, the resulting speeding up of the service proved to be in the general public's interest.

Eglinton Car House.—This large new car house, described and illustrated in Canadian Railway and Marine World for November, is rapidly nearing completion, all work being up to schedule. Wells & Gray, Toronto, are the general contractors.

West Toronto Transportation Situation.

—There has been a great deal of agitation in West Toronto concerning alleged inadequate transportation facilities. The Transportation Commission's lines terminate at the intersection of Keele and Dundas streets, from where further west-bound service is furnished by the Toronto Suburban Ry. Some time ago the citizens voted to have the city acquire that company's system, including the lines to Guelph and Woodbridge, from the Dominion Government, the portion outside the city to be operated by the Hydro Electric Power Commission of Ontario and the portion within the city to be operated by the city. In the event of the city obtaining control of that portion in the city, it would be handed over to the Transportation Commission for rehabilitation and operation, but it is evident that the Commission will not be able to extend its efficient service into the extreme western part of the city until the Toronto Suburban Ry. acquisition question is settled.

Delivery of Coal by Flat Cars.—Due to the threatened coal shortage, the city authorities bought a large tonnage of Welsh anthracite for re-sale to the public. Transportation Commission flat cars have been used to transport this coal to the various city yards, at a charge equal to that usually charged by the Commission for transportation of heavy materials on its lines.

The Rail Hardening Work, which was described in Canadian Railway and Marine World for November, is being gone ahead with on different sections of the Commission's lines. Both light and heavy rails are being treated. About a mile of track will be done this year, and if results are as satisfactory as anticipated, the process will be used more extensively in 1923.

Main St. Car Service.—A car service is now being furnished on Main St., the cars running over the bridge over the G.T.R. tracks on the line laid by the Commission last spring. Operation is being carried on under a Board of Railway Commissioners' order, which granted the Commission permission to operate, pending the Board's decision as to what part of the bridge's cost the Commission should bear. When the Commission laid its tracks over the bridge, the G.T.R. claimed that the Commission thereby made itself liable for a part of the bridge construction cost.

General.—With the completion of the Eglinton car house, the track extension on Kingston Road, and the two rehabilitation jobs under way on Bloor St., the Commission's construction programme for 1922 will have been completed, and track work in the future will be largely restricted to the usual maintenance necessary. The extra forces have been considerably reduced lately, and further reduction early in December is in prospect.

Montreal Tramways Co. is adding 2 stories to its head office building at the corner of Craig St. and Place d'Armes Hill. The addition is expected to be completed by May 1, 1923, when the departments now located in the Royal Trust building will be transferred. The present building, which is 6 stories high on the Craig St. front, was built in 1894, and is connected with the Royal Trust Building by a bridge, which will be removed when the addition is completed.

Winnipeg Electric Railway Franchise Negotiations.

The negotiations which have been in progress during the year between a special committee of the Winnipeg City Council and the Winnipeg Electric Ry. Co. with respect to that company's franchise were brought to a conclusion at the end of October, and the committee's report was submitted to the city council, at a special meeting on Nov. 2. The report signed by Aldermen Sparling, Leonard, Shore and Douglas, recommended the extension of the franchise for 10 years, from 1927 to 1937; a reduction of fares from 1923 to 1926, with a maximum and a minimum rate to control the rate fixable by arbitration after that date, with findings on a number of other matters which had been under discussion, the bylaw comprising the agreement to be made, to be submitted for approval to municipal voters. After the opening of the meeting a question was raised as to whether the council should do anything at all, and a motion to adjourn was negatived by 11 to 6. The report was then received and read and a motion submitted to consider it clause by clause. This was met by an amendment to postpone its consideration until Jan. 1926, which was defeated by 12 to 5. Some further discussion resulted in the passing of a resolution by 9 to 6 to submit the bylaw, when approved by council, to electors entitled to a vote on money bylaws.

The Council held another special meeting, Nov. 7 to consider the bylaw and after a lengthy discussion it was given a first reading by 11 to 6. Following is a summary of the bylaw:—

The text states that it is a bylaw to submit to the electors qualified to vote thereon, the matter of entering into an agreement with the Winnipeg Electric Ry. Co. to postpone to Feb. 1, 1937, the first date on which the city can acquire the company's street railway system. The main objects of the agreement outlined in the bylaw are, in addition to postponement of the date when the city may take over the system, as follows:—To give the city some control over repairing and remodelling of road beds and rails. To provide for a reduction of fares with a view to reverting to the fares under bylaw 543. To definitely fix the value of the property in respect of which a reasonable return should be given to the company by way of fares. To provide for the segregation and the separation of the accounts of the transportation utility of the company. To give the city power to have the company's books audited. To fix a minimum rate at which the traction utility should purchase its power from the company's power producing utility, or its subsidiary companies. To provide that the city's agents may inspect the company's motors and electrical devices. To give the city option to purchase the company's franchise and the property in adjacent and contiguous municipalities, in the event of the city taking over the company's system within Winnipeg, paying only for physical property and not franchise value. To provide for the immediate payment of the arrears due the city for pavement costs and charges; for the immediate payment to the city of its overdue taxes; for certain extensions of its car lines in the city and making certain improvements in respect of its trolley wires; for the company's payment to the city of a proportion of the cost of constructing or enlarging subways and bridges in the city; for the payment by the company to the city of the amount

due for damages by electrolysis, and for inspection of and improvements in measures for mitigating electrolysis; for the continuance by the city and the company of the joint pole agreement and the application thereof to wires in lanes; also to provide for removal of wires from streets and placing them in lanes in residential districts; for the grounding of secondaries and other safety measures in connection with the reduction of voltage; for a progressive scheme of placing by the city and the company of wires underground and removal of wires from the streets in areas where wires are placed underground; for the remodelling of the company's rolling stock; for the taking over of the company's system, in default (after notice to remedy) of certain of the provisions of the agreements, or instead of taking over, that the default may be remedied by the appointment of a receiver with power to collect the revenue of the company and remedy the default; for the fixing and settling of what property the city should take over in acquiring the system, and the means of arriving at the value thereof. That the city shall not be bound by any agreement entered into by the company, or any guarantee given by the company; that in the event of the city's declining to acquire the property, it might enter and take possession and collect the revenue thereof before the value will have been ascertained or paid; for the creation of a fund of \$1,250,000, as security for payment of overdue taxes, payment changes and damages by electrolysis and providing a working capital for carrying out other terms of the agreement.

Making definite certain provisions of bylaw 543, relating to the removal of snow. Providing against the Public Utilities Commission having any jurisdiction over the matters involved in the agreement. Providing that the agreement shall not assignable without the city's consent.

Electric Railway Passenger Fares.

British Columbia Electric Ry.—The Board of Railway Commissioners has ordered he Vancouver, Fraser Valley & Southern Ry., British Columbia Electric Ry. Co.'s subsidiary, to reduce the fare on the portion of its Burnaby Lake line within the City of Vancouver, to 6c, the same rate the B. C. E. Ry. Co. charges on its city lines. Details of the hearing of the application for this reduction were given in Canadian Railway and Marine World for November, pg. 580.

Edmonton Radial Ry.—A press report states that the Deputy Minister of Education for Alberta, has taken up with Edmonton City Council the question of fares for students attending the Normal College. At present the students pay \$2.50 for a monthly book of tickets, and a reduction has been asked. The city claims that it cannot make any distinction between normal and university, or other students, and that the province should pay the difference between the present rate charged students and any reduction that it desired. There are about 250 students in attendance at the Normal School for 8 months in the year.

Guelph Radial Ry.—We are officially advised that the Hydro Electric Power Commission of Ontario, which is operating this railway for the city, put in operation, Nov. 1, the following increased schedule of fares: Cash, 6c, with 20 tick-

ets for \$1; children, half-fare. The fares previously in force were: Cash, 5c; 21 tickets for \$1.

The Ontario Legislature, in 1921, passed an act relating to the city, which, among other things, authorized the Guelph Radial Ry. to charge fares up to, but not exceeding the following: Cash fare 7c; tickets, 4 for 25c; fares between 11 p.m. and 5 a.m. to be double the ordinary maximum single fares.

Ontario Hydro Electric Ry.—Essex Division.—We are officially advised that the following fares were put in operation in Windsor, Ont., on Nov. 1: Cash fare, 6c; 6 tickets for 35c, 20 tickets for \$1; free transfers between trackless trolleys and street cars. The fares formerly in force were: Cash, 5c, 20 tickets for \$1, and a 1c transfer fee between trackless trolleys and street cars. No change has been made in school children's fares, which are as follows: Under 12 years, half fare; school children's book of 60 tickets, \$1.50; children under 18 years of age (restricted hours), book of 48 tickets, \$1.50.

In connection with this increase, it was reported, Oct. 30, that if the fares were increased, steps would be taken by Windsor City Council to withdraw from the agreement with the Hydro Electric Power Commission of Ontario for the operation of the railway. On Nov. 3, the city council's transportation committee was reported to have passed a resolution recommending the council to ask the Ontario Government "to give the Municipal Street Railway Act its third reading." It is stated that under this measure the city could apply to the Government for permission to run its own street cars. There is decidedly some misunderstanding about this matter as the Municipal Electric Railway Act was attended to on June 13, and according to sec. 31, went into operation on that day. Sub sec. a, sec. 3, provides that the Hydro Electric Railway Act of 1914, and amendments made thereto, shall, in so far as they apply, remain in full force and effect with respect to the maintenance and operation of the Sandwich, Windsor and Amherstburg Ry. and the Windsor and Tecumseh Ry., acquired and operated by the Commission for certain municipal corporations under contracts confirmed by the Hydro Electric Railway Act of 1920, secs. 8 and 9.

Sir Adam Beck is reported to have said that he did not think the city council's threat to withdraw was a true expression of public feeling on the matter, but if the border cities were to agree on secession the Hydro Electric Power Commission of Ontario would accede to their request without opposition. He added that the new schedule of fares does not provide for any real increase except in the case of transient users who pay the cash fare.

Electric Railway Employees' Wages, Working Conditions, Etc.

Cape Breton Electric Co.—A press report states that the company put in effect, voluntarily, on Nov. 1, an increase of wages for its motormen, conductors and other employees, amounting to from 10c to 15c a day.

Montreal Tramways Co.—An alderman submitted to the Montreal City Council, recently, a motion calling for the provision of a pension fund for the Montreal Tramways Co.'s employees, at the company's sole expense. Consideration was laid over for a future meeting.

British Columbia Electric Railway's Agreement with City of Vancouver.

After prolonged negotiations, a new agreement has been made between the British Columbia Electric Ry. Co., amounting virtually to a new franchise. It amends the existing franchise, dated 1901, in several important respects, especially in providing for the continuance of the 6c fare, and for new motor bus routes. It provides for a reduction in lighting rates within the city limits from 6c to 5c a kilowatt hour.

The 6c fare charged in Vancouver has been the subject of negotiation and temporary measure for three and a half years. The last permit was due to expire on Dec. 15, by which time the city was to make a new agreement, or the B.C. Government to form a board of some nature to adjudicate the matter. This is not the first time recently that a new franchise has been proposed. On two former occasions the city council failed to come to any agreement, and it was believed that no agreement could be found suitable to it. To the last, some members were inclined to submit the agreement to the voters, but a declaration by the company that it would withdraw its concessions, deterred them.

The B.C. Government has announced its intention to pass an act providing for a board of arbitration to decide passenger rates for the B.C. Electric Ry. Co., but the new agreement with the city stipulates that both parties shall not apply to such a board to modify the agreement's terms.

The provisions of the new agreement are briefly as follows: The 6c fare within the city is continued for 3 years, at the end of which time it is to be decided by agreement, or, failing that, by arbitration. The domestic lighting rate in Vancouver is to be reduced on Jan. 1, 1923, from 6c to 5c a kilowatt hour. Where transportation is not adequately provided, the company is to operate buses, provided reasonable roadways are available. A unique feature of this proviso is that the city is to contribute towards any deficit in the operation of such lines. The company agrees to stand one-half the deficit on these lines up to \$5,000. The remainder is to be deducted from percentages to be paid to the city out of the gross annual receipts of the system. Only two bus lines are at present proposed and it is likely that under this arrangement the city will carefully scrutinize the possible traffic before ordering the company to provide service. The company is to replace several portions of temporary track with permanent track within a year, the cost being estimated at about \$100,000. Other clauses call for their contributions by the company for the maintenance of pavement between the car tracks. The company is required to provide granite blocks for each side of the rails, to pay the city \$5,000 for maintaining pavements, and construct and maintain the sub-base between the tracks in future permanent construction. Within the next five years the company is to spend \$250,000 in placing overhead light and power wires underground.

As the city of Vancouver is only a small portion of greater Vancouver, with only two-thirds of the population of the greater city, this agreement affects only a part of the city system, but agreements are in existence with the municipalities of South Vancouver, Point Grey

and North Vancouver, and the City of New Westminster which makes fare permissions contemporaneous with those in Vancouver. The commutation fare to the suburbs of Vancouver is 7c and this will therefore remain until amended by the proposed provincial board.

Proposals for Purchase of London Street Railway by the City.

London, Ont., City Council took up on the report of the special transportation commission, which has been considering the whole situation regarding the London Street Ry. Co's franchise and other transportation matters, for some months past. The commission submitted a summary of a report by A. E. K. Bunnell, on the London St. Ry. and recommended that the following question be submitted at the municipal elections, Dec. 4: "Are you in favor of acquiring the London St. Ry. under bylaw 916?" The council adopted the recommendation.

Mr. Bunnell's summary of his report states that it is based on estimated requirements of the situation in March, 1925, the date of the expiration of the company's franchise. After reviewing the situation the report makes the following recommendations: That the London Street Ry. Co's system be taken over and operated by the city at the expiration of its franchise, March 8, 1925, and that it be operated by a civic commission. That no local transportation services other than those provided by the civic system be allowed.

That upon the acquirement of the system the following extensions be made: On Quebec St., from Dundas St. to Oxford St. On Colborne St., from Dundas St. to Victoria St. On Wellington St., from Dundas St. to York St. On York St., from Wellington St. to Richmond St. On the Hamilton Road, from St. Julien St. to East St.

That track be removed from the following streets: Cheapside St., from Richmond St. to William St. William St., from Cheapside St. to Oxford St. Central Ave., from Richmond St. to Adelaide St. Askin St., Wortley Road and Elmwood Ave., from Wharncliffe Road to Ridout St. Nearly all of this track is of light construction and badly worn.

That of the 63 passenger cars owned by the company, 28 be retired from service, being both worn out and obsolete. That of the 35 remaining cars, 30 be converted into safety cars and the other 5 (being large double-truck cars) retained for exclusive service on the Springbank line. That the following cars be bought: 15 one-man safety, seating capacity of each, 32; 16 two-man safety, seating capacity of each, 50; 6 double-truck trailers, seating capacity of each, 50. The trailers to be primarily for the Springbank line.

That all track extensions or track totally rehabilitated be of paved construction. That the city assume the normal cost of construction and maintenance of pavement for the roadway occupied by the railway's track allowance, the railway to assume the additional cost of sub-structure for the use of the track.

That left-hand turns for vehicular traffic be prohibited during business hours at the intersection of Richmond and Dundas Sts. That future bridges across the river be of sufficient weight and width to carry street car lines in center of the roadway. That wherever possible loops be installed at the termini of lines instead of Y's, or cars with double-end con-

trol be used with cross-overs. That service be increased approximately 35%.

That the fares be: City lines—Adults, cash 5c, 6 tickets for 25c; children, cash, 3c, 10 tickets for 25c. Springbank—Adults, cash 10c, one way; 4 tickets for 25c. Children, cash, 5c, one way; 8 tickets for 25c.

That the question of freight service be made the subject of further consideration. That cars be routed as per detailed recommendations.

The estimated cost of acquiring, rehabilitating and extending the London St. Ry. lines in 1925, on the basis of the above mentioned recommendations, is \$2,600,000.

Rates for Carriage of Mails by Electric Railways.

Canadian Railway and Marine World for October contained the full text of an order in council, passed by the Dominion Government on Sept. 13, fixing rates and regulations for the transportation of mails by steam railways. It is said that electric railways which were not under contract with the Department have also been given the same rates, and if any electric railway companies are not receiving those rates, it would be well for their managements to consider the desirability of applying for them. Even where electric railways were under contract at lower rates, the Post Office Department should be willing to make the same advances to them as have been given to steam railways.

In many cases, where electric railway companies are carrying mails, considerable side service is performed, most of which has undoubtedly been very inadequately paid for, and it seems desirable that each electric railway performing side service, should make a determined effort to obtain the full value for it.

Hydro Electric Power Distribution in St. John, N.B.

The principal question at issue in the municipal elections at St. John, N.B., Nov. 13, had to do with the proposed contract for the distribution in St. John of power from the provincial hydro-electric plant at Musquash Falls. This question was an issue at the previous election when the retiring mayor, who favored distribution by a private company for two years, when the city would take it over if the arrangement did not prove satisfactory was defeated, and Mr. McLellan was elected on a public ownership platform. During the period ensuing up to the recent election Mayor McLellan favored a policy looking to the purchase of the New Brunswick Power Co's plant and undertaking, rather than the installation of a new civic distribution plant. At the recent election G. F. Fisher opposed Mr. McLellan, on a platform calling for a contract with the New Brunswick Hydro Electric Commission, the installation of a civic distribution plant, and purchase of the New Brunswick Power Co's plant, if the company would accept for it within 10 days, \$2,577,655, that being the valuation put on it by the N. B. Supreme Court. Mr. Fisher received 4,304 votes and Mr. McLellan 3,209.

In Vancouver a passenger can ride on an electric railway car 12.38 miles for 7c, and 8.27 miles for 6c. In Toronto a passenger can ride 12¼ miles for 7c cash, or a 6c ticket.

Proposed Electric Railway Service from Toronto East.

The question of electric railway development east of Toronto took on a new aspect on Nov. 3, when a deputation representing a number of municipalities along the lake shore east of Toronto waited on S. J. Hungerford, Vice President and General Manager, and G. Ruel, K.C., director and General Counsel, Canadian National Rys., in Toronto, to urge the completion of the Toronto Eastern Ry. and the electrification, in connection therewith, of certain sections of the Canadian Northern Ry., so as to form a continuous electric railway from Toronto to Cobourg. The delegation, according to one press report, consisted of heads of the municipal councils of Scarborough, Pickering, East and West Whitby, Darlington, and Clarke townships; Whitby, Bowmanville and Oshawa towns, and was introduced by F. H. Richardson, Warden of Ontario County. Another report stated that three of the municipalities named were not represented.

The Reeve of Oshawa, read a lengthy document which had been prepared, and had been assented to by representatives of all the municipalities interested. After reviewing the situation, it said: "We have come to the conclusion that the proper course for us as municipalities to take is to request the Canadian National Rys. to give suburban service to our district. We, therefore, have by resolution approved of giving up the option to purchase the Toronto Eastern Ry. by the municipalities. We have unanimously come to the conclusion that the creating of a suburban service around Toronto by the municipalities can only be established by taking away the feeders of the Canadian National, and also by building a trunk line from Port Hope through Toronto and Hamilton to Niagara, to the detriment of the Canadian National Rys., and resulting in keen competition with the Canadian National Rys. by the municipalities, and of incalculable value to the C.P.R."

The delegation suggested that the Canadian National Rys. complete the Toronto Eastern Ry., between Toronto and Bowmanville, connect it with the Canadian Northern Ry. tracks at Orono, and electrify that line between Orono and Cobourg.

The Premier of Ontario, who accompanied the delegation, is reported to have stated that the Government strongly supported the municipalities in their attitude. He felt that it was not right that one form of public ownership should be organized and conducted at great cost to work against the interests of another form of public ownership. The Government took the position that the Canadian National Rys. should be asked to make the necessary improvements east of Toronto.

Mr. Hungerford is reported to have stated that he was glad to be assured that the municipalities were willing to co-operate with the Canadian National Rys. in providing better service. The matter had been considered by the officials, and he was prepared to recommend to the directors that the C.N.R. make the necessary expenditures upon the electrification. The idea, he is reported to have stated, was to extend the Toronto Eastern Ry. either from the present eastern end to a connection with the Canadian Northern Ry. in the Don Valley, or to a connection with the G.T.R., and so run into Toronto.

Mr. Ruel also spoke favorably of the

proposition, and stated he would recommend its adoption by his co-directors.

In connection with this project, residents of Darlington Tp. are reported to have met at Hampton, Nov. 12, and to have passed a resolution protesting against the suggestion to close for traffic, the Canadian Northern Ry. between Cherrywood and Orono.

Electric Railway Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—A press report states that plans are under consideration for the abandonment of the interurban station at the Granville St. bridge, and the utilization of all the interurban lines in the city as city lines. The city council's fire and police committee is reported to have approved of the suggestion. (Nov., pg. 581.)

Cape Breton Electric Co.—A press report states that the company is overhauling its electric railway lines in Sydney and Glace Bay, N.S., and their equipment, and getting everything in first class order for the winter's operations. (Dec., 1921, pg. 660.)

Hamilton St. Ry.—A press report states that the single track T rail line on King St. West, between Dundurn St. and McKittrick bridge, has been taken up, and is being replaced by a double track line, on which new lip rails are being laid. (Aug., pg. 429.)

Levis County Ry.—We are officially advised that a contract has been let to Anglin-Norcross Co. for the construction of a fireproof car house and shops at an estimated cost of \$50,000. They are to be located at Point Levi, on the low level line, about a mile from Levis ferry, and are to be built of a combination of steel, brick and concrete. (Nov., pg. 581.)

Ontario Hydro Electric Rys.—Essex Division.—A press report states that approval has been given to a proposal to remove the tracks to the center of Ottawa St., Riverside, Ont., and tenders for doing the work, as well as for the necessary paving, will be asked for next spring. This is a part of the works of betterment proposed to be carried out, as stated in Canadian Railway and Marine World for July, pg. 375, for which the approval of the municipalities was being asked by the Hydro Electric Power Commission of Ontario. (Sept., pg. 479.)

Port Arthur Civic Ry.—The Port Arthur, Ont., Public Utilities Commission is reported to have authorized the manager of the Civic Ry. to proceed with an arrangement with the Canadian Resources Development Co., relative to the short piece of electric railway connecting the city's lines with the Country Club. The C. R. D. Co. is, it is reported, anxious to abandon the line.

Quebec Ry., Light & Power Co.—The question of the betterment of the company's lines in Quebec City is reported to be under consideration, and it is said are being made, but it is not expected that they will be announced for some little time. (Oct., pg. 535.)

Waterloo-Wellington Ry.—A press report states that the Waterloo-Wellington Ry. Co. has applied to Kitchener, Ont., City Council for a renewal of its franchise in that city, or that the city purchase the line. The original company, the Berlin and Bridgeport Ry. Co. built an electric railway between those two places, the city granting a 25 years franchise, which has expired, and an exten-

sion to Feb. 1923, was granted. The present company has a charter to extend its line to Guelph, and it is stated that construction on that line will be proceeded with if the franchise extension is granted by Kitchener City Council. W. H. Breithaupt is President. (Aug., pg. 429.)

Motor Omnibus Notes.

F. Breau, owner of the Grey Bus Line operating in Moncton, N.B., is reported to have ordered a new 20 passenger bus to add to those now on the route, and to have stated that the buses will be operated throughout the winter.

The Blue Bird Transit Co., Ltd., operating motor buses on the Toronto-Hamilton highway has assigned, and a meeting of creditors was called for Nov. 29, at Hamilton. It is stated that the buses operated by the company have been seized under liens.

The United Lines is reported to have amalgamated or co-ordinated the various bus line services operated in the vicinity of Hamilton, Ont., and to have arranged for the opening up of additional lines. The directors are:—President, M. B. Morden; Vice President, W. J. Hamilton; Secretary Treasurer, C. R. Brown; other directors, R. M. McCulloch, R. T. Kelley.

W. H. Fenton, Niagara Falls, Ont., proprietor of the Red Bus Line was sued by R. Daybell, to recover \$3,000 damages for injuries sustained by being knocked off the running board of his car, by one of the defendant's buses, at Niagara Falls, Dec. 30, 1921. The jury found for the plaintiff and fixed the damages at \$1,500 for which judgment with costs was entered.

The Saanich, Vancouver, B.C., municipal council received a petition recently from the Lake Hill area for the establishment of a municipal motor bus service. It stated that the jitney service was inadequate, dangerous and uncomfortable, and that a privately owned motor bus line had given up business owing to lack of encouragement by the council. In the discussion it was pointed out that the council had no power to compel jitneys to run on schedule time. The council amended the jitney bylaw so as to permit of the operation of three additional vehicles on the route. The jitney men charge 10c for the trip, while the private bus line charged 6c.

Toronto and York Radial Railway Ownership Changed.

In connection with the Toronto "clean up" deal, the Toronto & York Radial Ry. lines have passed under the Hydro Electric Power Commission of Ontario's control, and are now known as the Hydro Electric Railways, Toronto & York Division, and are under the jurisdiction of W. R. Robertson, General Superintendent of Railways, Hydro Electric Power Commission. Sir Wm. Mackenzie, heretofore President, and W. H. Moore, heretofore General Manager, T.&Y.R.Ry. have resigned, but no changes in officials have been made in the meantime, C. L. Wilson continuing as Assistant Manager, and F. S. Livingstone as Traffic Manager.

T.&Y.R.Ry cars on the Metropolitan Division, have ceased to run within the city limits, their new southern terminus being at the northern city limits, and the service on Yonge St. within the city is performed by the Toronto Transportation Commission. No changes have been made on the Mimico and Scarboro Divisions.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry., and allied companies—

	Sept. 1922	Sept. 1921	3 mos. to Sept. 30, 1922	3 mos. to Sept. 30, 1921
Gross	\$336,603	\$845,185	\$2,513,649	\$2,529,494
Expenses	593,899	634,637	1,822,552	1,899,608
Net	242,704	210,548	691,097	629,886

Cape Breton Electric Co.—

	Sept. 1922	Sept. 1921	12 mos. to Sept. 30, 1922	12 mos. to Sept. 30, 1921
Gross	\$52,299	\$62,332	\$631,681	\$700,278
Expenses	38,765	50,650	562,484	577,401
Net	13,534	11,682	69,147	122,877
Interest	5,626	5,721	67,342	68,988
Balance	7,908	5,961	1,805	53,999

Nova Scotia Tramways and Power Co.

—A press report states that the gross earnings for September were \$105,973; operating expenses, \$67,683; taxes, \$8,848, leaving net earnings of \$29,442, to meet bond interest of \$17,221, after which there was a balance of \$12,221, against a deficit of \$20,636 for Sept. 1921. The percentage of operating costs to gross earnings, which was 92.85 in Sept. 1921, was reduced to 64.03 this year.

Gross earnings for the 9 months ended Sept. 30, were \$1,039,338; operating expenses \$723,653; taxes \$82,761, bond interest \$155,558, leaving a net balance of \$77,366 against a loss of \$58,109 for the corresponding 9 months of 1921.

Ottawa Electric Ry. Co.—County Judge Mulligan, gave judgment recently on the company's appeal against the city court of revision's decision confirming an assessment on the company's property of \$141,188 for business tax. In 1893 the city and the company entered into an agreement whereby the latter was exempted from municipal taxation. In 1904 the Ontario Legislature passed an act creating a business tax of 25% of the assessed value of the land of any person or company carrying on a tramway or street railway business, but the city did not act on this, until this year. The court of revision confirmed the city assessor's action, but Judge Mulligan has held that the agreement gave the company exemption from taxation, and decided that the business tax authorized in 1904, could not be enforced against the company. It is said that the city will appeal to the Ontario Railway and Municipal Board.

The Toronto Ry. Co. gave notice Nov. 6, that payment of principal would be made on its 4½% bonds, due Aug. 31, 1921, together with interest at 6% a year, from that date until date of presentation at the Bank of Commerce, Toronto, for redemption. The bonds will be received for redemption with interest to Feb. 28, 1923, when interest will cease.

Winnipeg Electric Railway—

	Oct. 1922	Oct. 1921	10 mos. to Oct. 31, 1922	10 mos. to Oct. 31, 1921
Gross	\$452,098	\$441,315	\$4,436,132	\$4,499,130
Expenses	317,960	324,269	3,242,535	3,339,329
Net	141,138	117,046	1,193,597	1,159,809
Fixed charges	77,566	44,173	653,101	.....
Surplus	63,572	72,873	540,496	.....

The surplus for October shows an increase of approximately \$6,700 over Sept., 1922, and a decrease of approximately \$9,000, compared with Oct., 1921, which decrease is due to conditions, viz.: a decrease in the railway's gross revenue on account of a decrease in daily receipts due to unusual good weather throughout the month, passengers walking or using automobiles instead of using the cars, and also to the generally prevailing poor business conditions as experienced in other cities. The gross earn-

ings of the electric utility show an increase of approximately \$23,000 over Oct., 1921, due to a continued building up and expansion of the light and power load. The operating expenses on both utilities show an increase over Oct., 1921, those for the railway being due to extraordinary maintenance repairs in track and roadway, a general overhauling of the passenger equipment, and an increase in the cost of power due to steam power production on account of power shortage. The increase in operating expenses of the electric utility was also due to extraordinary maintenance and increased cost of power. The result, as a whole, shows that while there was a decrease for October, as compared with Oct., 1921, had operations been conducted under normal conditions, or conditions that prevailed during 1921, the net results for the month would have shown a very substantial increase.

Toronto Suburban Railway's Purchase.

Toronto City Council has passed a by-law approving the agreement between the Hydro Electric Power Commission of Ontario and the city respecting the purchase of the Toronto Suburban Ry. from the Canadian National Rys. The agreement which is a schedule to the Toronto Suburban Ry. Act of 1922, provides for the purchase of the company's shares and securities or property, by the Hydro Electric Power Commission of Ontario on behalf of the city by taking over the company's bond issue, for the transfer to the city of the portions of the company's lines within the city on the city issuing and delivering to the Commission \$202,800 of debentures. The city agrees with the commission to issue \$2,778,000 of debentures for the purchase and equipment of the railway. The commission agrees to operate the lines outside the city limits on behalf of the city, the latter to be responsible for meeting any loss on operation, and any surplus over operating charges to be used for the betterment of the lines, or paid over to the city at the commission's option. The agreements to run for 50 years.

Mainly About Electric Railway People.

C. C. Curtis, General Manager, Cape Breton Electric Co. addressed the Sydney, N.S. Academy students recently on the advantages of a good education.

M. M. Inglis, Manager, Port Arthur, Ont., Civic Ry. has been authorized by the Port Arthur Public Utilities Committee to change the cars into one-man cars according to his own plans and specifications.

T. H. McCauley, formerly Manager, Calgary, Alta., Municipal Ry. and subsequently General Manager, St. John, N. B. Street Ry. is reported to have been engaged by Fort William, Ont. City Council to supervise the changing of the Municipal Ry. cars to one-man cars.

A. S. Mathias has been elected President, International Street Railway Men's Union, Division 99, Winnipeg.

Hugh Smith, Superintendent, Pinawa Hydro electric plant, Winnipeg Electric Ry., has resigned, after several years

service, to enter private business on his own account, on Vancouver Island, B.C., and has been succeeded at Pinawa by — Ferguson, who has been in the company's electrical department for some time.

S. Wilkins, Engineer of Maintenance of Way and Structures, Winnipeg Electric Ry., has resigned after 15 years service with the company. He has gone to the Pacific Coast, but has made no plans for the future. We were advised Nov. 11, that no one had then been appointed to succeed him. On Oct. 31, he was presented with a gold watch by A. W. McLimont, Vice President and General Manager, on behalf of the department heads, and Mrs. Wilkins, with a travelling bag and wrist watch, by the track department employees.

Electric Railway Notes.

Oshawa Ry. is in the market for 2 motor passenger cars.

The University of Manitoba Arts Faculty held an inter-class debate, recently, when a resolution, "That the Winnipeg St. Ry. system should be owned and operated by the community," was discussed, and defeated.

Moncton Tramways, Electricity & Gas Co. is reported to be arranging to give a car service on its electric line in Moncton, N.B., throughout the winter, as provided for in the recent agreement with the city council.

The Ottawa Electric Ry. Co. supplied a talk recently on safety first, by the editor of the Ottawa Electric Railway News, which was broadcasted by radio throughout the Ottawa district. Further talks on subjects of public interest will be supplied for Saturday night broadcasting entertainments.

Hamilton, Ont., City Council is considering plans for the removal of all overhead wires in the city, and placing them underground. The recommendation is that the city lay all its own wires underground at once, and call upon the companies to do the same within six months. The Dominion Power and Transmission Co. is reported to have 226 poles in the city carrying its own power wires, and to have wires on 162 poles belonging to other companies.

Joseph Morissette was fined \$25 and costs in the Quebec Recorder's Court, recently for being disorderly on a street car and assaulting the conductor. Morissette, with two companions, got on the car at night, and continued to smoke inside the car. When requested to discontinue by Conductor Coulombe, they became disorderly, struck him, dragged him about the car and tore his coat off. The police were called and succeeded in arresting Morissette, but the others got away, taking the conductor's cap with them.

Mr. Justice de Lormier gave judgment in the Quebec Superior Court at Montreal, recently, in the action of P. Brabant against the Montreal Tramways Co. The plaintiff, a conductor in the company's employ, fell when descending from his car, injuring his arm. He claimed \$3,000 as damages under the Workmen's Compensation Act for permanent incapacity to the extent of 75%. The company claimed that the claim was exaggerated and the court held that plaintiff had suffered to the extent of 15%, and, taking his wages at \$1,300 a year, gave judgment for damages, with costs.

Marine Department

United States Ships Admitted to Canadian Great Lakes Coasting Trades.

The question of the suspension of the coasting laws to combat alleged discrimination against grain shippers, and against the St. Lawrence route to the seaboard, in favor of the route via Buffalo and the U.S., has been fully dealt with in previous issues of Canadian Railway and Marine World. The discrimination cry has died away, as it was predicted it would, and the matter has resolved itself into one of dealing with an unprecedented congestion of grain at Canadian ports. There being such congestion that lake ships are held for unloading for from one to three weeks, it is evident that the congestion would only be aggravated by increasing the number of ships in the grain traffic. If there were sufficient facilities at the ports, for the quick unloading of lake ships, and the quick loading and dispatch of ocean ships, the Canadian lake ships would be able to double the number of trips in the course of a season, and handle all the grain from the head of the lakes. There is little doubt that in carrying on their propaganda, those who favor the suspension of the coasting regulations entirely misrepresented the situation to the Dominion Government, and the statements placed before the Government, by the Dominion Marine Association, show clearly that the admission of U.S. tonnage would simply increase the tremendous congestion and further block the available facilities, the inadequacy of which is at the root of the trouble.

The whole matter has been under consideration by the Dominion cabinet for some time, and the following statement was issued by Hon. Chas. Stewart, acting Minister of Trade and Commerce, Nov. 18: "From time to time the Department of Trade and Commerce has had attention directed to the possibility of a very serious congestion of grain at the lake ports. The past season has produced a very large crop in the prairie provinces, and, although the transportation companies have been operating at maximum capacity, and have taken care of this movement in an exceptionally capable manner, nevertheless it has become evident recently that serious congestion is bound to occur if the movement is confined to present shipping facilities. The Government has been carefully investigating the situation in all its bearings, and, after mature deliberation, has come to the conclusion that it can be materially assisted by allowing other than Canadian vessels the privilege of loading and storing cargoes and of discharging same at Bay ports during winter or early spring, and in this way assisting in relieving the congestion, and more adequately meeting the demands of the increased volume of traffic over Canadian lines, and materially augmenting the storing facilities, and also relieving the congestion at the terminal elevators, as well as the line elevators throughout Western Canada. It is to be distinctly understood that this applies only to grain. The Government believes it is desirable to adopt this course, in order to increase the volume of storage to as great a degree as possible, and, as pointed out above, to avoid any indication of congestion at prairie points, which is inevitably followed by a deflation of prices

where such congestion occurs."

This proceeding, which allows U.S. ships to load grain at a Canadian port and to proceed to another Canadian port to remain during the winter and unload their cargoes in the spring, is, without doubt, absolutely illegal. There is no authority for it under any Dominion Act governing shipping. The Revised Statutes of Canada, chap. 113, provide as follows:—

"955. No goods or passengers shall be carried by water, from one port of Canada to another, except in British ships.

"2. If any goods or passengers are so carried, contrary to this part, the master of the ship or vessel so carrying them shall incur a penalty of \$400, and any

Dominion Marine Association.

Honorary President, A. A. Wright, President, Tidewater Shipbuilders, and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

President, T. R. Enderby, Operating Manager, Canada Steamship Lines, Montreal.

First Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Second Vice President, G. J. Madden, George Hall Coal Co. of Canada, Ogdensburg, N.Y.

Executive Committee, The President, First and Second Vice Presidents, and W. E. Burke, Canada Steamship Lines, Montreal; Yvon Dupre, Sincennes-McNaughton Line, Montreal; M. J. Haney, Canada Steamship Lines, Toronto; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transports, Montreal; Honorary members, L. L. Henderson and A. A. Wright, Montreal.

Counsel, Francis King, K.C., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

goods so carried shall be forfeited, as smuggled.

"3. Such ship or vessel may be detained by the collector of customs at any port or place to which such goods or passengers are brought, until such penalty is paid, or security for the payment thereof given to his satisfaction, and until such goods are delivered up to him, to be dealt with as goods forfeited under the provisions of the Customs Act.

"958. The Governor in council may, from time to time, declare that the foregoing provisions of this part shall not apply to the ships or vessels of any foreign country in which British ships are admitted to the coasting trade of such country, and to carry goods and passengers from one port or place to another in such country."

It has been stated that a precedent for the Government's recent action may be found in an order in council of Dec. 6, 1913, but a thorough search in the volumes of statutes, which also contain orders in council, has failed to discover such an order, and, if it was passed, it

was illegal. It may, however, be mentioned that on Nov. 29, 1912, the Government made arrangements whereby U.S. ships arriving at Fort William and Port Arthur, after Dec. 5, when lake insurance expired, would be permitted to load grain, and remain at those ports until the reopening of navigation, when they could deliver their cargoes at Point Edward, Goderich, or Georgian Bay ports, the Government elevator at Port Colborne not being included in the permission. The Dominion Marine Association strongly opposed the concession, and stated that there was no lack of Canadian tonnage to make use of the full loading capacity at Fort William and Port Arthur, and that it would be unjust to crowd the loading ports beyond the limit, and run the risk of greater congestion at Georgian Bay and Lake Huron ports. The method adopted then was irregular and had no legal authority, and the Government's present action has none. However useful the following of a precedent may be as an excuse for shifting responsibility, the fact remains, that there is no legal authority for the concession now being made, and that it is a distinct violation of the law.

The act, as quoted above, distinctly states that the Government may, by order in council, declare that the provisions forbidding the carrying of cargoes by foreign ships, between Canadian ports, may be suspended in favor of the ships of any foreign country which admits British ships to its coasting trade. The U.S. does not so admit British ships, therefore the Dominion Government has no legal power to admit U.S. ships to the Canadian coasting trade. Probably realizing this, the Government has apparently not passed any order in council in connection with the matter, but has decided to instruct customs officials to allow infractions of the law. One of the Liberal party's chief election planks was the abolishment of government by order in council, though it was not charged that the orders complained of had been issued illegally, or were ultra vires. The Government's recent action in allowing U.S. ships to trade between Canadian ports is far worse than governing by order in council. It is a distinct defiance of the law and introduces a most dangerous precedent and example. If the Government will not observe its own laws, how can the people generally be expected to do so? We do not think we go too far in saying that such action is an encouragement to anarchy.

The U.S. coasting laws are most drastic, and are rigidly enforced against Canadian ships. Our laws should be just as strictly enforced against U.S. ships. The suspension, or rather chloroforming, of the Canadian coasting regulations, even temporarily, is most unfair to Canadian shipowners and shipbuilders. It is not likely that people will be prevailed upon to build ships for handling Canadian trade, when, at the whim of a government, the privileges of Canadian ships may be nullified, without any compensating advantage.

The contract for rebuilding the dam at Young Point on the Trent Canal has been awarded to F. R. Wilford, Lindsay, Ont.

A. A. Wright on the St. Lawrence Canals Proposals.

A. A. Wright, Honorary President, Dominion Marine Association, Toronto, writes:—"The advocates of enlarged St. Lawrence canals are telling the public that the lack of these is costing the country millions of dollars. In view of the very heavy taxation which the citizens of this country are paying, I trust you will pardon me for at least trying to show the absurdity of such statements, and avoiding, if possible, spending money on prospects, possibly worthy in some ways, but which can do absolutely nothing to remedy existing conditions.

"The trouble at present is simply the annual one, of which Canadian lake ship-owners have complained for years, viz.; lack of sufficient modern elevator capacity at Georgian Bay ports and Montreal, particularly the latter port. For the past two years Montreal has had a long line of lake ships waiting to unload, and another long line of ocean ships waiting to load, reducing the carrying capacity of lake ships seriously. I believe, with proper elevator facilities at Montreal, the capacity of the ships now running between Port Colborne and Montreal would be doubled, as each ship would make about twice as many trips as she has done.

"Take the elevator situation at Georgian Bay. Large ships have been lying there all fall, waiting from two days to nearly two weeks at a time, because the elevators are either too slow, have too little storage space, or there are not enough of them, again aggravated by Montreal's inability to unload promptly grain railed by them to that port. There are three elevators in Midland and Tiffin, and one at Port McNicoll, which if run night and day to maximum capacity should unload from lake ships and load into cars about 1,500,000 bush. a day. Up to date I doubt if any of these elevators have averaged over half their capacity, and some of them have done much less, and I would not be surprised to learn that at the moment Montreal cannot take care of more than 400,000 bush. a day from them all.

"At present according to the list published in Montreal daily, there are over 70 ocean ships in that port, about 5 or 6 clearing daily, and a similar number arriving, so that it is virtually all a question of speed in Montreal, since there are plenty of ocean ships there.

"The present high rates are not being paid for carrying grain, but for the time the ships are lying around waiting to load and unload, forcing exporters to bid up rates in a desperate effort to get boats to Montreal in time to fill contracts; and it costs just as much to keep a boat at the dock as to run her with cargo, except for about two-thirds of her fuel cost.

"From the standpoint of navigation only, it would be criminal folly to spend say, \$250,000,000, enlarging canals on top of probably \$75,000,000 being expended on the Welland Canal at present. Forgetting the money being wasted on the Welland, as that is under way, the interest on \$250,000,000 at 6%, or \$15,000,000, would pay the freight annually on 250,000,000 bush. of grain from Port Colborne to Montreal at 6c a bush., and with facilities at Montreal to give the same unloading at Montreal which ships can get at the Government elevator at Port Colborne, grain could be carried at that rate more profitably than it is being carried now, so that to justify the expendi-

ture for navigation purposes only, you would require to get grain carried in the enlarged canals for nothing. In view of the foregoing, it would be interesting to learn how the enlarging of the St. Lawrence canals would help the present situation or take care of the future."

Editor's Note:—We do not think that many people will agree with Mr. Wright's opinion that the money being spent in building the Welland Ship Canal is being wasted. In our opinion it is an absolute necessity, and we think a great mistake was made in cancelling contracts and totally suspending the work during the war, which did cause immense waste.

Great Lakes Grain Freight Rates.

Dispatches from the head of the Great Lakes and Cleveland, Ohio, during November, reported an easing off in outward cargoes during the early part of the month, with the demand for tonnage somewhat light. Following is a summary:

Nov. 2.—Grain freight market quiet, demand for prompt loading capacity not very active. A ship was placed at Duluth to load for Georgian Bay ports at 4c, and another at Fort William, for Buffalo, at 4½c. Some storage cargoes were booked for late November loading, to hold at Buffalo, at 8c. Eight cargoes of grain were cleared from Fort William and Port Arthur, including about 2,000,000 bush. of wheat, and some other grains. The s.s. W. Grant Morden cleared with 365,000 bush. of wheat, and 150,000 of oats.

Nov. 6.—Much time is reported lost at Buffalo, grain coming in faster than it can be handled, and boats being held from 10 to 20 days. Tonnage demands decreased considerably, and rates were cut all round. A number of charters were made to Buffalo at 3½c, and one ship loaded at Fort William at that figure, with demurrage at \$1,000 a day for time held at unloading port over 3 days. Shippers try to obtain boats without any dispatch guarantee. Some tonnage was in the market for last trip and storage at 8c.

Nov. 7.—Demand for tonnage continued light, and another cut was made in the rate for early loading for Buffalo, one ship being placed for loading for Buffalo at 3c, and another at Duluth for Chicago at 3½c, both with dispatch guarantees. Last trip and storage was quoted at 7c. Shipments out of Buffalo were 3,020,000 bush., of which 1,560,000 went to Montreal, and 1,460,000 by the barge canal.

Nov. 9.—Cargoes taken from Duluth to Georgian Bay ports at 2½c, but no

Buffalo charters were reported. Ten ships reported loading at Fort William and Port Arthur, approximately 2,500,000 bush. Six of the 10 cargoes were for Buffalo.

Nov. 12.—Grain not offered freely and chartering light. A ship was placed at Fort William to load for Erie or Fairhaven at 2¼c, and two at Duluth, for Georgian Bay ports, at the same figure. Tonnage was offered freely for early loading, to Buffalo at 3c, and a boat was chartered for Buffalo at 2¾c, and a quantity of business was reported to have been done at the latter figure. A boat was placed at Fort William, for Toledo, at 3½c, one to South Chicago at 3c, and another at South Chicago, for Georgian Bay at 2¾c.

Nov. 13.—The Buffalo-Montreal rate was quoted at 9c, and a number of boats declined this figure. Lake port tonnage offered freely, with the demand light. Three boats loaded at Duluth for Georgian Bay at 2½c, with dispatch guarantee, and there was some tonnage on the market, for Buffalo at the same figure. Shippers tried to get tonnage for Buffalo at 4c. without dispatch guarantees, but owners declined, as according to the present lineup, it would mean storage. The highest rate bid for storage was 5½c.

Nov. 17.—Shippers bid up the rate to get prompt loading and tonnage, some business being done to Buffalo at 3c. One ship loaded barley and rye, and another wheat, at Fort William, for Buffalo, at that figure. A large number of ships were lined up for storage cargoes, but many will make another trip. A charter was made to load at South Chicago, to hold at Buffalo, at 4½c, and shippers at Fort William and Port Arthur were bidding 6c to hold at Buffalo, or at Fort William for spring delivery, but no charters were made.

Nov. 19.—A noticeable strengthening in the market. A ship was placed to load at Fort William for Buffalo, at 3c, but later the market was marked up and two ships were chartered at 3½c, an advance of 1c compared with a week ago. Dispatch guarantees were given, and better rates were offered on two cargoes without demurrage. Buffalo storage remained at 6c bid, and no tonnage offering, it was intimated that 6½c would be paid.

Canadian-American Shipping Co. Ltd. has been incorporated under the British Columbia Companies Act, with \$10,000 authorized capital, and office at Vancouver, to carry on business as shipowner, broker, shipping manager, warehouseman, and general trader, and to own and operate ships.

Ships Added to and Deducted from the Canadian Register During August, 1922.

Added.	Steam.—Tonnage—			Sailing.—Tonnage—		
	No.	Gross	Net	No.	Gross	Net
Built in British Possessions.....	17	2,427	1,425	7	338	338
Purchased from foreigners.....	5	7,200	4,058	.....	.....	.....
Transferred from U. K. ports.....	2	4,738	2,862	.....	.....	.....
Registered anew.....	8	1,025	607	1	991	992
Totals.....	32	15,390	8,952	8	1,329	1,270
Deducted.						
Wrecked or otherwise lost.....	1	16	15	2	211	166
Broken up or unfit for use.....	2	2,339	1,517	1	16	16
Sold to foreigners.....	.....	.....	.....	2	1,285	1,113
Transferred to British Possessions.....	1	4,329	2,798	.....	.....	.....
Registered anew.....	3	1,339	755	9	631	404
Totals.....	7	8,023	5,085	14	2,143	1,759

Ship Building and Ship Repairing Throughout Canada.

Canadian Vickers Ltd., Montreal.—The steel single screw hopper barge, which this company is building for the Marine Department, as mentioned in our last issue, will be classed 100 A1 at Lloyd's, for river purposes, under special survey and Government inspection. It will have a straight stem, elliptical stern and fore-castle deck, with hopper placed amidship, and curved beam constructed over the hopper, to take leads from the winches forward and aft to operate the hopper doors. Heavy doors will be fitted on each side of the hopper keelson, arranged to hinge downward, and designed so that only one half of each door will project below the ship's bottom. The doors will be closed by chain arrangements, connected to steam winches at each end of the hopper. The hull will be divided into 8 watertight compartments, by steel bulkheads extending to the main deck. The propelling machinery will consist of one set of inverted, vertical, direct acting, triple expansion, surface condensing engines, with cylinders 18½, 30 and 50 in. diam., by 36 in. stroke, to develop 1,250 i.h.p. at about 105 r.p.m., with 180 lb. of steam pressure in the boilers. There will be 2 Scotch boilers, each 14½ ft. diam. by 10½ ft. long, single ended, arranged to work under natural draft. The auxiliary machinery will include an Edwards air pump, 3 bilge pumps, a centrifugal circulating pump, 2 feed pumps, a surface feed heater, a feed filter, 2 general service pumps, a sanitary pump, a fresh water pump, etc. Electric lighting will be furnished from a steam generating set. The deck machinery will consist of a special type of steam windlass, steam and hand capstan, and 2 hopper door winches. The steam steering gear will be of the horizontal type, mechanically controlled from the navigating position. The accommodation for the captain and engineer will be on the main deck aft, and for the crew, on the lower deck forward. The barge's main dimensions will be,—length b.p. 210 ft.; length overall 218 ft.; breadth, moulded, 35 ft.; depth, moulded, 19 ft.; net hopper capacity, 950 cub. yds.; complement, officers and men, 20; maximum draft loaded 10½ ft. The barge is being built under the supervision of Chas. Duguid, Naval Constructor, Marine Department, who is represented at the plant by A. K. Venables, Lloyd's being represented by W. T. Alderson, Montreal surveyor. The keel was laid in November, and it is expected that delivery will be made in June 1923.

Dominion Shipbuilding & Repair Co., Toronto.—Osler Wade, liquidator of this company, which is in bankruptcy, has issued a report, stating that the stock in trade, plant and machinery have been disposed of, and, including the amount realized on the completion of the Canadian Government Merchant Marine ships built at the yard, produced a total of \$423,466.60. An item in the preliminary statement of assets, under the head of bills receivable, for \$100,000, is considered a total loss. The Nova Scotia Transportation Co., which owed the amount for the s.s. Le Quesnoy, went into liquidation, and its assets did not realize sufficient to pay the mortgage encumbrances against the ship. Another item, accounts receivable, \$533,874.48, is also considered worthless. Christoffer Hannevig, of New York, who owes the estate \$526,439.08, is a bankrupt. A report of his

estate shows cash assets of \$71,233.41, and liabilities of \$10,402,715.96, and there are contingent assets consisting of large claims against the U.S. Government which are disputed, and it is doubtful if anything will be realized on them. The original statement of affairs for the Dominion Shipbuilding & Repair Co. showed an investment in buildings and yard equipment of over \$1,000,000, and the agreement with the Toronto Harbor Commissioners in connection with the lease of the grounds on which the equipment was erected, provided that no consideration would be allowed the insolvent company for its investment in this respect on any default in the terms of the lease, which has over 20 years to run. The Harbor Commissioners eventually agreed to abandon their claim, for rent alone, of \$63,175.09, on the abandonment by the liquidator of these particular equipment assets. The liquidator's disbursements in completing the two ships for the Canadian Government Merchant Marine, and realizing on the plant and machinery, were \$76,485.79, leaving \$346,980.81 available for secured and preferred claims, aggregating \$397,521.26. The only other available asset is \$24,943.24, due from the Dominion Government, so that the net amount realized from the estate is not sufficient to satisfy the preferred claims. The final accounts do not provide for any claim by the Dominion Government in connection with income or business profits taxes, and this question has not been disposed of by the government, so that there is a possibility of a claim on this account.

Fraser Brace Co. Ltd., Three Rivers, Que.—The second of the four steel steamships which this company is building for the George Hall Coal Co. of Canada, was launched at the end of October, and named Frank A. Augsbury, by Mrs. F. A. Augsbury, Ogdensburg, N.Y., wife of the President. The first of these ships, N. H. Botsford, which was launched several weeks ago, is in service. They are steel single screw bulk freight steamships of full Welland Canal size, of the following dimensions: Length over all, 258 ft.; length b.p., 250 ft.; breadth, 43 ft.; depth, moulded, 20½ ft. They are designed with full topgallant forecastle and long raised quarter deck aft. The hulls are on the Isherwood system, with water ballast in the cellular double bottom, which is divided longitudinally for about two-thirds of the ship's length, for turning purposes in working the cargo, and water ballast is provided for in the fore and after peaks. There are two cargo holds, with 6 large hatches, 2 of which are especially large for handling beams and billets 60 ft. long. The propelling machinery consists of triple expansion engines, with cylinders 19, 32 and 56-in. diam., by 36-in. stroke, supplied with steam by 2 Scotch multi-tubular boilers, each 14 ft. 7 in. diam., by 10 ft. 8 in. long., at 180-lb. working pressure. The boilers are equipped for coal burning, and there is bunker accommodation for 150 tons. There is an ash ejector, and the usual ballast pumps and auxiliaries. Steam and hand steering gear is placed aft over the after peak, and is controlled from the wheel house forward, and the top of the deck house aft. There are 3 steam winches for the rapid handling of cargo, and 2 especially designed for warping. Other equipment includes 3 heavy derricks, electric lighting plant, refrigerating plant, etc. The

ships are designed for a deadweight carrying capacity of 2,500 tons, on a canal draft of 14 ft., and with grain capacity of about 120,000 bush. Inboard profile and deck plans of the Frank A. Augsbury were published in Canadian and Marine World for September (pg. 485).

Halifax Shipyards Ltd., Halifax, N.S.—Canadian Government Merchant Marine s.s. Canadian Voyageur, which, as stated in our last issue, was repaired at this plant during October, after having suffered damage through running ashore in Bedford Basin, Halifax, in the autumn of 1921, was undocked Oct. 4. The contract was signed Sept. 20, and called for the completion of the work in 16 working days, or by Oct. 7. The Royal Mail Steam Packet Co's s.s. Chaleur was docked Oct. 5, for scraping and painting and minor hull repairs and work was completed Oct. 8. The C.P.R. s.s. Empress, running between Digby, N.S. and St. John, N.B., which ran ashore at Black Point, near St. John harbor, Sept. 29, was docked at Halifax, Oct. 11 and surveyed, after which the repair contract was given to this company. Thirty-five plates on the ship's bottom had to be renewed, and 18 frames on the starboard side, and 15 on the port side had to be treated. In addition there was a large amount of repairs required on boilers, main engines and all auxiliary machinery. Extensive repairs were also necessary to the decks throughout the ship and crew's accommodation aft, this latter damage being caused by the ship being partially submerged at high tide. The contract called for the completion of the work by Nov. 8, but it was done by Nov. 4.

Port Arthur Shipbuilding Co., Port Arthur, Ont.—Canada Steamship Lines' s.s. A. E. McKinstry was drydocked at the end of October at this plant, for general repairs, after grounding on Traverse Island, Lake Superior, Oct. 22, when she sustained considerable damage. It is stated that 70 steel plates required removal and replacement.

The Detroit and Cleveland Navigation Co's two new steamships, which it is having built by the American Ship Building Co., Cleveland, Ohio, for service between Detroit and Cleveland, some details of which were given in our October issue, will have the following chief details,—length overall 535 ft., length b.p. 519 ft., beam, hull, 58 ft., beam, guards, 96½ ft., depth, hull, 23 ft. 7 in., depth, guard, 22 ft. 10 in. The propelling machinery will consist of inclined compound engines, with cylinders 66, 96 and 96 in. diam., by 108 in. stroke, supplied with steam by 6 single ended and 3 double ended boilers at 167 lb. working pressure. There will be 625 staterooms. Delivery is required by the spring of 1924.

Central Wharfage and Trading Co. Ltd. has been incorporated under the British Columbia Companies Act, with \$10,000 authorized capital, and office at Victoria, B.C., to acquire the business now carried on at Kingston wharf, there by the Central Wharfage Co., and also to take over the s.s. Forager, and to carry on a general trading business, and act as carrier by land and water. The Forager was built at Victoria, in 1904, and is a screw driven wooden steamship, with engine 13 n.h.p., and has the following dimensions,—length 84 ft., breadth 18.8 ft., depth 6.6 ft., tonnage 90 gross, 57 net.

Wreck Commissioners' Enquiries and Judgments.

Enquiries have been held and judgments delivered in connection with the following casualties:—

Stranding of s.s. Glenmoor.

Held at Montreal, Oct. 24, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Lapierre and J. B. Henry as nautical assessors, into the grounding of W. Runciman & Co's s.s. Glenmoor, of Glasgow, Scotland, in Montreal harbor, near buoy 174M, in the River St. Lawrence, marking the existence of shoal water off the Vulcan cement wharf. The Glenmoor was inbound to Montreal from South Shields, Eng., with coal, remained aground for 29 hours, and was refloated after a considerable amount of her cargo had been lightered. She had not suffered any material damage. The witnesses examined were Capt. R. C. Collins and pilot C. Dufresne. The ship had been moored at the Vulcan wharf, had left with the assistance of a tug, and after proceeding about 550 yards, the tug was dispensed with, and the ship was steered to enter the main channel west of the buoy, marking the end of the spit, the ship grounding shortly after. The pilot corroborated the master's evidence, and gave as his only excuse for the mishap, that 20 years ago he had passed the same spot safely. The court found that the pilot, for no valid reason, ignored the aids to navigation, which are placed for the guidance of navigators, to indicate the spit off the Vulcan wharf. There was no logic in his reason that 20 years ago he passed safely over the shoal with a deep draft ship, and he was therefore found in default for indifference. The court recognized his straightforward report and statement, and did not deal with his license, but fined him \$100, to be paid by Nov. 1.

Collision of Steamships Izgled and Orkild.

Held at Montreal, Oct. 24, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Lapierre and J. B. Henry as nautical assessors, into the collision of the Jugo-Slavia s.s. Izgled and the Danish s.s. Orkild, near buoy 76Q in the St. Lawrence River, Oct. 12. Evidence was given by the master, pilot, second officer and second engineer of the s.s. Izgled, and the master, pilot, third officer, second engineer, wheelman and lookout of the s.s. Orkild as well as by P. Schou, Consul General for Denmark. The s.s. Izgled was represented by A. W. Atwater, K.C., W. L. Bond, K.C., and L. Beauregard, the s.s. Orkild by A. R. Holden, K.C., the pilots, A. Marchand of the s.s. Izgled, and T. Perron of the s.s. Orkild, not being represented. The Izgled is a steel ship, drawing 22½ ft. forward, 23½ ft. aft, has 4,829 tons gross, 2,705 net, with a crew of 37, including 2 certificated deck officers and 3 certificated engineers. She is single screw driven, by triple expansion engines, with a speed of 8½ knots when loaded, and is owned by the Navigazione Libera G. Raich and Co., Trieste. The s.s. Orkild is 1,963 tons gross, 1,178 tons net, length 281 ft., breadth 42 ft. with a crew of 22, including 3 deck officers and 3 engineers. She is single screw driven, owned by Danneborg Steamship Co., and was bound from Philadelphia, Pa., to Montreal, light, and drawing 7½ ft. forward, 11½ ft. aft. On the day of the collision both ships were navigating, each in charge of a pilot, near St. Charles Channel, in the River St. Lawrence, the Izgled being ahead, and to the south of the Orkild, but supposedly in the middle line of the

channel, or if anything to the south of it. She had steered fairly well, and nothing untoward had happened since she left Quebec, when, at a certain stage, the pilot wishing to change the course, so as to pass close to buoy 76 Q the order to port was given, and the buoy, which was about 2 points to starboard bow, was brought to one half point on the starboard bow. It was then realized that the ship was swinging too fast, and an order, steady and hard to starboard, was given, and at the same time one blast, then 3 blasts, and the danger signal, and full speed astern. The Orkild was advancing on a similar course on the Izgled's starboard quarter, her stem being even with the Izgled's stern. The Orkild was an overhauling ship and the intention was to pass the Izgled, but on the northern side of the buoy 76 Q. This was known by the Izgled's pilot, as the Orkild had been overtaking her for some time. For some unaccountable reason, supposedly the strength of a current which was unforeseen, the Izgled could not be steadied, and with her screw going full speed astern, continued to swing to port, having at the time of the collision, brought buoy 76 Q on her port beam. The court could not find any fault with the Izgled's masters, officers or pilot, it being an unforeseen and undetermined cause, which rendered the ship uncontrollable, and the court's impression was, that the beginning of the flood tide, meeting the downward current, occasioned a surface eddy, which neutralized the rudder's action, the swinging to starboard being accelerated when the engines were put full speed astern. Under the circumstances the court abstained from criticizing the full speed astern order. The collision was comparatively slight, having occurred when the ship had practically lost her headway. Regarding the Orkild, had nothing untoward occurred in the steering of the Izgled, both ships would have passed clear of each other, but there had been no signal given by the Orkild that it was the intention to pass north of buoy 76 Q. The regulations call for the signal from the overtaking ship, and this was not given. It was a violation of the letter of the regulation, but did not contribute to the collision. The unexpected happened, and, in the court's opinion, the circumstances were met to the best ability of the Orkild's pilot and officers who exercised good judgment, worse damages being avoided by prompt action. In the final finding the court held that the masters, officers and pilots of both ships were blameless of any neglect, or error of judgment.

Cairndhu-Spray Collision Case Reviewed.

In connection with the enquiry and judgment in the case of the collision between the Cairn Line's s.s. Cairndhu and Sincennes-McNaughton Line's steam tug Spray, near Isle St. Ours, in the St. Lawrence River, July 1, when 6 lives were lost, the British Board of Trade has, on the Imperial Merchant Service Guild's application on behalf of the second officer of the s.s. Cairndhu, T. D. Healey, reviewed the case, and has come to the conclusion that while he was not blameless, his action, or inaction, did not appear to have been the cause of the disaster, and, in returning his certificate, which had been in suspense for nearly two months, stated that, in its opinion, a censure would have sufficiently met the case.

The judgment appealed from, which

was delivered by Capt. L. A. Demers, Dominion Wreck Commissioner, July 6, and which was concurred in by Capt. J. B. Henry and C. Lapierre, as nautical assessors, placed the chief blame on the tug Spray's master, Capt. N. Mongeau, and suspended his certificate for 12 months. It exonerated the Cairndhu's master and found the second officer, T. D. Healey, guilty of wilful disobedience in failing to call the master as directed, when there was a risk of collision, and that by his conduct, he failed to measure up to his responsibilities, and suspended his certificate for 6 months.

Marine Public Works Contracts Awarded.

The Public Works Department has awarded the following contracts.—Sept. 21, reconstruction of retaining wall of lock and dam at Riviere du Lievre, Poupore, Que., Doran Construction Co., Ottawa, Ont., unit prices; wharf at Grondines, Que., Doran Construction Co., Ottawa, Ont., unit prices; Sept. 30, dredging entrance channel and basin at Cobourg, Ont., Frontenac Dredging Co., Toronto, class B, 58c a cub. yd., scow measure; Oct. 2, repairs to south section of temporary pile protection breakwater, Port Arthur, Ont., unit prices; Oct. 3, repairs to wharf Pointe aux Trembles, Que., Onesime and Poliquin, Portneuf, Que., unit prices; Oct. 9, repairs to eastern and western breakwaters, Port Colborne, Ont., Port Arthur Construction Co., Toronto, unit prices; Oct. 14, repairs and improvements to wharf, L'Orignal, Ont., Murphy and Lowrey, Ottawa, Ont., unit prices; Oct. 14, dredging channel in Maganatawan River, Byng Inlet, Ont., W. Bermingham, Kingston, Ont., class B, 60c a cub. yd., in situ; Oct. 18, dredging channel at mouth of McIntyre River, Port Arthur, Ont., O'Brien and Martin, Ottawa, Ont., class A, \$4.12 a cub. yd., class B, 31½c a cub. yd., place measure, material overcast at 2/3 regular contract rate; Oct. 23, construction of piers, Whitby, Ont., T. P. Charleson, Ottawa, Ont., unit prices; Oct. 23, dredging channel Wolfville, N.S., Harris and McKinlay, Wolfville, N.S., class B, \$1.20 a cub. yd., in situ.

U.S. Prohibition and Ocean Steamships.

—The U.S. prohibition law, which has been held to apply to all U.S. ships, and to all foreign ships in U.S. territorial waters, has caused considerable agitation in shipping circles. The law, according to this decision, is presumably being carried out on all U.S. ships, but its operation, so far as foreign shipping in U.S. territorial waters, is concerned, is not yet enforced, and whether it will, or can be, is still to be decided. An incident, which gave the matter a somewhat humorous turn, took place in London, England, recently, when the U.S. s.s. President Harding was refused clearance papers there, because there was not on board one gallon of brandy for every 100 steerage passengers, as provided for in the British marine laws. Before clearing, the captain had to ship five gallons of brandy.

National Stevedoring Ltd. has been incorporated under the Quebec Companies Act, with \$20,000 authorized capital, and office at Montreal, to carry on business as shipowner, carrier by land and water, stevedore, lighterman, etc.

Canadian Government Merchant Marine Operations, Etc.

Officers of Steamships.—The following appointments of masters and chief engineers have been made since those mentioned in previous issues.—Canadian Adventurer, Capt. P. Shaw; Canadian Cruiser, Capt. E. C. Seers; Canadian Leader, Capt. W. J. Davies; Canadian Miller, Capt. R. A. Goudey; Canadian Runner, J. W. D. Cumming, chief engineer; Canadian Spinner, D. Coulter, chief engineer; Canadian Squatter, Capt. S. D. Corkum; Canadian Warrior, J. G. Phillips, chief engineer.

The s.s. Canadian Seigneur was reported Nov. 1, to be in a disabled condition, having lost her rudder, 738 miles northeast of St. John's, Nfld., when bound from Garston, England, to Montreal. On Nov. 3, the Reid Newfoundland Co's s.s. Meigle was sent to her assistance, and was reported by radiotelegraph, Nov. 10 to have got alongside on Nov. 9, and to be preparing to tow the Canadian Seigneur, which, of course would be able to use her own power. Subsequently, at the request of the Canadian Seigneur, by wireless, additional assistance was sent, the Canadian Sapper being dispatched from St. John's.

San Francisco Service.—It is announced that the service between Vancouver and San Francisco is to be augmented, sailings taking place weekly, instead of every 10 days as heretofore. Arrangements are reported to have been made with California citrus fruit growers, whereby the Canadian Government Merchant Marine ships will take all shipments of fruits intended for Canada.

Trans-Pacific Rates.—A San Francisco press dispatch of Nov. 5, stated that at the Pacific westbound conference there, which concluded Nov. 3, representatives of 10 trans-Pacific steamship lines signed an agreement to maintain until May 1, 1923, standard rates, which had been agreed on at a preliminary session at Portland, Ore., but that three Japanese companies and the Canadian Government Merchant Marine declined to sign. We are advised that the various lines met in conference, but were unable to come to a mutual understanding on several points, and the meeting was adjourned to some time in January, it being understood that, in the meantime, all lines would quote the same rate. So far as Canadian Government Merchant Marine is concerned, we are advised that it never signs contracts in respect to any conferences, it having followed the principle from the start not to bind itself in respect of such matters, although, of course, it works closely in connection with private lines.

St. John, N.B., Sailings—

Liverpool Service—Canadian Spinner, Dec. 6; Canadian Ranger, Dec. 20.

London Service—Canadian Victor, Dec. 13; Canadian Commander, Dec. 27.

Cardiff & Swansea Service—Canadian Volunteer, Dec. 2; Canadian Runner, Dec. 16.

Glasgow Service—Canadian Squatter, Dec. 14.

Halifax, N.S., Sailings—

Australia & New Zealand Service—Canadian Cruiser, Dec. 22.

Barbados, Trinidad & Demerara Service—Canadian Beaver, Dec. 2; Canadian Logger, Dec. 16; Canadian Coaster, Dec. 30.

Hamilton, Nassau, Kingston, Belize, Bermuda, Bahamas, Jamaica, British

Honduras Service—Canadian Fisher, Dec. 7; Canadian Forester, Dec. 28.

Newfoundland Service—Canadian Sapper, Dec. 5, 16 and 27.

Vancouver, B.C., Sailings—

Australasian Service—Canadian Traveller, Dec. 20.

Oriental Service—Canadian Inventor, Dec. 10.

Mainly About Marine People.

John Barnsley, heretofore Manager, has been appointed Managing Director, Union Steamship Co. of British Columbia, Vancouver, B.C., vice R. A. H. Welsford, elected President.

Capt. C. F. Barnes, master of the C.G. S. Estevan has been placed on the retired list, after 35 years service on the Pacific Coast, under the Dominion Marine Department. He first went to sea as a boy in the Royal Navy, and remained in the service for 13 years. He joined the Dominion Government marine service as a seaman on the C.G.S. Douglas, and passed through the various grades to second officer and first officer, on the C. G.S. Quadra. He was then appointed master of the C.G.S. Newington, and in 1912 was appointed master of the C.G.S. Estevan.

Capt. H. Bilton, heretofore master of the C.G.S. Newington, has been appointed master of the C.G.S. Estevan, vice Capt. C. F. Barnes, retired. He commenced his sea service as a seaman on the clipper ship Thermopylae, then sailing between Victoria, B.C. and China. He remained with that ship for 4½ years, when he entered the Dunsmuir service, and was employed on coasting ships out of Victoria. He was later with the Boscowitz Steamship Co., on the s.s. Barbara Boscowitz, one of the first passenger and mail steamships to ply up the Pacific coast. He then entered Leeming Brothers' service on a freight steamship, under charter to the Dominion Government, and later was for a year on the steam tug Lorne. On the C.G.S. Newington being put into the lighthouse service on the Pacific Coast, he was appointed master.

A. Melville Dollar, formerly Managing Director, Canada Robert Dollar Co., has incorporated the Universal Shipping Co., to carry on the business of ship chartering and ship brokerage, devoting special attention to oriental, continental and intercoastal business.

Sir Thomas Fisher, K.B.E., General Manager, Canadian Pacific Steamships, London, Eng., who contested Portsmouth in the recent general elections in Great Britain, was defeated.

Capt. F. H. Griffith, master of the Dominion Hydrographic Survey s.s. Lillooet, died at Queen Charlotte City, B.C., Nov. 14, from apoplexy, while charting and surveying northern waters along the coast. He was a native of St. Martins, N.B., but had lived in Victoria, B.C., for many years, and was buried there.

Capt. James Joy, ship's husband for Job Bros., St. John's, Nfld., died there at the end of October, aged 78. He had been engaged in seafaring almost the whole of his life, and was at one time a sealing master. He had been in Job Bros.' service for over 35 years.

D. R. McLaughlin, master ship builder, died at St. John, N.B., Oct. 28.

Sir Joseph Maclay, who acted as British Shipping Controller during the war, has been created a baron.

W. Grant Morden, a member of the London advisory committee, Canada Steamship Lines, was re-elected a Member of Parliament in the recent general elections in Great Britain.

Capt. M. G. Munro, Canso, N.S., has been given the Royal Canadian Humane Society's medal for life saving. In January, he swam through a heavy sea, during a snow storm, with a life line, and brought safely to land, three of the crew of the schooner Alexander, which had been driven on the rocks at Black Point, in Chedabucto Bay, near Canso.

James W. Nicoll, heretofore Assistant Manager, has been appointed Manager, Furness, Withy and Co., Montreal, vice J. R. Binning deceased. He was born at Montreal and was, for about 10 years, to 1903, in the Foreign Freight Department, C.P.R., Montreal, after which he entered Furness, Withy and Co's service as freight clerk, and was appointed Assistant Manager in 1919.

Mrs. S. M. Norcross, mother of J. W. Norcross, Vice President, Canada Steamship Lines, died at Port Colborne, Ont., Nov. 17. Mr. Norcross is at present in Great Britain on business.

Capt. S. Orr, master of the Head Line s.s. Dunaff Head, was entertained at dinner in Montreal, recently, by the management of McLean Kennedy Ltd., Canadian agents for the company, on his retirement from the service after over 30 years in it. During his service with the company, which commenced with the entering of its ships into the St. Lawrence River over 30 years ago, when he was first officer of the s.s. Bengore Head, he commanded nearly every ship of the fleet, and never had an accident during his service.

W. T. Payne, who has retired from the position of Manager in Japan and China, Canadian Pacific Steamships, Ltd., Yokohama, Japan, has been given the Order of the Rising Sun of the third class, by the Emperor of Japan. He had previously been given the fourth class of the same order, and also the Order of the Sacred Treasure of the third class. Mr. Payne has been visiting friends in Montreal and Toronto recently.

Capt. Edward Smith, of Kingston, Ont., died at Perth, Ont., at the end of October, aged 73. He spent nearly his whole life in navigating inland waters, and for many years prior to his retirement in 1918, owned and operated the s.s. Jeska, owned later by J. F. Sowards.

Arnold N. Smith, heretofore General Manager, has been appointed President and Managing Director, Montreal and Cornwall Navigation Co., Cornwall, Ont., succeeding his father, Robert Smith, K.C., whose appointment as a judge of the Supreme Court of Ontario, was announced in our last issue.

Arthur W. Snell, heretofore Assistant Foreign Freight Agent, C.P.R., Montreal, has been appointed Assistant Manager, Furness, Withy & Co., Montreal, vice J. W. Nicoll, appointed Manager.

R. A. H. Welsford, heretofore Managing Director, Union Steamship Co. of British Columbia, Vancouver, B.C., has been elected President, succeeding his father, J. H. Welsford.

W. G. Winterburn, consulting engineer and naval architect, and surveyor for the British Corporation of Shipping, the American Bureau of Shipping, and Bureau Veritas, Victoria, B.C., has been named as Vice President of the Institute of Marine Engineers, London, Eng., for the coming year.

Atlantic and Pacific Oceans.

Furness Withy and Co. have, it is reported, arranged to operate their steamships this winter between West St. John, N.B., and Hull, Eng., on a fortnightly schedule, instead of from Portland, Me., to Hull, as formerly.

The chief and second officers of the s.s. Heronspool owned by Pool Shipping Co., West Hartlepool, Eng., have been given respectively a silver cup and a pair of binoculars, by the Newfoundland Government, in recognition of their services to the shipwrecked crew of the Newfoundland schooner, Elsie L. Corkum, in the Atlantic Ocean, Dec. 26, 1920.

With the conversion of the steamships Robert Dollar and Esther Dollar, from coal to oil burners, which is to take place on their next arrival at New York, all of the Canadian Robert Dollar Steamship Co's ships will be oil burners. These two ships were formerly German owned, and named Kurland and Parisienne. The cost of the conversion is stated at about \$20,000 for each ship, and the high cost of coal, compared with the more moderate price of oil fuel on the Pacific coast, makes the change advantageous.

The Royal Mail Steam Packet Co's motorship Loch Gail, which was launched at Govan, Scotland, Aug. 24, is scheduled to sail from London, Eng., Jan. 3, 1923, on her maiden trip to the Pacific coast, and will include Victoria, B.C., amongst her ports of call. She is a sister ship of the Loch Katrine, already in the service, and is equipped with Diesel type engine of 6,000 i.h.p., giving a sea speed of 12½ knots an hour. Her dimensions are,—length 502 ft., breadth 62 ft., depth 38.6 ft., tonnage 9,500 gross.

The Union Steamship Co. of New Zealand is reported to have ordered a steamship to be built by Fairfield Shipbuilding and Engineering Works, Glasgow, Scotland, for its Canadian-Australian Line. It is stated that the ship will be a duplicate of the C.P.R. s.s. Empress of Canada, by the same builders, with the exception of the propelling machinery, which will be of the Diesel type, instead of turbines. This, it is stated, will be the first time that Diesel engines have been adopted for a large passenger steamship for long voyages at high speed.

The Canadian Robert Dollar Co's s.s. Stuart Dollar, which sailed from Vancouver recently for the Orient, taking a portion of the cargo from the C.P.R. s.s. Empress of Australia, which had to return to port owing to a breakdown of her turbine engines, was also compelled to return to port, having broken her rudder. She called for assistance when well out to sea, and the tug Sea Monarch was dispatched from San Francisco, and stood by, while the Stuart Dollar came in under her own steam. Arrangements were made for docking her at Esquimalt for repairs, prior to resuming her voyage.

Maritime Provinces and Newfoundland.

The Newfoundland Marine Department has re-established the white acetylene light at Jacques Cartier Island, Quirpon, showing 20 flashes a minute.

The s.s. Inca, which arrived at St. John, N.B., Nov. 2, reported that when one day out from San Domingo, the captain, Thos. M. Barmette, committed suicide by shooting.

The Marine Department has estab-

lished a green wood spar buoy on the channel side of the wrecked s.s. Dream, which lies sunk about a mile south of Palmer Point lighthouse, and about 90 yards easterly from the shore of The Mistake, in the St. John River, N.B.

St. John, N.B., harbor revenue for the first 10 months of this year was about \$15,000 ahead of the same period of 1921. During October the receipts were nearly double those of Oct. 1921, nearly \$7,000 being taken in wharfage charges, compared with \$3,708 in October 1921.

Lightship no. 15 will be withdrawn from Heath Point, Anticosti Island, Dec. 1, and after being overhauled, will be placed on the Sambro outer bank in the approach to Halifax harbor, for the winter. On the reopening of St. Lawrence navigation she will be replaced at Heath Point.

The steamboat Bernard M., owned formerly by the Wedgeport Steam Trawling Co., Wedgeport, N.S., and latterly by the United Fruit Co., is reported to have been bought by Capt. B. M. Melanson, Gilberts Cove, N.S., and again sold to St. John parties. For some time, the boat has been engaged in the coastal trade in the West Indies.

The Eastern Steamship Co's s.s. Governor Dingley which operated on the St. John, N.B.-Boston route during the summer, has been transferred to the Portland-Boston route, for the winter. At the time of writing no announcement had been made as to another steamship for the winter service between St. John and Boston.

Freight handlers at St. John, N.B., after a conference with J. M. Woodman, General Superintendent, New Brunswick District, C.P.R., have made an agreement regarding wages for the ensuing year. The rate will be 45c an hour for an 8-hour day, with time and a half for overtime, and double time for Sundays and holidays. The rate last year was 48c.

The Bras d'Or Lakes Steamboat Co's s.s. Marion was destroyed by fire at her wharf at Whyecomagh, N.S., Oct. 31. She was built at New York, N.Y., in 1876, and was paddle wheel driven by engine of 49 h.p. Her dimensions were,—length 142.4 ft., breadth 26.5 ft., depth 8 ft., tonnage 478 gross, 269 net. She has been operated for 46 years on the Bras d'Or Lakes.

The Marine Department is reported to have bought the steam tug Murray Stewart from Nagle and Wigmore, St. John, N.B., for lighthouse and buoy service on the Great Lakes. She was built by the Port Arthur Shipbuilding Co., Port Arthur, Ont., in 1918, and is screw driven by engine of 109 h.p. Her dimensions are,—length 119 ft., breadth 26 ft., depth 15.7 ft., tonnage, 234 gross, 94 net.

The Brito Line, which is operating the s.s. Malm between St. John, N.B., and Havana, Cuba, had to cancel the sailings at the end of October, for the present, owing to accident to the ship. It was announced that possibly another ship would replace the Malm temporarily, as it is the company's intention to maintain a service between these ports throughout the winter, and, if sufficient inducements offers to place additional ships on the route.

F. M. Ross, General Manager, St. John Drydock and Shipbuilding Co., is reported to have stated at St. John, N.B., recently, that it is hoped to have the drydock ready for operation by the autumn of

1923. The gates are under construction, and 80% of the channel has been dredged. A portion of the pumping equipment has arrived at St. John from Scotland. In connection with the drydock equipment, a marine railway will be installed on the north side, capable of hauling up smaller ships, up to about 2,000 tons.

The C.P.R. s.s. Empress, which ran ashore at Black Point, near Partridge Island, about 4 miles from its western terminal at Reeds Point, St. John harbor, N.B., Sept. 29, resumed service between Digby, N.S. and St. John, N.B., Nov. 6, after having been repaired and overhauled by Halifax Shipyards Ltd. After the accident, the service was suspended for a few days until arrangements were made for chartering the Dominion Government s.s. Aranmore, which was operated on the route from Oct. 11 to Nov. 5.

The s.s. Bethlehem, which sailed from North Sydney, N.S., Oct. 27, with 300 tons of coal for Wabana, Nfld., broke her rudder chain and disabled her steering apparatus during a heavy gale, becoming completely disabled. She shipped more water than the pumps could clear, and a makeshift rudder kept her on her course for a short while, but this was eventually carried away. Her plight was noticed by some fishermen, who notified the Reid Newfoundland Co's s.s. Kyle, which proceeded to her and took her in tow to Port aux Basques.

H. J. Russell, Assistant to General Manager, Reid Newfoundland Co. is reported to have announced recently that the s.s. Sagona would replace the s.s. Home on the Humbermouth-Battle Harbor service, the latter being transferred to the Green Bay service. The s.s. Meigle was ordered to St. John's to lay up after her last trip to Labrador, at the end of October, pending further requirements. Early in November she was dispatched to the assistance of Canadian Government Merchant Marine s.s. Canadian Seigneur which had become helpless about 700 miles from Newfoundland, having lost her rudder.

Province of Quebec.

The George Hall Coal Co's s.s. Harvey J. Kendall, operating between Montreal and Fairhaven, N.Y., in the coal trade, ran ashore near Fairhaven recently, was refloated Nov. 5, and towed to Fairhaven by the wrecking tug, Joseph L. Russell.

Another record was created at Montreal, Nov. 1, when 1,000 ships had been cleared at the port, for the sea, during the season. The highest number for any completed season, was 1,004 ships cleared for the sea, in 1914, the rush then being caused by the war.

The first crib of the new wharf which is being built by the Marine Department alongside the King's wharf at Quebec, was laid at the end of October. The wharf will be built on three cribs, each 42 ft. long, and will give an additional mooring space of 126 ft. The other two cribs were laid early in November.

The C.P.R. s.s. Monteagle, arrived at Montreal, Nov. 1, via the Panama Canal from Vancouver, B.C., with some 1,250,000 ft. of lumber, the first consignment of 5,000,000 ft. which the Montreal Harbor Commissioners have ordered for use on extensions to Alexandra, King Edward and Jacques Cartier piers, which work is in progress.

J. H. Manseau is suing the Dominion Government for \$2,430 for damage to the s.s. Delilah C, which while plying between Sorel and Beloeil on Oct. 15, grounded, and suffered considerable damage, the propeller and shaft being twisted. The accident was claimed to be due to the negligence, imprudence and carelessness of the Marine Department's agents, who had misplaced a buoy which was supposed to mark the channel. This was denied by the Department, and it was submitted that if the buoy had moved, it was due to the current or wind.

H. Guerin and J. Cardinal are suing Canada Steamship Lines Ltd., for \$5,000 and \$2,500 respectively, in connection with their work in landing passengers from the company's s.s. Rapids Prince, when she stranded in the Lachine Rapids, July 30. The former states that he was offered \$15 a day for two weeks and a bonus of \$500, by the company, which he refused, as he considered that, being an experienced boatman, his services were worth more. The claims were subsequently settled out of court for \$2,800 and \$1,200, respectively.

The Hammerhill Paper Co., Erie, Pa., which has a mill at Matane, Que., has asked the Dominion Government to do a considerable amount of dredging and wharf improvement in the harbor, to allow of large ships calling there for logs. The expenditure asked for by the Government is approximately \$106,000, and the company is prepared to spend \$100,000 on improvements. The proposition is reported as being opposed by Canadian National Rys., Canada and Gulf Terminal Ry. and the Railways and Canals Department, on the ground that the traffic there is being handled by the railways, and would be lost if the harbor was made available for large ships. On behalf of the Railways and Canals Department, it was stated that the Canada and Gulf Terminal Ry. was subsidized by the Dominion Government to the extent of \$210,000, and if it were to be put on a non-paying basis, it would be one more railway for the Government to take over.

Ontario and the Great Lakes.

The Dominion Government has appointed L. P. Hughes, chairman, and H. G. Earle, harbor commissioners for Belleville, in place of B. L. Hyman and P. Allen, who were appointed Dec. 2, 1911.

*The Tomlinson Steamship Co's s.s. Sul-

tana grounded in front of the New Ontario dock, Sault Ste. Marie, Ont., Nov. 15, and was released after a considerable portion of her cargo had been lightered.

The steamboat Nereid, registered as owned by A. E. Wagoner, Alexandria Bay, N.Y., has been bought by D. W. Munro, Gananoque, Ont., and transferred to the Canadian register under the name of D. W. She was built in 1882, is 89 ft. long by 13 ft. beam, and is 36 gross tons.

The Chicago, Duluth & Georgian Bay Transit Co's steamships North American and South American have been equipped with oil burning apparatus, and underwent trial trips between Detroit and Sarnia, Ont., Nov. 21. They are stated to be the first oil burning steamships on the Great Lakes.

The Great Lakes Transportation Co's s.s. Glenisla ran ashore about 4 miles above White Fish Point, Lake Superior, Nov. 11. Tugs which were sent to her aid were unable to release her, but by dredging the sand round her, she was loosened sufficiently to enable her to release herself the following day, when she continued her voyage undamaged.

Hamilton Harbor Commissioners are having prepared plans for development of the harbor front, and for the reclamation of land. It is reported that the reclamation work would involve an approximate cost of \$1,077,000, and the complete scheme, an expenditure of about \$13,000,000. Gore, Nasmith and Storrie, engineers, Toronto, are preparing plans.

During the last day of October and the first two days of November, continued easterly winds kept the water down in the Welland Canal to a depth of 13¾ ft. over the aqueduct at Port Colborne, thus delaying all ships which were loaded for a regulation canal draft of 14 ft. The depth of water was similarly affected, but to a lesser degree, Nov. 13.

It is reported that a terminal elevator, with capacity for 1,500,000 bush., will be erected at Port Arthur, shortly, by James Stewart, President, Maple Leaf Milling Co., and James Stewart Grain Co., and also a director, Canadian National Rys., at an estimated cost of \$850,000. The site selected is near the Thunder Bay elevator, and it is said that construction will be commenced during the winter.

The U. S. Lake Survey reports the mean stages of the Great Lakes for October, in feet above mean sea level, as follows,—Superior 602.50; Michigan and

Huron 579.97; St. Clair 574.69; Erie 571.86; Ontario 245.61. Compared with the average October levels for the past 10 years, Superior was 0.22 ft. below; Michigan and Huron 0.57 ft. below; Erie 0.33 ft. below; Ontario 0.26 ft. below.

Canada Steamship Lines' s.s. Kenora was considerably damaged by fire at Hamilton, Nov. 16. The cargo in the forehold, which consisted chiefly of inflammable articles, is stated to have been completely destroyed. No other part of the ship seems to have been affected by fire, although water caused a large amount of damage. The cause of the fire has not been made public, but it is stated that it was probably caused by a heavy weight falling on a case of matches.

The motor ferry boat Detroit, built recently at Bay City, Mich., for ferry service between Detroit and Belle Isle, has the following dimensions,—length 65 ft., breadth 20 ft., draft 5 ft. She is equipped with a Fairbanks-Morse 4 cylinder oil engine of 60 h.p., with an average speed of 9 miles an hour. She has a 42 in. propeller running at 325 r.p.m. There is also a Fairbanks-Morse engine driven generator and air compressor, both belt driven. There is accommodation for 350 passengers.

Engineers are reported to be making surveys for considerable improvements in the Goderich harbor including the joining of the river breakwater to the outside north breakwater, dredging the harbor to 25 ft., and, probably, the removal of the island at the eastern end of the harbor. It is stated that this work will probably be commenced next year, and on such assurance, it is reported that the Goderich Elevator and Transit Co. has decided to build a 1,000,000 bush. annex to its grain elevator.

The Union Transit Co. is being organized in Toronto, to own and operate the s.s. Wahcondah, which was bought recently from A. B. Mackay, formerly of Hamilton, Ont., now of London, Eng., by Capt. J. B. Foote, Toronto. The Wahcondah was built in Scotland in 1903, with steel hull, 4 watertight compartments, hatches spaced 24 ft. centers, and has the following chief dimensions: Length b.p., 230 ft. 4 in.; breadth moulded, 37 ft. lin.; depth moulded, 24 ft.; tonnage, 1,554 gross, 996 net. She is equipped with triple expansion engines, with cylinders 18, 28 and 47 in. diam. by 33-in. stroke, 750 i.h.p., and is supplied with steam by 2 Scotch boilers, each 12½ ft. diam. by 10½ ft. long, 86 sq. ft. grate surface, 2,508 sq. ft. heating surface, with a steam working pressure of 180 lb. a sq. in.

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during October, 1922:

Articles	Eastbound	M. ft. B. M.	Canadian Canal	U.S. Canal	Total
Lumber			20,483	20,483	
Flour			769,550	632,070	1,401,620
Wheat			1,901,631	54,805,023	56,706,654
Grain, other than wheat			601,695	7,970,477	8,572,172
Copper			3,552	5,469	9,021
Iron Ore			Short tons	5,871,802	5,871,802
Pig Iron			Short tons	110	7,900
Stone			Short tons	300	2,300
General Merchandise			Short tons	8,137	10,076
Passengers			Number	431	462
Coal, Soft	Westbound		Short tons	10,825	2,678,099
Coal, Hard			Short tons		267,744
Iron Ore			Short tons		34,496
Manufactured Iron and Steel			Short tons	2,597	3,377
Salt			Short tons	1,553	13,065
Oil			Short tons		20,061
Stone			Short tons	8,430	134,221
General Merchandise			Short tons	37,826	36,994
Passengers			Number	365	461
Summary					
Vessel Passages		Number	442	1,949	2,391
Registered Tonnage		Net	640,001	6,943,448	7,583,449
Freight—Eastbound		Short tons	161,314	7,834,646	7,995,960
Westbound		Short tons	61,231	3,175,477	3,236,708
Total Freight		Short tons	222,545	11,010,123	11,232,668

Manitoba, Saskatchewan, Alberta and Northwest Territories.

Navigation on the Red River between Winnipeg and Lockport closed for the winter, Nov. 1, when the St. Andrews dam was opened slightly to allow the water in the river to lower its level by one or two feet a day, according to the prevailing weather conditions. The five dredges which were berthed at Selkirk during November, had been working in the neighborhood of Big George Island, Cumberland Lake, Grand Marais, Victoria Beach and Lac la Biche. The rebuilding of another dredge is being done at Winnipegosis, and she is expected to be ready for operation next year.

The Hudson's Bay Co. is, we are officially advised, contemplating building a

steamboat to replace the one wrecked on the Liard River, near Fort Nelson, last summer. The proposed boat will be a full tunnel boat, 60 ft. long, and propelled by a semi heavy duty 90 h.p. engine. She will be designed to suit the waters of the Great Slave Lake, and the Mackenzie River, and will be used in them as an important auxiliary, and when necessary will handle one of two big scows. If it is decided to build a boat, construction will commence early in the spring.

During the summer a survey of the Great Slave Lake was made by G. H. Blanchet, and the whole has been mapped out, with the exception of the northeast arm, which will be completed next summer. The greatest length of the lake is 490 miles, from the Mackenzie River to old Fort Reliance on the northeast arm. Navigation buoys were placed, at the opening of the navigation season, at the mouths of the Slave, Hay and Mackenzie Rivers, and beacons on shore. At the close of the navigation season, the buoys and beacons at the mouth of the Mackenzie River were removed by the Northern Trading Co's auxiliary powered boat Speed, and the others by the same company's s.s. Northland Trader. Navigators on these northern waters state that these aids to navigation have been of considerable assistance, but that much more remains to be done before the northern rivers and lakes may be considered reasonably safe.

British Columbia and Pacific Coast.

The C.P.R. s.s. Tees, which has been laid up for some time, has been placed in service to and from the west coast of Vancouver Island, handling fish.

The Grand Trunk Pacific Coast Steamship Co's steam tug Lorne is reported to have been chartered by B. L. Johnson, Walton and Co., Vancouver, for the coastwise towing trade.

The British Columbia Pilotage Association, which received its charter recently, has been granted authority to draw up examination papers, appoint examiners and give certificates to pilots.

The Grand Trunk Pacific Coast Steamship Co's s.s. Prince Rupert, completed her 500th trip in the coast service, Nov. 8. She was built at Wallsend on Tyne, Eng., in 1910, and has been in constant service on the northern route ever since.

Bondholders of Canadian Western Steamships Ltd., Vancouver, are reported to have foreclosed on the s.s. Margaret Coughlan, and to have appointed H. A. Stevenson as receiver. The Margaret Coughlan is en route from British Columbia to Montreal with lumber for Montreal Harbor Commissioners. She was built at Vancouver in 1920 by J. Coughlan and Sons, of which Canadian Western Steamships Ltd. is a subsidiary.

Lieut. Charles Julien has been appointed Superintendent of Signalling, Harbor Police and Equipment, Vancouver Harbor Commissioners, who have taken over the Prospect Point signal station. Considerable improvements in connection with this station are announced. A 24 hr. service will be given, by semaphore during daylight, and by seachlights at night.

The Victoria-Anacortes Ferry Co. which operated the s.s. Harvester King in ferry service between Sidney, B.C., and Anacortes, Wash., last summer, is reported to have invited tenders for the construction of a new ferry boat to be ready for similar service next spring.

The plans are said to cover a steamship 146 ft. long, 34 ft. beam, and 9 ft. deep, equipped with a 500 h.p. Diesel engine, capable of a speed of 12 knots, so as to enable her to make the run between Anacortes and Sidney in 3 hours. Space is to be provided for 34 automobiles and the accommodation is to include luncheon room, smoking room, women's rest room and a gasoline station.

The Hudsons' Bay Co's auxiliary powered ship Lady Kindersley, which sailed from Vancouver, June 17, for the company's posts along the western Arctic coast, returned to Vancouver, Nov. 6, when she reported the worst ice conditions known in the north during the summer. On the outward journey, ice was met just north of Point Hope, on July 28, which is considered very far south to encounter ice at that time of the year. On this account she was delayed at Herschell Island. Wainwright was eventually reached Aug. 22, where Amundsen, the Arctic explorer, was found building winter quarters. The ship returned to Herschell Island, Aug. 30, where reports were received that conditions at Coronation Gulf were much worse than had already been encountered, so it was decided to land the Mackenzie River freight at Herschell Island, and return to Vancouver.

The s.s. Trebla, which was bought some time ago by Capt. A. Berquist, has been remodelled and overhauled, and will be operated shortly in the coastwise ore and general freight trade, and also in tug business. She was formerly the Santa Cruz and at one time operated in freight service between San Francisco and Santa Cruz, Mexico, to Honolulu, Alaska, and on the San Francisco route. She was later bought by the Puget Sound Salvage Co., Seattle, Wash. She was built at San Francisco in 1868, and has a hull of Oregon fir, 133 ft. long, 31½ ft. beam, and 10.4 ft. deep, and is equipped with engines of 350 h.p. The engines have been completely overhauled and a new water tube boiler and smoke stack installed, as well as steam steering gear, steam cargo and anchor winches, and the latest towing machinery. She uses coal as fuel, but may be converted later into an oil burner.

The C.P.R. has, as intimated in our last issue, decided to establish a ferry steamship service for conveying motor cars and passengers between the mainland and Vancouver Island. The terminals decided upon are Bellingham, Wash., and Sidney, on the Saanich Peninsula, Vancouver Island, about 20 miles north of Victoria. Bellingham has been chosen on account of its being the center of a large population and directly on the paved highway between Seattle, Wash. and Vancouver, B.C. The route taken by the ferry will be through the San Juan Islands, a delightful sail in thoroughly protected waters. The design of the ferry has not yet been fully decided but it is stated that the plans are practically ready, and tenders are being invited from British Columbia shipbuilders for its construction. Press reports state that the order will probably be placed with either Yarrows Ltd., Victoria, B.C., or Wallace Drydock and Engineering Co., North Vancouver.

The Pacific Salvage Co., Victoria, has been awarded the contract for salvaging the Mexican s.s. Guerrero, which is stranded on the beach at Mazatlan, Mexico. The salvage steamship Algerine left Victoria, Oct. 20, and arrived at Mazatlan, Oct. 30, the distance being 2,100

miles. The Guerrero was lying broadside on the beach, full to tide level. The installation of pumps was undertaken immediately, and anchors laid out. The Algerine is in charge of Capt. J. M. Hewison, and the company's Superintendent, T. W. Allan, will handle the salvage operations. During the absence of the Algerine in the south, the company's salvage steamer Salvor will be standing by at Victoria, with steam up, night and day, ready for any emergency. She is an oil burner, and carries sufficient fuel for 60 days. She is fully equipped with salvage gear of all kinds, including diving equipment for 6 men, air compressor and tools, spare portable donkey boiler, collision mats, heavy anchors and cables, four 10-in. steam pumps, two 6-in. steam pumps, three 4-in. steam pumps, two 6-in. gasoline pumps, all complete with suction and discharge hose, foot valves, strainers, etc. She also has sleeping accommodation for from 30 to 40 men, and is equipped with radiotelegraph apparatus.

Canal Statistics for September.

The Dominion Bureau of Statistics, Transportation Branch, has issued the following summary for September:—

Sault Ste. Marie.—Total traffic through the Canadian and United States locks at Sault Ste. Marie increased 4,503,984 tons, or 70% over Sept., 1921. The big increases were in iron ore and bituminous coal, which increased 3,047,694 and 1,360,892 tons, respectively. A total of 2,354,743 tons of bituminous coal passed up the canal. Wheat increased 9,376,874 bush., and other grains, 1,472,527 bush.

Welland.—Total traffic increased 84,167 tons, or 19%, grain, steel and general merchandise accounting for the greater portion of the increase. Corn fell off, but increases in oats, rye and wheat more than offset it. Pulpwood and soft coal decreased 7,964 and 53,822 tons, respectively. Soft coal upbound totalled 3,729 tons, against 9,703 during August, but down bound shipments increased to 39,549 tons, from 7,100 tons in August.

St. Lawrence.—Total freight traffic increased 125,587 tons, or 24%, but passenger traffic decreased slightly, being 8,412 against 8,571 for Sept., 1921. Corn shipments declined 51,317 tons, but rye increased 43,141 tons and wheat increased 116,053 tons or 3,868,400 bush. The total shipments of wheat since the opening of navigation were 39,463,800 bush., an increase of 17,029,200 over the same period in 1921. Iron and steel increased 7,652 tons over Sept., 1921, and for the season increased 47,968 tons over 1921. Pulpwood increased 53,294 tons for the season, although September shipments showed a slight decline. Coal shipments had not reached last year's record, although they showed considerable increase over Aug., 1922.

Measuring Ocean Depths.—The U.S. Navy Department is reported to have developed a new device for measuring ocean depths, and also for enabling navigators to take soundings easily, at any time they desire. The device employs a sound apparatus similar to that used for submarine detection, the principle being the creation of a sound aboard the ship and the measuring of time between the sound and the return of the echo from the ocean bottom. It is said that the time can thus be obtained within one-thousandth part of a second.

H.M.S. Raleigh's Wreck in Belle Isle Strait Investigated.

Canadian Railway and Marine World for November contained a short report of the court martial in connection with the loss of H.M.S. Raleigh, flagship of Admiral Sir William Pakenham, Commander in Chief of the North America and West Indies station, at Amour Point, Belle Isle Strait, on Aug. 8. Capt. C. K. Maclean, Chief of Staff to the Commander in Chief at Portsmouth, was President of the Court, which was opened at Portsmouth, Eng., Oct. 25. Capt. H. O. Reinold was prosecutor, and Commander J. H. D. Cunningham and Paymaster Lieutenant E. Hazlehurst, acted as friends of Commander Leslie Charles Bott, O.B.E., who was charged with having negligently or by default, stranded and lost the ship, to which he pleaded not guilty.

The circumstantial letter read by the Deputy Judge Advocate, Paymaster Rear-Admiral F. J. Krabbe, stated that the evidence appeared to indicate that Commander Bott was to blame for failing to point out to the captain the extreme navigation risks which were being run; for not starting sounding sooner and for not using both sounding machines; for not reducing speed on his own initiative and immediately informing the captain when the density of the fog increased; and for not pointing out to the captain that the conditions of visibility in close proximity to Forteau Bay, the ship's destination, could be obtained from the wireless station on Amour Point as the ship approached Forteau Bay.

Capt. Arthur Bromley, who was in command of the Raleigh on Aug. 8, stated that the ship struck at a speed of about 8 knots. So far as he could remember the original suggestion for a reduction of speed came from him. He did not hear the fog signal on Amour Point before the ship grounded, but he heard it afterwards. A conference was held as to the advisability of attempting to save the Raleigh, but a telegram afterwards from the Admiralty stated that they would not proceed with the salvage work. After further evidence the case for the prosecution was closed and the

court adjourned till next day. At the resumed hearing, Commander Bott submitted that there was no reason, before altering course, to expect thick weather, and that when fog was encountered, its extent and density were not immediately appreciated either by the captain, the officer of the watch, or himself. As to the suggestion that he should have begun taking soundings sooner, he said that these were started soon after the ship was steadied on her course on which she was to approach land. Until that time he was satisfied that the safe navigation of the ship did not require the sounding party to be closed up, and the officer of the watch shared that opinion. With reference to the suggestion that he should have reduced speed on his own initiative when the ship ran into thick weather, he said that while at the sounding machine he learned that the captain had gone on the bridge, and it seemed obvious to him that the captain would reduce speed if he considered that necessary. He submitted that no alternative action on his part would have prevented the accident, in view of the fact that the main cause of the ship stranding was the serious inaccuracy of the published charts.

The court found that the charge of negligently or by default stranding and losing the Raleigh was proved, and that the stranding was due to the accused having made an alteration of course without having definitely ascertained the position of the ship before doing so; and omitted to act in accordance with the directions in the King's Regulations and Admiralty Instructions, article 1,018 and request the officer of the watch, in the absence of the captain, to take immediate action to reduce the speed of the ship to slow, when the Labrador coast was lost sight of. The court considered that the discrepancy between charts 284 and 1,631, as regards the longitude of Amour Point lighthouse being 0.65 of a mile out, was not a contributory cause of the stranding of the ship; and in view of the warnings issued in the Sailing Directions, Newfoundland and Lab-

rador Pilot, vol. I., and St. Lawrence Pilot, vol. I., the risks accepted by the accused were quite unjustifiable. The sentence was that the accused, whose certificates spoke highly of his ability as a navigating officer, should be dismissed H.M.S. Victory and severely reprimanded.

Capt. Arthur Bromley, C.M.G., who commanded the Raleigh was tried by court martial, Oct. 27, on the charge of negligently or by default stranding and losing his ship. Rear-Admiral H. F. P. Sinclair was president of the court. In his defence, Capt. Bromley pointed out that it had been proved that Amour Point was charted on the charts in use in the Raleigh, 1 min. of longitude to the eastward of its true position, while Ferrolle Point, off which the ship was fixed last, was charted only 0.4 min. of longitude to the eastward of its true position. It had also been proved that had these two points been correctly charted the Raleigh would have passed 3.9 cables clear to the westward of the point on which she stranded. As the charts officially supplied to him for navigating purposes were responsible for the stranding, he submitted that the charge against him had not been proved. The court found the charge proved, on the ground that the accused did not go on the bridge early enough, and that after arriving there he did not take immediate steps to have the speed of the ship reduced. The sentence was that the accused should be reprimanded, and dismissed his ship.

A London press dispatch of Nov. 5, stated that the Admiralty had announced that Vice Admiral Sir Michael Culme-Seymour who had been second in command of the Mediterranean fleet since 1920 had been appointed Commander in Chief of the North America and West Indies station, in succession to Admiral Sir William Pakenham. It is not stated whether the new appointment is in any way connected with the courts martial respecting the loss of the Raleigh, or is due to the expiration of Sir William Pakenham's appointment by effluxion of time.

Ships Registered in Canada During August, 1922.

In compiling the following lists of ships registered, steamboats and motorboats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, n.h.p. etc.	Owner or Managing Owner	
116340	Alexandra(1)	Ottawa, Ont.	Timiskaming, Que.	1903	136.0	26.4	8.3	490	249	810 Sc.	The Upper Ottawa Improvement Co., Ltd., Ottawa, Ont.
134458	Emily Stewart	Toronto	Toronto	1914	75.8	19.0	8.5	102	42	10 Sc.	Toronto Harbor Commissioners, Toronto.
111969	Freda S(2)*	Picton, Ont.	Alexandria Bay, N.Y.	1903	65.7	10.2	3.7	17	11	40 Sc.	E. C. Scott, Picton, Ont.
150670	J. W. P.	Vancouver, B.C.	Vancouver, B.C.	1920	60.0	18.0	8.7	59	25	13 Sc.	J. W. Pike, Vancouver, B.C.
85415	Mary Stewart	Toronto	St. Catharines, Ont.	1882	74.6	17.9	7.6	91	43	28 Sc.	Toronto Harbor Commissioners, Toronto.
141645	Maxwell C*	Liverpool, N.S.	Little Brook, N.S.	1920	125.7	27.6	11.0	235	171	100 Sc.	Revillon Frères Trading Co., Montreal.
150708	Montrolite	Montreal	Seattle, Wash.	1918	421.4	57.3	31.7	7116	3997	242 Sc.	Imperial Oil Ltd., Toronto.
150709	N. H. Botsford	Montreal	Three Rivers, Que.	1922	251.2	43.0	18.1	2068	1219	150 Sc.	Fraser Brace Ltd., Montreal.
106012	Orthia	Quebec, Que.	Sunderland, Eng.	1896	377.0	46.0	26.9	4225	2694	400 Sc.	C. J. Sewell, Quebec, Que.
140034	Toedjoe	Montreal	West Hartlepool, Eng.	1915	170.0	31.2	10.7	513	168	97 Sc.	Shell Co. of Canada, Montreal.
(1) Formerly a sailing ship. (2) Formerly Amorita. *motorboat.											

(1) Formerly a sailing ship. (2) Formerly Amorita. *motorboat.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owner or Managing Owner	
141847	Andron L(1).....	Quebec, Que.....	Barge.....	Three Rivers, Que.....	1919	195.3	40.3	15.2	991	932	Transportation & Shipping Co., Quebec, Que.
150745	K. 54..... (1) Formerly a steamship.	Vancouver, B.C.....	Scow.....	Eburne, B.C.	1922	86.0	32.0	8.9	209	209	S. S. McKeen, Vancouver, B.C.

(1) Formerly a steamship.

Wage Dispute. C. P. R. British Columbia Lake and River Service.

The board of conciliation consisting of R. S. Lennie, chairman, E. A. James, representing the company, and John Fyfe for the men, which, as stated in our last issue, was appointed to deal with the dispute between the C.P.R. and its employees on its British Columbia lake and river steamship service, sat during the latter part of October and in November. The men concerned include the masters, deck officers and engineers on the company's light draft stern wheel steamboats, and tug boats handling car barges, operating on the interior lakes and rivers in British Columbia. The particular point of their complaint is objecting to reductions made in their wages a little over a year ago, which were made in common with reductions in the pay of other employees, both on the railway and steamships. Since that reduction further reductions have been made in the pay of other railway employees, but no further reduction has been made in the pay of the steamboat men concerned in this present dispute. It is generally supposed that the object in obtaining this board of conciliation was to try and discourage any further reductions in pay to correspond with the reductions made in the pay of men on the railway. The application for a conciliation board was made by the Canadian Navigators Federation and the International Association of Marine Engineers comprising officers and engineers on coast steamships operated by various companies between Alaska and Puget Sound. The company contended that the work of operating light draft lake and river steamboats does not in any way compare with deep sea operation, the qualification of the officers not being nearly so strict, and the work being easier in every way. The company filed with the board of conciliation, a statement showing rates paid to deck officers and engineers by a U.S. company operating similar steamboats on similar waters, viz., the Columbia, Willamette and Snake Rivers, etc., and these figures show that the C.P.R. is paying higher wages than the U.S. company for similar work. It is contended that this comparison is a perfectly fair one and the company's evidence was put in to justify the 10% reduction it made in Oct., 1921.

Captain Foote Protests Against Suspension of Coasting Laws.

Captain J. B. Foote, of Toronto, wrote Hon. C. Stewart, acting Minister of Trade and Commerce, Nov. 10, as follows:—"At the present moment the Canadian Government Merchant Marine, has 8 ships engaged in the carriage of grain from Fort William to Georgian Bay ports. If it appeared that reasonable dispatch might obtain, the management might add to this fleet now on the lakes; and roughly, these ships, with normal dispatch, would carry and deliver about 1,200,000 bushels of wheat every 9 or 10 days; and incidentally earn a little money. Every United States ship that delivers a cargo to the already badly congested ports of Georgian Bay, impairs the dispatch and earning power of the government owned boats; and other Canadian tonnage, to just the extent of time it takes to provide cars to unload her and move her cargo. As that has occurred many times and often this autumn, when

United States ships from Duluth and Chicago have delivered cargoes at Georgian Bay ports, it may, I assume, be taken for granted that the Canadian public will not be called upon to witness one department of the government trying to make a profit, or at least avoid a deficit on their ships, while another department aggravates the existing congested situation by a suspension of the coasting laws. As the Minister of Marine comes from a province that is vitally interested in shipbuilding, I am presuming to send him a copy of this letter."

Mathews Steamship Co's Financing.

The Mathews Steamship Co., Toronto, issued recently, \$400,000 ten-year serial 1st mortgage bonds at 7%, maturing \$40,000 annually to Sept. 15, 1933, callable at 60 days notice at 102½ and accrued interest. The company has an authorized common stock of \$2,000,000, of which \$600,000 is issued. It has also issued 7% first mortgage serial bonds against the steamships Mathewston and Berryton, for \$400,000, and against the steamships Riverton and Laketon, for \$300,000. The prospectus states that the company was incorporated in 1905 and that it owns and operates steamships aggregating 63,000 d.w. tons, engaged almost entirely in carrying grain from the head of the Great Lakes to Montreal, the total carrying capacity of the fleet per trip being about 2,300,000 bush. of wheat. The President states that "The average annual net earnings derived from operations, after depreciations and taxes, for the five years ended Jan. 31, 1922, amounted to almost five times the total interest charges on the bonds now outstanding, including the present issue. Preliminary figures for the first half of 1922, indicate that the earnings for this year will be considerably in excess of the above proportion."

Canadian Notices to Mariners.

The Marine Department has issued the following,—

62. Oct. 6.—174, Nova Scotia, south coast, entrance to Port Latour, changes in buoyage. 175, Quebec, St. Lawrence River, between Quebec and Montreal, vicinity of Cap Madeleine and Three Rivers, change in character of buoys.

63. Oct. 23.—176, Ontario, Lake Huron, Great Duck Island, character and characteristic of fog alarm to be changed. 177, United States, Detroit River, Mama-juda light wreck. 178, United States, Detroit River, Lake Huron, Lake Superior, and connecting waters, aids to be discontinued for winter.

64. Oct. 23.—179, British Columbia, Seaforth Channel, uncharted rocks.

65. Oct. 26.—180, New Brunswick, Bay of Fundy, entrance to Musquash Harbor, character of buoy to be changed. 181.—Quebec, St. Lawrence River, between Quebec and Montreal, foot of Lake St. Peter, new edition of chart. 182, Newfoundland, North Coast, Jacques Cartier Island (Noble Island), light re-established.

66. Oct. 28.—183, Ontario, St. Lawrence River, Cornwall Island to Cardinal, new chart. 184, Ontario, Lake Erie, west end, Middle Island, light to be discontinued. 185, Ontario, Lake Superior, Cape Gargantua to Otter Head, new chart.

67. Nov. 2.—186, British Columbia, Vancouver Island, Kyuquot Sound, Amos Island, beacon established. 187, British Columbia, Vancouver Island, Barkley

Sound, David Channel, Richard Rock, beacon established. 188, British Columbia, Seaforth Channel, uncharted rocks.

68, Nov. 4.—189, Quebec, St. Lawrence River below Quebec, Red Islet, new light-ship to be placed. 190, Quebec, St. Lawrence River below Quebec, Cap au Corbeau, fog bell discontinued.

Canada Steamship Lines' Earnings.

In accordance with an announcement made recently by W. H. Coverdale, President, Canada Steamship Lines Ltd., the first of the periodic statements of its earnings, has been given out, for the 9 months ended Sept. 30. It shows total operating revenue of \$8,426,000, and net operating revenue of \$1,363,000, with interest charges of \$540,000. Figures for the same period of 1921 are not available, so that a direct comparison cannot be made. The monthly averages for the 9 months ended Sept. 30, 1922, were, gross revenue \$936,222; net revenue \$151,444; interest charges \$60,000, and the monthly averages for the complete year of 1921, were, gross revenue \$1,053,084; net revenue \$183,576; interest charges \$53,662. The heaviest freight traffic is during the last three months of the year, so that the monthly averages quoted are not altogether a fair comparison.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Dominion Insulator & Manufacturing Co., Ltd., a division of the Ohio Brass Co., is building a factory at Niagara Falls, Ont., for manufacturing high tension porcelain insulators and other O-B products, such as trolley materials and rail bonds, for electric railways and mines, electric car equipment, and steam railway electrification materials.

The Smart-Turner Machine Co., Hamilton, Ont., reports the following orders: Marine & Fisheries Department, 10 small triplex power pumps, for shipment to Dominion Lighthouse Depot at Prescott, Ont. Essondale Asylum, Vancouver, pair of 8 x 10 x 12 simplex vacuum pumps on one base plate; 2 motor driven centrifugal circulating pumps, and automatic feed pump and receiver equipment, with motor driven centrifugal pump. Vipond-North-Thomson mines, Timmins, Ont., 5½ x 6 triplex power pump. Abso-Pure Ice Co., Hamilton, 2 no. 4 double suction centrifugal pumps, to be direct connected to electric motors. H. F. Routley, Toronto, no. 4, belt driven, centrifugal pump, for quarry near Caledonia. Standard Paving Co., Lindsay, Ont., duplex packed piston pump, 4½ x 2¾ x 4.

Transportation Conventions in 1923.

Jan. 23.—American Wood Preservers Association, New Orleans, La.; S. D. Cooper, Atcheson, Topeka & Santa Fe Rd., Topeka, Kan.
May 1 to 4.—Air Brake Association, Denver, Col.; F. M. Nellis, 165 Broadway, New York.
June 18.—American Train Dispatchers Association, Chicago; C. L. Darling, 1310 Mellers Building, Chicago, Ill.

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under
Positions wanted and Positions Vacant, 3c. per word.
Equipment for Sale advertisements, 4c. per word.
Allow five words where replies are to be sent to a box number. Minimum order—\$1.
Rates under other headings and for display advertisements on application.

Modern Marine Machinery

Automatic Steam Towing Machines, Ship Windlasses, Cargo and Deck Winches, Steam Capstans, Dock Gypsies, Steering Engines, Hydraulic Hoists, etc.

Manufactured by the

CORBET FOUNDRY & MACHINE CO., LIMITED
Owen Sound, Canada

NOTICE.

The General Railway Signal Company of the United States of America, the owner of the exclusive rights to Canadian patents No. 92323, No. 92127, No. 96256, and No. 97758, issued to Youne and Townsend, and covering methods of signalling electrified railways, wishes to call the attention of all possible users of the devices and systems covered by such patents to the fact that it is prepared to sell and furnish, at short notice, all such devices and to install such systems upon any railway in the Dominion of Canada.

All inquiries regarding the above should be addressed to The General Railway Signal Company of Canada, Limited, Lachine, Province of Quebec, Canada.

REDEMPTION OF

CANADIAN NORTHERN RAILWAY COMPANY

5% Land Mortgage Debentures.

Notice is hereby given that on December 1st, 1922, the Canadian Northern Railway Company intends to redeem all the above Debentures now outstanding, and which in ordinary course would not mature till June 1st, 1923. The December 1st coupons will be paid on December 1st at the usual places in the usual way.

Debentures of the above issue, together with the June 1st, 1923, coupon attached, should, in accordance with the terms of the Trust Deed securing them, be presented for payment at Lloyd's Bank Limited, 72 Lombard Street, London, E. C., England. The Debentures should be received by the bank three days before December 1st. Interest on the Debentures will cease as of December 1st.

This notice is given in addition to the formal notices required under the above Trust Deed and already duly given.

CANADIAN NORTHERN RAILWAY COMPANY,

Toronto, November 4th, 1922. R. P. ORMSBY, Secretary.

CANADIAN PACIFIC RAILWAY COMPANY Dividend Notice

At a meeting of the Board of Directors held today a dividend of two and one-half per cent. on the Common Stock for the quarter ended 30th September last, being at the rate of seven per cent. per annum and in addition three per cent. per annum from Special Income Account, was declared payable on 30th December next to Shareholders of record at 3 p.m. on 1st December next.

By order of the Board,

ERNEST ALEXANDER,
Secretary.

Montreal,
13th November, 1922.

THE VICTORIA ROLLING STOCK & REALTY CO. OF ONTARIO, LIMITED.

Notice is hereby given that a dividend of five per cent. on the paid-up capital stock of the Company for the half-year ended Nov. 30, 1922, has been declared payable Dec. 1st, 1922, to the shareholders on record as of 30th of Nov., 1922.

G. T. CHISHOLM, Secretary.

Toronto, Nov. 22nd, 1922.

Position Wanted

RESPONSIBLE POSITION wanted, Traffic or Operating Department of marine transportation company, by young married man. Experienced in inland steamships. Holds diploma for Interstate commerce and railway traffic course. Best references. Address—P.O. Box 54, Kenogami, Que.

Don. M. Campbell
Preston, Ont.

**Overhead Material
Cedar Poles
Fields and Coils
Sweeper Supplies**

CANADIAN BRONZE LIMITED

Brass Wearing Parts for Locomotives. Journal Bearings for Freight and Passenger Service. BABBITS. Miscellaneous Brass Castings for Railroads.

Works and Office: 69 Delorimier Avenue, MONTREAL, QUE.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries, unless otherwise stated:—

American Association of Port Authorities—T. S. McChesney, New Orleans Port Commission, New Orleans, La.

Canadian Car Demurrage Bureau, Eastern Lines—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal. Western Lines—F. W. Thomson, acting Chairman, 805 Boyd Bldg., Winnipeg, Man.

Canadian Electric Railway Association—D. N. Gill, 248 Albert St., Ottawa, Ont.

Canadian Freight Association—Eastern Lines, G. C. Ransom, Chairman, 909 Shaughnessy Building, Montreal.—Western Lines, F. W. Thompson, acting Chairman, 805 Boyd Building, Winnipeg.

Canadian Passenger Association—Eastern Lines, G. H. Webster, 54 Beaver Hall Hill, Montreal.—Western Lines, E. J. Stone, 306 Union Station, Winnipeg.

Canadian Railway Board of Adjustment No. 1—R. Chapole, 263 St. James Street, Montreal.

Canadian Railway Club—W. A. Booth, 53 Rushbrooke Street, Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Canadian Traffic League—H. W. Blahout, 950 Woodbine Avenue, Toronto.

Dominion Marine Association—F. King, K.C., Counsel, Kingston, Ont.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield Street, Montreal.

Express Traffic Association of Canada—C. N. Ham, 137 McGill Street, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, Des Moines, Iowa.

Niagara Frontier Summer Rate Committee—James Morrison, Canadian National Rvs., Montreal.

Quebec Transportation Club—A. F. Dion, 131 Dalhousie Street, Quebec, Que.

Railway Association of Canada—C. P. Riddell, General Secretary, 263 St. James Street, Montreal.

Western Operating Committee, E. J. Stone, 306 Union Station, Winnipeg.

Shipping Federation of Canada—Thomas Robb, Manager, 42 St. Sacramento Street, Montreal.

Transportation Club of Toronto—W. J. Hotrum, 595 Rymynede Road, Toronto.

Transportation Club of Vancouver—C. A. Dorrfler, 450 Hastings Street West, Vancouver, B.C.

Winnipeg Traffic Club—A. J. Barber, 114 Cadomin Building, Winnipeg, Man.

ENAMELED IRON SIGNS

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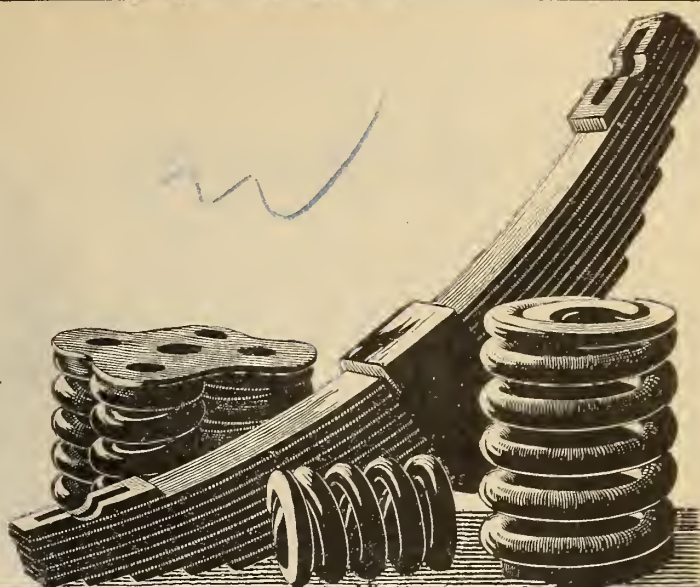
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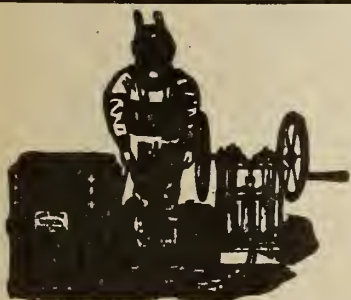
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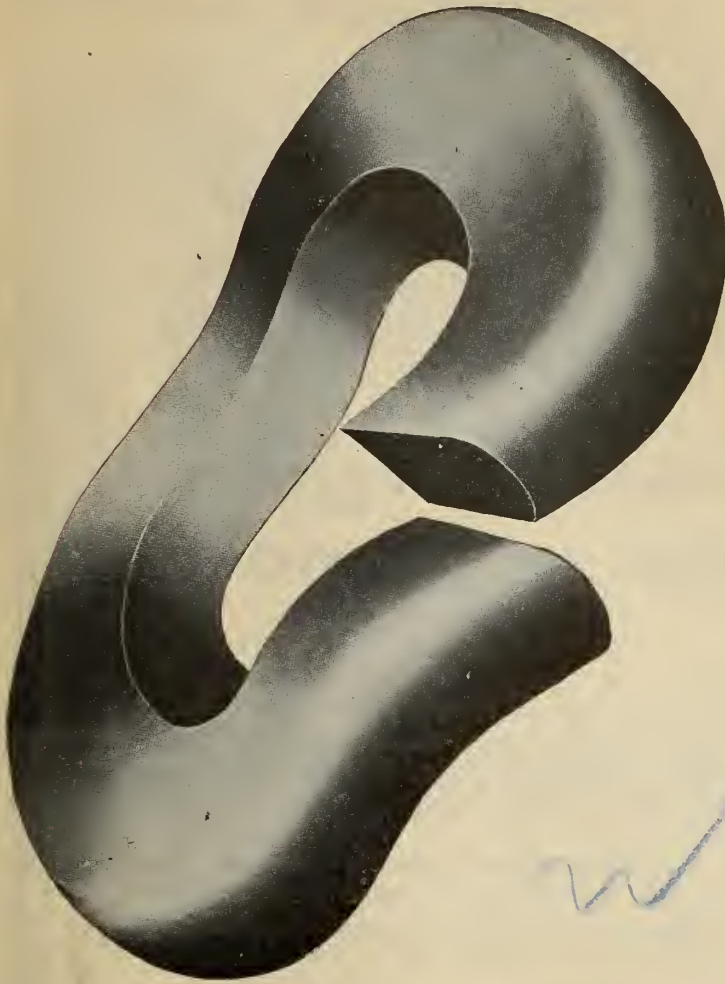
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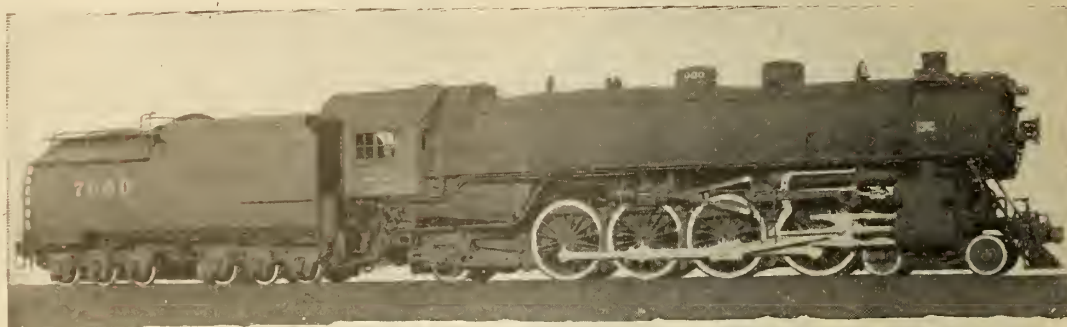
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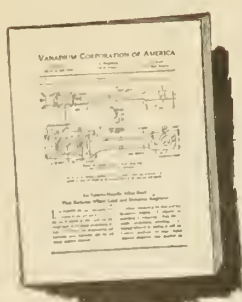
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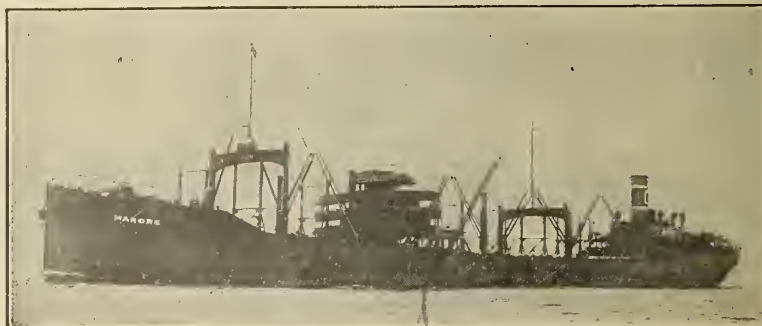
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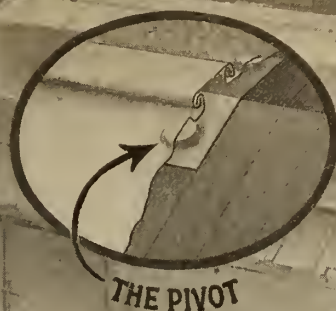
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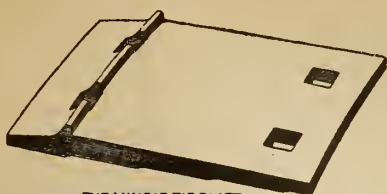
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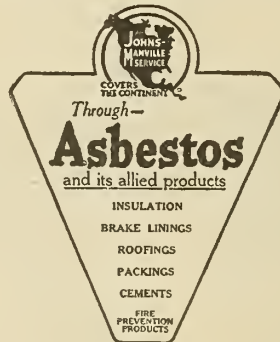
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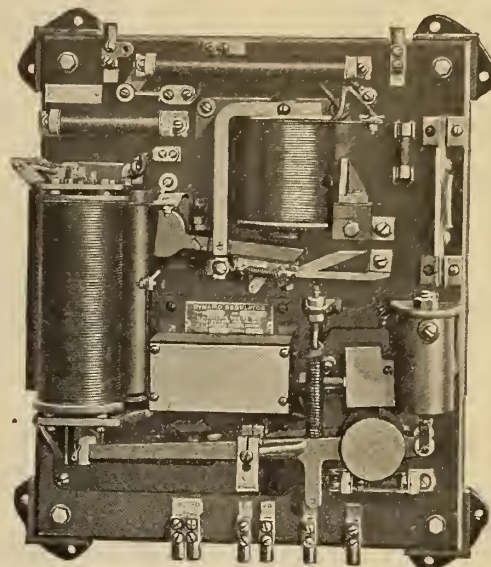
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| 1 Cylinder Bushing | 6 Valve Bull Rings |
| 2 Cylinder Packing | 7 Crosshead Shoes |
| 3 Piston—Piston Bull Ring | 8 Knuckle Pin Bushings |
| 4 Valve Bushing | 9 Pedestal Shoes and Wedges |
| 5 Valve Packing | 10 Driving Boxes |

LOOK AHEAD

Start the new year right by purchasing and applying the proper material for your locomotives.

Hunt-Spiller Gun Iron Gives Results

Made only by

Hunt-Spiller Manufacturing Corporation

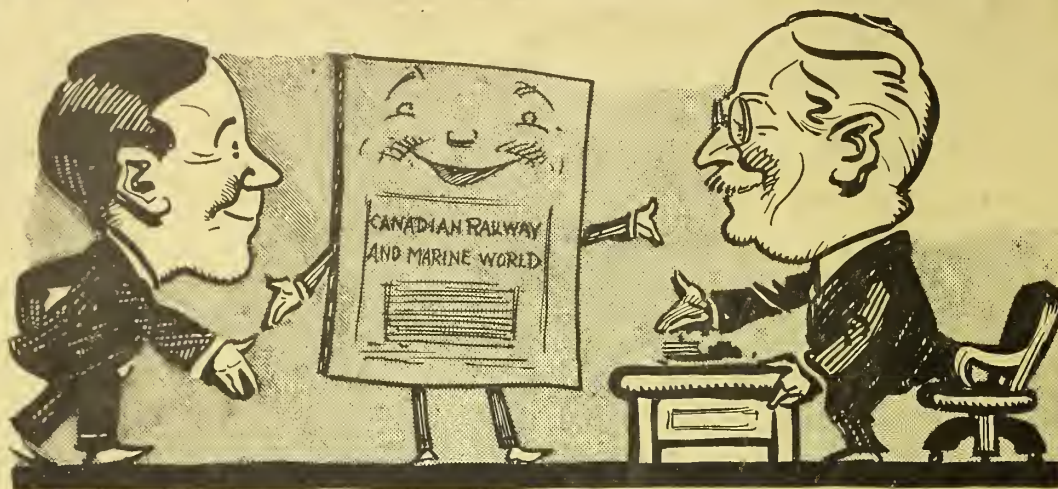
W. B. LEACH, Pres. & Gen. Mgr.

Office and Works:

J. G. PLATT, Vice-Pres. & Sales Mgr.

383 Dorchester Ave., SOUTH BOSTON, 27 Mass.

Canadian Representative: Canuck Supply Co., Ltd., 371 Aqueduct St., Montreal, P. Q.



Our "Introduction" is Like a Letter From a Friend

You men who sell things know how hard it is for you to get to the responsible department heads of large corporations.

Not because they are not interested in what you have to say and to sell; but because there are too many of you and too few minutes in a working day.

The result is, that they see the few whom they feel they know and can depend on, and turn away the many who have not yet "qualified."

A favorite artifice of some salesmen is to make the acquaintance of a friend of the man they wish to see, and to carry from that friend a letter of introduction that will penetrate beyond the purview of "his majesty the doorkeeper."

But, a better plan than that, because more direct and more all-inclu-

sive, is to carry out an intelligent, information-giving advertising campaign in

CANADIAN RAILWAY AND MARINE WORLD

We say this advisedly, at the suggestion of more than one busy official; for bear in mind that the man who bears on his shoulders the responsibility of recommending, specifying or buying, equipment or materials feels the need of honest information—is hungry for facts and weary of time-eating interviews with salesmen.

The sort of advertising they want you to print in their paper will open the doors to your salesmen; shorten the route to distinguished preferment and fill their orders books—if their goods are worthy and their prices right.

CANADIAN RAILWAY AND MARINE WORLD

Toronto

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*Audit Bureau of Circulations, Associated Business Papers,
Canadian National Newspapers and Periodicals Association,
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